

# FUTURE

*of the Visegrad Group*



ABBREVIATED VERSION:  
**THE FUTURE OF ENTREPRENEURSHIP**



Lesław A. Paga  
Foundation



Visegrad Fund

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## FOREWORD



**Wojciech Przybylski**

Editor-in-chief  
of Eurozine & Visegrad Insight  
Chairman of Res Publica Foundation

2016 marks a quarter of a century in a pro-Western trajectory of four Visegrad countries. The group, formally established on February 15th, has had two basic goals. One was to join NATO to increase security and independence from Moscow. The second was to join the common European (Western) project for prosperity and security of our societies. Both goals seemed to have been fulfilled in 2004.

The Visegrad countries have been co-coordinating their diplomatic efforts to facilitate the withdrawal of the Red Army from their territories, finally accomplished in 1993 - at first, before the formal establishment of the cooperation. Then, parallel efforts to meet harsh criteria of accession were made. One may argue which of those processes have been more transformative. There is no doubt, however, the economy and infrastructure would not be developed without the process of EU enlargement, if not an unprecedented effort by Central European societies to reform, rebuild, and modernize that has been met by support comparable only to the Marshall Plan funds for Germany launched in 1948.

One may compare the process of change to a train trip. The departure station has been somewhere in the east, the next station was in the west, but currently the destination is unknown. We had to speed up the train and set up its tracks to get to where we are. Once set in motion, the train is still on the move. The growing ambitions and appetites reinforce and push the European project further, with its economic, infrastructural, and political potential. Today, the New Europe does not mean solely that much of a political struggle for independence in geopolitical terms, but more a search for new engines of growth and development. The Visegrad Group is exploring this direction and seeks to improve its own, hence European competitiveness. Under the EU strategy, the V4 countries seek development through innovation, healthy fiscal policies, and bettering energy and transportation infrastructure. Often, those efforts are blurred and overshadowed by current political developments. But by any means, they are not supposed to be disregarded. They are one of cornerstones to secure the fundamental accomplishments of those last 25 years.

Therefore, it must be stressed this report explores the key areas of future cooperation. It is an explorative and informative reading, prepared by the future leaders, who at an early stage of their careers, demonstrate how a visionary approach may meet excellent analytical skills. If one wondered about the future after 25 years of cooperation, one finds many answers in this report. It is a must read for all interested in prospects of the European project from the Central European perspective.

# ACKNOWLEDGMENTS

This publication originates from a sincere concern about the region's future. Being proud of the region's development over the last 25 years we were looking for ways to influence its development in future. Seeking for like-minded supporters, we have found exceptional people, who supported us in our endeavours of creating this report.

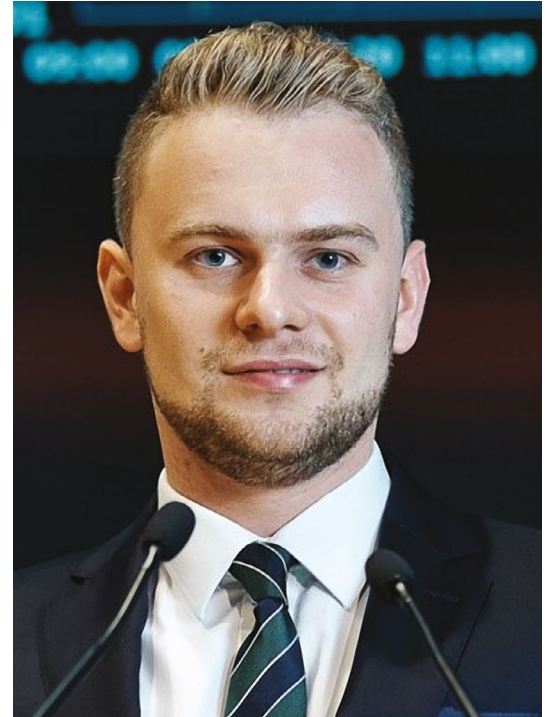
First of all, we would like to recognize the invaluable contribution of the Lesław A. Paga Foundation, which daily inspires us to thrive for the best in our professional and personal lives. The Foundation has constantly supported us throughout all stages of the project – from finding an appropriate team to enabling us to contribute to the public debate with our findings. This report would not be possible without the Lesław A. Paga Foundation.

We wish to thank Global Shapers Warsaw Hub, which supported us with providing us with an exceptional network of brilliant minds. We hope that the ongoing feedback on our ideas helped the report to become visionary and practical at the same time. We highly appreciate the support of all the reviewers engaged from across the region, who generously invested their time and ideas in our initiative. We would like to thank you in detail at the end of our report. We wish to acknowledge the support provided by our partners Aspen Institute Prague, Republikon Institute from Hungary, Res Publica from Poland and the International Visegrad Fund, which funds this publication. We are looking forward to further initiatives to facilitate the collaboration of Visegrad.

Finally, we give our sincerest thanks to the whole team of V4 Future: Joanna Rycerz, Petra Kaciakova, Damian Szewczyk, Sebastian Wieczorek, Zsombor Incze, Tomasz Nisztuk, Ondřej Dvouletý, Dominik Keil and Piotr Krzemiński. The debates from across the region proved not always to be easy, but worthwhile!

Sincerely Yours,

**Damian Polok and Paweł Michalski**  
Project Leaders V4 Future



Damian Polok



Paweł Michalski

# ABOUT THE LESŁAW A. PAGA FOUNDATION

Since 2003, the Lesław A. Paga Foundation has enabled young leaders to excel their potentials by actively contributing to the shape of the region's future. The foundation aims at creating a network of highly ambitious students and young professionals, who not only seek to advance in their professional lives, but also want to make an impact in their immediate environment and society. Our educational projects cover the fields of:

- Capital markets (Capital Market Leaders Academy, CEE Capital Market Leaders Forum),
- Energetics (Academy of Energy; New Energy Forum),
- Healthcare (Healthcare Leaders),
- Technology and innovations (Young Innovators, Innovation Day)
- Media (Academy of Analysis and Media)

The Alumni of the Foundation are given unique chances to learn from the best experts and gain practical experience in over 70 partner companies. There are about 500 Alumni, who support each other not only professionally, but also on the private ground.

It is also our mission to promote the highest ethical standards and culture among entrepreneurs. This is why, every year, we grant the Lesław A. Paga award to businessmen, activists, and institutions. This honorary distinction constitutes a commemoration of our Patron's work. In previous years, the winners were: Krzysztof Lis, Leszek Czarnecki, Leszek Balcerowicz, Igor Chalupec, Joseph Wancer, Janusz Lewandowski, prof. Grzegorz Domański, Zygmunt Solorz-Żak, prof. Marek Belka, Jacek Siwicki, and Hebert Wirth.

Our vision of promoting the highest ethical standards is not limited to professionals and students. We give secondary school students the opportunity to participate in the Stock Market Game (SIGG), and those who finish their secondary education can apply for the Indeks Start2Star Scholarship, awarded during the whole period of studies.

Apart from our regular projects, we organize conferences, workshops, and lectures, whose speakers are the best specialists of the Polish and European markets.



**Lesław A. Paga**  
**Foundation**

## CEE Capital Market Leaders Forum

In 2014, the Lesław A. Paga Foundation organized, with the Warsaw Stock Exchange as the strategic partner, the first edition of international CEE Capital Market Leaders Forum. We are proud of organizing the first event for bringing together and growing new generations of capital market leaders.

The main idea of the event is to establish a communication platform for regional peers, which enables young leaders to experience and participate in professional workshops that combine theoretical knowledge with capital market practice. The Forum intends to create a framework to create lifetime networks, aimed at developing future international collaboration in the center of Europe.

## Lesław A. Paga (24.09.1954 – 02.07.2003)

Lesław A. Paga was one of the forefathers of the capital market in Poland. As an expert in macroeconomics, ownership transformation, and capital market sector, he co-created the Polish Securities Trading Act, the Act on Bonds, and other securities trading acts of law. He specialized in managing enterprises, strategy, and restructuring. He conducted projects related to an enterprise strategic assessment, managing by values, investors' relations, and investigations concerning financial crimes.

Lesław A. Paga was respected by entrepreneurs and all political wings. After 1989, he was advisor to various prime ministers. Faced with corruption scandals in Poland and other countries, he fought for corporate governance, transparency, invitations to tender, and any business activity. He was a tough negotiator, devoted to his mission. Notwithstanding difficulties, he always examined problems holistically.

Lesław A. Paga was a versatile person - having graduated from science studies, he also took interest in the humanistic field. He was fascinated with classical music, contemporary literature, and theatre. He enjoyed directing. Lesław A. Paga was a creative man, whose enthusiasm and positive attitude towards life motivated other people.



# FUTURE

*of the Visegrad Group*



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# INTRODUCTION INTO THE PROJECT

*[We, the young] should develop our vision, we should have a view that in a sense a prescientific of what the game is about, about the way the beast functions, about the way the various parts of economics and social science are related and, yes, about our own maps of Utopia. Once we have a vision, then our control of theory, our command of institutional detail, and our knowledge of history are to be marshalled to support the vision.*

*- Hyman P. Minsky*

The Visegrad Group celebrates its 25th anniversary. The 1991 meeting in the city of Visegrad, old capital of Hungary, provided for a link to a meeting held almost 7 centuries ago at the same place. In 1335, the Visegrad Castle hosted King of Bohemia John of Luxembourg, King of Poland Casimir II, and King of Hungary Charles I of Anjou. The first Visegrad meeting tried to establish closer relationship and cooperation among the three kings and their states. The aim of both were the same – to guarantee peace and facilitate cooperation.

In both cases, the members of the Group agreed on many things they had in common. In the 90s, the former communist countries, with historical enmity often resulting in open struggles, saw a possibility to join forces, once again, to jumpstart their European integration process. And so, on 15th February 1991, at a meeting of the President of the Czechoslovak Republic Václav Havel, the President of the Republic of Poland Lech Wałęsa, and the Prime Minister of the Republic of Hungary József Antall, the Visegrad Group was established. With the dissolution of Czechoslovakia, in 1993, into two independent countries -the Czech Republic and the Slovak Republic, the Group grew into four members. From that time, the Group is commonly referred to as the Visegrad Four or V4.

Before the establishment of the International Visegrad Fund, in 1999, there were no common agendas, nor regular meetings and discussion among the Group Members, except for NATO and European Union enlargement talks. Then, in 2002, the Expert Working Group on Energy commenced its works. After the V4 countries joined the European Union on May 1st 2004, the regional cooperation precipitated. In 2011, the Group formed the Visegrad battlegroup to serve as an EU Battlegroup in 2016 and in 2019. Some successful trade and diplomatic initiatives happened along the way. And so, the 25 years passed.

The fathers of V4 created foundations and new forms of political, economic, and cultural cooperation in the altered Central Europe. They strived to achieve full restitution of state independence, democracy, and freedom after decades of a totalitarian system. And they, we succeeded on many fronts. But these achievements are merely a stepping stone. New challenges lie ahead of us, and we need to aim high, once again. Especially in terms of economic cooperation, there is a lot to be done to reveal the full potential of the V4 countries. In our mid-20s, we are the V4 offspring, and it is our generation that will shape the next 25 years of the Group. We feel responsible for our countries, and that is why we decided to speak up about the future in which we would like to live.

Just as the regional rulers in the XIVth century and democratic presidents in the 1990s, we were looking for ways to join forces and face the upcoming challenges. That is why we prepared recommendations for the next steps to be taken to improve V4 cooperation. Although our ideas are often supported by numerical data, our aim was to be visionary, therefore, more qualitative than quantitative. We hope for this report to start a serious discussion about the future and a true dialogue between generations. In the months following the publication of this report, we plan to build on this idea. We hope to mobilize experts, industry specialists, business leaders, and public officials to help us prepare detailed plans to achieve our goals.

*Dear Reader, we wish you an inspiring lecture. And for you, dear Visegrad Group, we wish all the best for the 25th birthday. Let the next 25 be even better!*

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# INTRODUCTION INTO THE REPORT

*"Know from whence you came. If you know whence you came, there are absolutely no limitations to where you can go."*

*- James Baldwin*

To shape the future, it is necessary to analyse the past. Therefore, before exploring our potential, we gathered a wide range of information on our economic development over the last 25 years. This data is not exhaustive, but will give our readers a rough picture of what the V4 countries have accomplished so far.





The following chapters present our vision on the V4 economic development in the fields of entrepreneurship, finance, energy, and infrastructure. We also prepared a short case discussion on the matter of adopting EURO as a common currency in all Visegrad countries. We hope, in the months and years to come, we can build upon our recommendations and actively participate in the ongoing transformation of our economies.

# 1. VISEGRAD GROUP ECONOMIES UNVAILED

Ondřej Dvouletý

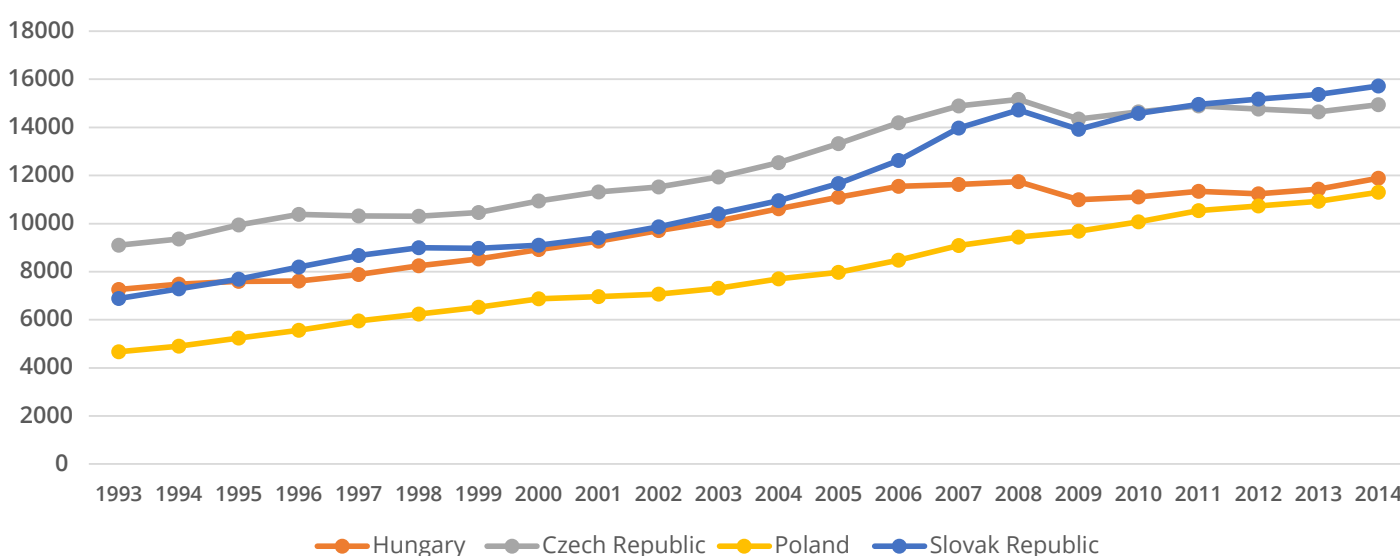
Over the last 25 years, the V4 countries grew significantly and became **richer in economic terms** (Table 1). This can be observed in the development of the life expectancy rates and the GDP per capita (Figure 1). After the fall of communism, the Visegrad Group member states **integrated their economies into international trade**, which contributed to the countries' GDP. The rising number of people obtaining tertiary education indicate the **ongoing transformation into knowledge-based economies**.

Table 1: General statistics of V4 countries

| Country   | Czech Republic  |        | Slovakia  |        | Poland  |        | Hungary   |        |
|---|---|--------|---|--------|---|--------|---|--------|
| Indicator   |  |        |  |        |  |        |  |        |
| Population in 2014  | 10 510 566  |        | 5 418 506   |        | 37 995 529  |        | 9 861 673   |        |
| Surface area (sq. km, 2014)   | 78 870  |        | 49 036  |        | 312 680   |        | 93 030  |        |
| Average GDP growth for years 1993-2014 (%)                            | 2,4   |        | 4,0   |        | 4,2   |        | 2,0   |        |
| Year  | 1993  | 2014   | 1993  | 2014   | 1993  | 2014   | 1993  | 2014   |
| GDP per capita (constant 2005 US\$)                                   | 9 095   | 14 945 | 6 884   | 15 727 | 4 665   | 11 305 | 7 255   | 11 888 |
| Unemployment rate (%)   | 4,3   | 6,1    | 12,2  | 13,2   | 14,0  | 9,0    | 12,1  | 7,7    |
| Merchandise trade (% of GDP)  | 71,9  | 158,6  | 71,6  | 168,9  | 36,4  | 79,3   | 53,7  | 157,0  |
| Year  | 1993  | 2013   | 1993  | 2013   | 1993  | 2013   | 1993  | 2013   |
| Life expectancy at birth (years)                                      | 72,8  | 78,3   | 72,4  | 76,3   | 71,6  | 76,8   | 69,1  | 75,3   |
| Year  | 1995  | 2013   | 1993  | 2013   | 1993  | 2013   | 1993  | 2013   |
| Health expenditure, total (% of GDP)                                  | 6,7   | 7,2    | 6,1   | 8,2    | 5,5   | 6,7    | 7,3   | 8,0    |
| Year  | 1998  | 2013   | 1993  | 2013   | 1993  | 2013   | 1993  | 2013   |
| Population with tertiary education as a share of population 15-64 (%) | 8,5   | 19,1   | 8,1   | 18,1   | 8,5   | 23,8   | 10,6  | 20,2   |

Source: World Bank and Eurostat (2015)

Figure 1: GDP per capita in constant prices (2005)







Source: World Bank and Eurostat (2015)



## 1.1 Competitiveness

To compare the V4 economies, we used several indices, including political stability, competitiveness, innovativeness, and law enforcement rankings (Table 2). Surprisingly, the Czech Republic, Slovakia, and Hungary worsened their world positions, measured by Global Competitiveness, with **Poland being the only country among the 4 to improve its position slightly**. The **biggest problems** of V4 economies were identified in public sector related areas, specifically, in **tax regulations** and **bureaucracy** (World Economic Forum).

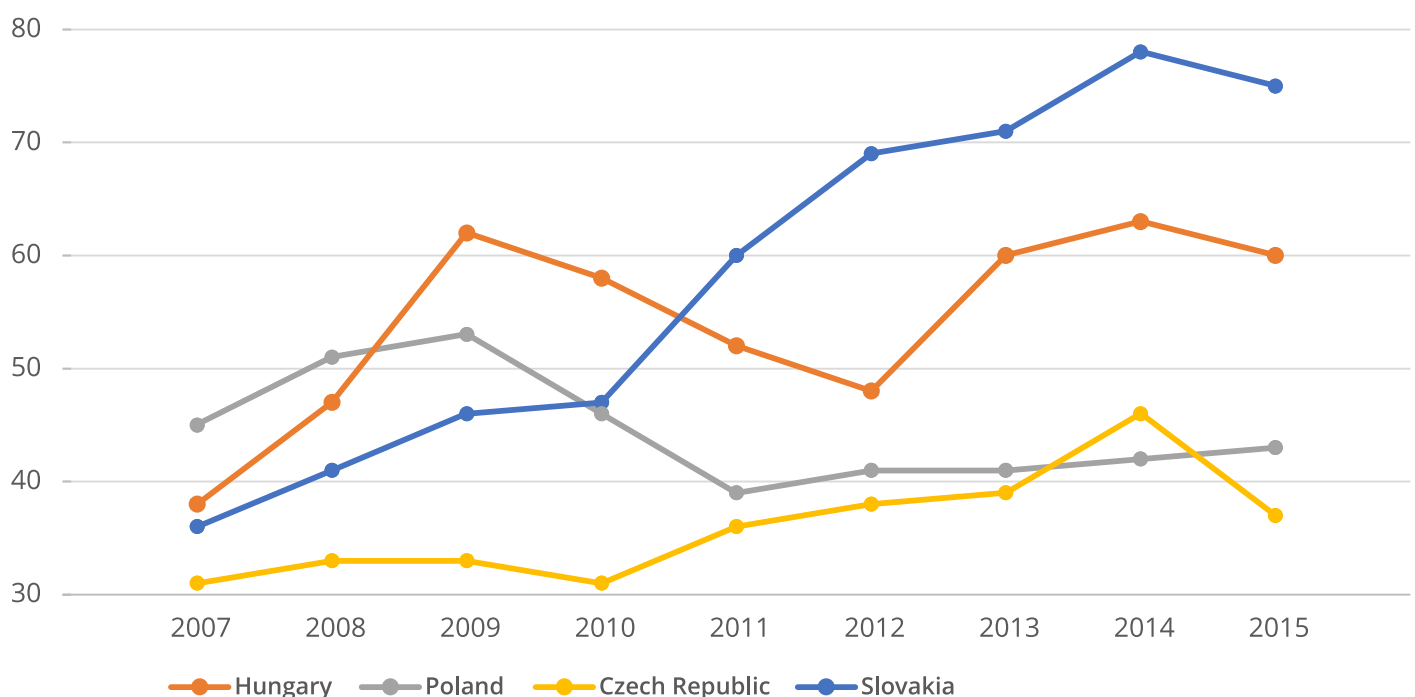
Table 2: Selected indicators representing competitiveness of V4 countries

| Country  | Czech Republic  |           | Slovakia  |           | Poland  |           | Hungary   |           |
|--|---|-----------|---|-----------|---|-----------|---|-----------|
| Indicator  |  |           |  |           |  |           |  |           |
| Year   | 2006-2007   | 2014-2015 | 2006-2007   | 2014-2015 | 2006-2007   | 2014-2015 | 2006-2007   | 2014-2015 |
| Global Competitiveness Index   | 4,7   | 4,5       | 4,5   | 4,1       | 4,4   | 4,5       | 4,3   | 4,5       |
| Global Competitiveness Index Rank                                    | 31  | 37        | 36  | 75        | 45  | 43        | 38  | 60        |
| Year   | 1995  | 2015      | 1995  | 2015      | 1995  | 2015      | 1995  | 2015      |
| Economic Freedom Index   | 67,8  | 72,5      | 60,4  | 67,2      | 50,7  | 68,6      | 55,2  | 66,8      |
| Year   | 1998  | 2014      | 1998  | 2014      | 1998  | 2014      | 1998  | 2014      |
| Corruption Perceptions Index   | 4,8   | 5,1       | 3,9   | 5,0       | 4,6   | 6,1       | 5,0   | 5,4       |
| Year   | 1995  | 2012      | 1995  | 2012      | 1995  | 2012      | 1995  | 2012      |
| Knowledge Economy Index  | 7,8   | 8,1       | 7,2   | 7,6       | 6,9   | 7,4       | 7,5   | 8,0       |
| Year   | 1996  | 2014      | 1996  | 2014      | 1996  | 2014      | 1996  | 2014      |
| National Patent Office Applications per thousand of population 15-64 | 0,7   | 0,2       | 0,7   | 0,1       | 0,2   | 0,2       | 0,4   | 0,1       |

Source: Heritage Foundation, Transparency International, World Bank, World Economic Forum (2015)

**Corruption** remains a problem. Looking at the data from the Corruption Perceptions Index, it is fair to conclude that a small step was made, but it is not enough to catch up with the global leaders in law enforcement and public sector efficiency (Transparency International).

Figure 2: Global Competitiveness Index rankings over years 2006-2015







Source: Heritage Foundation, Transparency International, World Bank, World Economic Forum (2015)

The overall **competitive environment seems to be improving**. The Index of Economic Freedom reflects rapid improvements in business, labour market, and trade freedom. Following the World Economic Forum's recommendations, the V4 countries should **improve their infrastructure**, develop **better higher education** and training organizations, and **promote development of financial market and innovative behaviours**<sup>1</sup>.

Apart from the already mentioned corruption, the most problematic factors (as reported by the World Economic Forum) include **red tape, tax regulation**, and **rates**, and **restrictive labor regulations** (Table 3).

Table 3: The most problematic factors for doing business

| Czech Republic  |      | Slovakia  |     | Poland   |      | Hungary   |      |
|---|------|---|-----|--|------|---|------|
|  |      |  |     |  |      |  |      |
| Inefficient government bureaucracy  | 18,6 | Inefficient government bureaucracy  | 17  | Tax regulations  | 23,2 | Policy instability  | 15,1 |
| Corruption  | 16,3 | Corruption  | 16  | Restrictive labor regulations  | 15,5 | Access to financing   | 13,5 |
| Policy instability  | 9,1  | Restrictive labor regulations   | 15  | Inefficient government bureaucracy   | 14,6 | Corruption  | 13   |
| Restrictive labor regulations   | 9    | Tax rates   | 10  | Tax Rates  | 11,2 | Tax regulations   | 11   |
| Tax regulations   | 8    | Tax regulations   | 10  | Access to financing  | 9,6  | Inefficient government bureaucracy  | 10,3 |
| Inadequately educated workforce   | 6,3  | Inadequate supply of infrastructure   | 9,3 | Inadequate supply of infrastructure  | 5,6  | Tax Rates   | 10,1 |
| Tax Rates   | 6,2  | Policy instability  | 7,7 | Insufficient capacity to innovate  | 4,3  | Inadequately educated workforce   | 6,9  |
| Insufficient capacity to innovate   | 5,9  | Inadequately educated workforce   | 6,3 | Corruption   | 3,4  | Poor work ethic in national labor force   | 5,8  |
| Access to financing   | 5,8  | Access to financing   | 2,8 | Policy instability   | 3,3  | Insufficient capacity to innovate   | 4,3  |
| Poor work ethic in national labor force   | 3,9  | Poor work ethic in national labor force   | 2   | Inadequately educated workforce  | 2,7  | Inadequate supply of infrastructure   | 3    |

Source: World Economic Forum

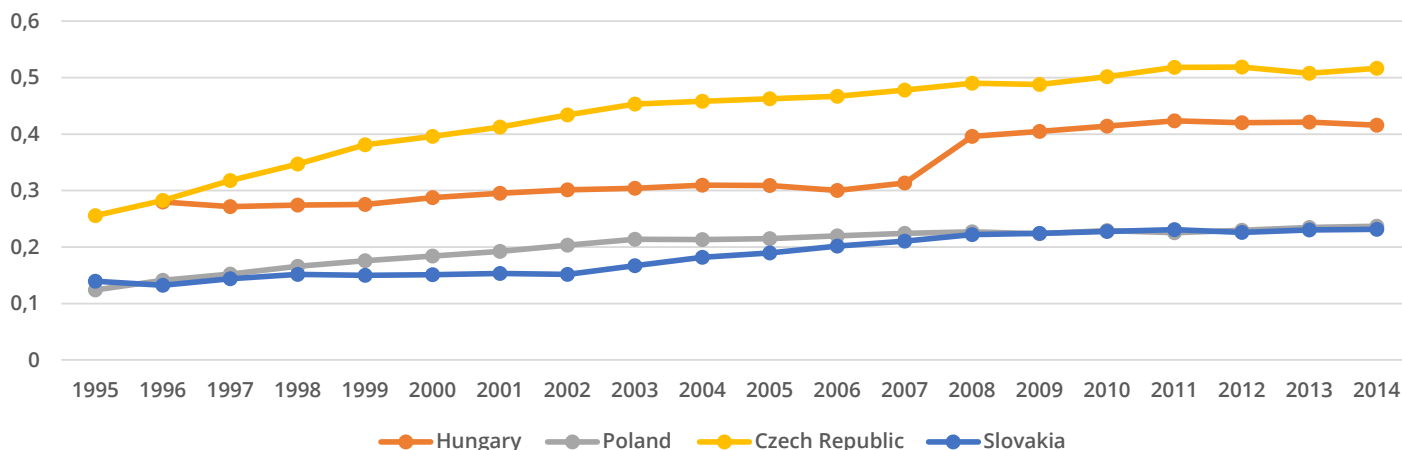
As we will argue in the following chapters, these factors, with **lacking infrastructure** and **inadequately educated** workforce, pose serious threats to our ability to become truly innovative economies and hence, may undermine our competitive position in the future.

<sup>1</sup> The number of patent applications dropped significantly in the V4 region after the EU accession, but rebounded after the establishment of the European patent office (according to the EUROSTAT data available).

## 1.2 Entrepreneurial activity

In order to capture the development of the regional business activity over time, we calculated the rate of registered business entities per economically active population<sup>2</sup>. From the figure below, we may see that business activity grew significantly in all V4 countries (Figure 3).





Figure 3: Registered Entities per population 15-64 during years 1996-2014



Source: Central Statistical Office of Poland, Czech Statistical Office, Hungarian Central Statistical Office, Slovak Statistical Office, World Bank

Time required to start a business is another important indicator of entrepreneurial environment and is treated as an indirect measure of bureaucracy. During the last 20 years, all V4 countries were able to **decrease the number of days required to establish a business by over 100%**. The **costs of starting-up a business venture declined**, and regulatory norms concerning minimum paid-in capital required to start-up a business venture were relaxed. Law enforcement remains a challenge, with costs related therewith remaining at 1996 levels, and in Slovakia's case, increasing over the years (World Bank).





Table 4: Selected indicators representing entrepreneurial environment in V4 countries

| Country   | Czech Republic  |      | Slovakia  |      | Poland  |      | Hungary   |      |
|---|---|------|---|------|---|------|---|------|
| Indicator   |  |      |  |      |  |      |  |      |
| Year  | 1996  | 2014 | 1996  | 2014 | 1996  | 2014 | 1996  | 2014 |
| Registered Enterprises per population 15-64                                   | 0,3   | 0,5  | 0,1   | 0,2  | 0,1   | 0,2  | 0,3   | 0,4  |
| Year  | 2003  | 2015 | 2003  | 2015 | 2003  | 2015 | 2003  | 2015 |
| Time required to start a business (days)                                      | 40  | 15   | 103   | 12   | 56  | 30   | 52  | 5    |
| Year  | 2005  | 2015 | 2005  | 2015 | 2005  | 2015 | 2005  | 2015 |
| Minimum paid-in capital required to start a business (% of income per capita) | 39  | 0    | 41  | 19   | 220   | 11   | 80  | 48   |
| Cost to start a business (% of income per capita)                             | 10  | 7    | 5   | 2    | 20  | 12   | 22  | 7    |
| Cost to enforce a contract (% of claim)                                       | 33  | 33   | 26  | 30   | 19  | 19   | 15  | 15   |

Source: Central Statistical Office of Poland, Czech Statistical Office, Hungarian Central Statistical Office, Slovak Statistical Office, World Bank

<sup>2</sup> Considering all limitations coming from registered subjects, which may not always be active in economy.

Table 5: Enterprises in V4 countries in 2014 according to size, employees and value added

| Country   | Czech Republic  |       | Slovakia  |       | Poland  |       | Hungary   |       |
|---|---|-------|---|-------|---|-------|---|-------|
| Indicator   |  |       |  |       |  |       |  |       |
| Number of micro enterprises/proportion            | 968 998   | 96,1% | 375 780   | 95,8% | 1 407 427   | 95,2% | 497 947   | 94,5% |
| Number of small enterprises/proportion            | 31 850  | 3,2%  | 13 810  | 3,5%  | 52 676  | 3,6%  | 23 906  | 4,5%  |
| Number of medium-sized enterprises/proportion     | 6 273   | 0,6%  | 2 213   | 0,6%  | 14 850  | 1,0%  | 4 064   | 0,8%  |
| Number of SMEs/proportion                         | 1 007 121   | 99,9% | 391 803   | 99,9% | 1 474 953   | 99,8% | 525 917   | 99,8% |
| Number of large enterprises/proportion            | 1 406   | 0,1%  | 465   | 0,1%  | 2 940   | 0,2%  | 829   | 0,2%  |
| Number of employees/proportion micro              | 1 132 769   | 32,1% | 537 760   | 37,6% | 3 007 504   | 36,5% | 867 316   | 35,7% |
| Number of employees/proportion small              | 637 865   | 18,1% | 263 387   | 18,4% | 1 121 510   | 13,6% | 447 932   | 18,4% |
| Number of employees/proportion medium-sized       | 645 056   | 18,6% | 230 254   | 16,1% | 1 550 098   | 18,8% | 404 374   | 16,7% |
| Number of employees/proportion SMEs               | 2 424 690   | 68,8% | 1 031 401   | 72,2% | 5 679 112   | 68,8% | 1 719 622   | 70,6% |
| Number of employees/proportion large              | 1 100 327   | 31,2% | 397 534   | 27,8% | 2 570 479   | 31,2% | 708 457   | 29,2% |
| Value added billion euros/proportion micro        | 16  | 19,8% | 10  | 29,8% | 28  | 14,7% | 9   | 18,5% |
| Value added billion euros/proportion small        | 12  | 14,5% | 7   | 19,1% | 27  | 14,4% | 8   | 16,2% |
| Value added billion euros/proportion medium-sized | 16  | 19,9% | 6   | 15,8% | 39  | 20,9% | 9   | 19,2% |
| Value added billion euros/proportion SMEs         | 45  | 54,1% | 23  | 64,6% | 94  | 50,0% | 25  | 53,9% |
| Value added billion euros/proportion large        | 38  | 45,9% | 12  | 35,4% | 94  | 50,0% | 21  | 46,1% |

Source: Eurostat

Of all business entities, small and medium enterprises (SMEs) are perceived as the backbone of the economy. According to the European Commission, they represent about 99% of all businesses in the EU.<sup>3</sup> The SMEs handle about 67% of total EU private sector employment and add over 58% value on an EU-average. These characteristics are similar in Visegrad Group, regarding all but one indicator. Except for Slovakia, the value added by SMEs is below the European average in the V4 countries.

## 1.3 Innovativeness






We chose several indicators to paint the picture of innovativeness in our economies. The highlighted information in Table 6 points to three main layers of innovative behaviour: the so-called **enablers** (light red) capture the main drivers of innovation performance external to the firm, the **firm activities** (light blue) capture the innovation efforts at the level of the firm, while the **outputs** (light green) capture the effects of firms' innovation activities.

According to the European Innovation Scoreboard's methodology, the V4 countries were described as **moderate innovators**. The innovation performance improved in our countries over the last 7 years, despite some fluctuations (especially for Poland, where the performance fell for 2012 and 2013 and rebounded in 2014). Most of the Visegrad Group countries are performing below the EU average for all dimensions. Poland is, particularly, weak, regarding the number of non-EU doctorate students and public-private co-publications. Hungary shares this characteristic. It also struggles to maintain the sales shares of new innovation and the number of SMEs with product or process innovations. Slovakia is relatively weak in license and patent revenues generated abroad (this indicator is down by 38%), and the non-R&D innovation expenditures are steadily declining. Czech Republic's weaknesses are its research systems and intellectual assets; however, performance has improved in these areas by 7.9% and 6.2%, respectively. A more pressing issue is a 30% decrease in venture capital investments, which might cause widening of the financing gap for innovative enterprises. Human resources are a relative strength, especially in regards to Slovakia and Czech Republic. Hungary is trying to catch up with R&D expenditures (11% growth), community trademarks (10% growth), and license and patent revenue from abroad (9.2% growth).

3 For an exact definition, please refer to: [http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition/index\\_en.htm](http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition/index_en.htm)

The innovation efficiency ratio<sup>4</sup>, which shows how much innovation output a country is getting for its inputs, indicates a huge disparity between the V4 countries, with Czech Republic taking the 11th spot among 141 economies, Poland being ranked at the 93rd place, and Hungary and Slovakia taking places somewhere between (35th and 48th place respectively).

Table 6: Selected indicators representing innovativeness in V4

|  | EU<br>AVERAGE   | PL  | CZ  | SK  | HU  |
|--|---|---|---|---|---|
| <b>Current performance (2007-2014 growth rates)</b>  |  |  |  |  |  |
| Innovation Efficiency Ratio  | -   | 0,66 (93 <sup>rd</sup> )  | 0,89 (11 <sup>th</sup> )  | 0,76 (48 <sup>th</sup> )  | 0,78 (35 <sup>th</sup> )  |
| Gross Domestic Expenditure on R&D = GERD (% 2014 GDP)  | 2.03  | 0.94  | 2   | 0.89  | 1.38  |
| New doctorate graduates per 1000 population aged 25-34*  | 1.8 (2.6%)  | 0.6 (-7%)   | 1.7 (6.4%)  | 2.4 (10.4%)   | 0.9 (3.7%)  |
| Scientific publications among the top-10% most cited publications worldwide as % of total scientific publications of the country | 11 (1.5%)   | 3.8 (3.2%)  | 5.6 (4.6%)  | 4.2 (6.7%)  | 5.3 (1.5%)  |
| Non-EU doctorate students as a % of all doctorate students   | 25.5 (3.5%)   | 1.9 (-4.4%)   | 4.4 (4.3%)  | 1.5 (14.4%)   | 3 (-1.1%)   |
| R&D expenditure in the public sector (% GDP)   | 0.72 (1.9%)   | 0.48 (3.8%)   | 0.87 (8.2%)   | 0.44 (7.2%)   | 0.41 (-2.5%)  |
| Number of public-private co-authored research publications   | 50.3 (2.3%)   | 4.7 (8.7%)  | 25.1 (7.9%)   | 13.7 (8.7%)   | 26.8 (3.1%)   |
| R&D expenditure in the business sector (% GDP)   | 1.29 (1.9%)   | 0.38 (12.2%)  | 1.03 (4.8%)   | 0.38 (8.8%)   | 0.98 (10.7%)  |
| SME introducing product or process innovations (% of SMEs)   | 30.6 (-1.7%)  | 13.1 (-6.2%)  | 30.9 (-0.5%)  | 17.7 (-2.7%)  | 12.8 (-3.8%)  |
| Employment in fast-growing enterprises in innovative sectors (% of total employment)   | 17.9 (0.5%)   | 19.3 (1.6%)   | 18.7 (1.9%)   | 19.2 (-0.1%)  | 19.1 (0.7%)   |
| Employment in knowledge intensive activities (% of total employment)   | 13.8 (0.6%)   | 9.6 (0.9%)  | 12.9 (2.0%)   | 9.6 (-0.7%)   | 12.8 (0%)   |
| Exports of medium and high-technology products as a share of total product exports   | 53 (-0.8%)  | 56.6 (-0.2%)  | 62.5 (0.2%)   | 63.6 (1.6%)   | 66.3 (-1.1%)  |
| Knowledge-intensive services exports as % of total services exports  | 49.5 (0.7%)   | 26.6 (3.3%)   | 35.2 (-0.9%)  | 31.3 (9.2%)   | 28.8 (3.3%)   |
| Cultural & creative services exports as % of total exports   | -   | 1   | 0.6   | 0.4   | 1.5   |
| Creative goods exports as % of total trade   | -   | 3.9   | 10.1  | 10.5  | 6.2   |

\* The average annual growth rates were calculated with a following formula:  $AAGR = ((\text{Value end of period})/(\text{Value beginning of period}))^{(1/(\text{Number of years}))} - 1$  where the number of years = 7

Source: European Commission, Eurostat, Global Innovation Index

The V4 countries are moving up the ladder of the Bloomberg Innovation Index ("BII"). The BII assesses a country's innovativeness by measuring its R&D intensity<sup>5</sup>, manufacturing value-added<sup>6</sup>, High-tech density<sup>7</sup>, tertiary efficiency<sup>8</sup>, research personnel<sup>9</sup>, and patents<sup>10</sup>. The Global Innovation Index also ranks the V4 economies among the top 50 innovative countries in the world.

One area in which we had the worst results were so-called "innovation linkages", depicting, among others, university/industry research collaboration and the state of cluster development in a country. Poland was the worst (102 out of 141 countries), while Hungary (83rd), Slovakia (69th), and Czech Republic (53rd) also have room for improvement. R&D does little good if it stays bottled up in the laboratory.

4 A ratio of the so-called Output Sub-Index score (provides information about outputs that are the results of innovative activities within the economy) over the Input Sub-Index score (is comprised of 5 input pillars that capture elements of national economy that enable innovative activities: institutions, human capital and research, infrastructure, market and business sophistication).

5 R&D expenditure as % GDP.

6 Measured as % GDP per capita.





7 Number of domestically domiciled high-tech public companies as a share of world's total high-tech public companies.

8 Total enrolment in tertiary education, regardless of age, as % the post-secondary cohort, % labor force with tertiary degrees, annual new science and engineering graduates as % total tertiary graduates and as % total workforce.

9 Professionals, including PH.D. students, engaged in R&D per 1mn population.

10 Resident patent filings per 1 mn population and per \$100bn GDP, patent grants as a share of world total.

Table 7: Innovation indices

|                                       | POLAND  | CZECH REPUBLIC  | SLOVAKIA  | HUNGARY   |
|---------------------------------------|---|---|---|---|
|                                       |  |  |  |  |
| <b>BLOOMBER INNOVATION INDEX 2016</b> | <b>23<sup>RD</sup></b>  | <b>31<sup>ST</sup></b>  | <b>39<sup>TH</sup></b>  | <b>30<sup>TH</sup></b>  |
| <b>GLOBAL INNOVATION INDEX 2015</b>   | <b>46<sup>TH</sup></b>  | <b>24<sup>TH</sup></b>  | <b>35<sup>TH</sup></b>  | <b>36<sup>TH</sup></b>  |

Source: Bloomberg Innovation Index, Global Innovation Index, Cornell University (2015)

## Conclusions

During the past 25 years, all V4 economies have gone through radical changes aimed to transform them into democratic, free market economies. Based on the statistical data presented above, it is fair to say that, on average, our societies are healthier, richer, and more educated. However, in assessing a country's prospects, one should not only look at rankings. A recent example of their misleading nature has been Egypt. In 2008, Egypt was ranked as the top reformer in the World Bank's Doing Business ranking. The country was praised for slashing the minimum capital requirements for companies and halving start-up time and cost. However, many of these reforms remain largely only on paper, with minimal contribution to living conditions of ordinary Egyptians. Having said this, we acknowledge the problems our economies are struggling with (especially the lack of governmental efficiency, regulatory burdens, and taxation), but our focus is on the ideas and solutions that might further contribute to the attractiveness of our region.

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## 2. THE FUTURE OF ENTREPRENEURSHIP

Paweł Michalski

### 2.1 Executive Summary

**Entrepreneurship** propels innovation, competitiveness and job creation. It is therefore crucial to any economy to provide the best conditions for entrepreneurs. We acknowledge that the success of Visegrad's economies over the last 25 years was to a high extent driven by visionary entrepreneurs. If the Visegrad Group aims to further boost its economies, it has to create an environment favourable to entrepreneurs.

Successful entrepreneurial ecosystems are characterized by intertwined relations between its human, financial and professional resources, acting within an adequate institutional framework. These characteristics are very hard to replicate, because entrepreneurship is not one dimensional. For the purpose of this report we construed a **dynamic entrepreneurial model** consisting of **six different dimensions** that must fit together and play their respective roles. In order to create a 'Visegrad Valley', that could compete with Silicon Valley, we propose solutions to the issues troubling our economies in these areas.

1. **Institutional framework.** Programmes aimed at helping entrepreneurs are often producing lacklustre results but are rarely cancelled in due time. It is important to review the array of entrepreneurial programs in V4 countries, cancel the ineffective ones and set milestones and deadlines to the rest. If they will not produce the intended results they should be aborted as quickly as possible. What is more, public bodies often do not understand entrepreneurial risks, although their aim is to develop policies to support, not frustrate businesses. We recommend to establish a dialogue through establishment of special departments in the regulatory offices, dedicated to support entrepreneurs with the regulatory obscurity. We also believe that tackling taxation and bankruptcy issues in our countries would help develop a friendlier environment for entrepreneurs.
2. **Educational systems** in the V4 countries should start teaching entrepreneurship sooner than at university level. We encourage schools to collaborate with business. Teachers should be treated more like start-up founders or even venture capitalists – they should be given more freedom to experiment with the curriculum and their best ideas should be “sold” to other teachers. We also recommend to adopt an approach of mixing theoretical with practical education, for example through “V4 Work and Study Programs”, which would enable gaining experience abroad. Finally, V4 universities should join the global competition in education by developing their own massive online open courses (“MOOCs”). These courses should showcase the abilities to teach advanced concepts at local universities and promote them globally, as well as advertise the best educators.
3. **Support quality research** and boost human capital by establishing technology transfer managers at local universities with the job to promote and commercialize scientific findings. The establishment of venture funds at universities, which would invest in university spin-offs and offer other venture services would further enhance the effectiveness of commercialization endeavours.
4. **Access to capital** and financing requires a robust venture capital sector. To build one, we recommend to expand the potential investor base, for example with help of various tax incentives, dedicated VC investment platforms.
5. **Sharing experiences and resources** in knowledge-based economies becomes increasingly important. We recommend to create an open environment by first, removing barriers for V4 citizens who want to work and study abroad, second, attract global talents to come to work and study in our countries, third reconnect expats and global talent by building and facilitating professional networking organizations, e.g. “Visegrad Connect”.

6. Entrepreneurial culture is the glue that holds everything together. It supports experimentation and risk-taking and does not stigmatise failure. It rather praises entrepreneurship's role for the economy as a whole and supports it as a valid and respected career choice. If the V4 countries want to develop a genuinely competitive entrepreneurial environment they should incentivize this culture.

Successful ecosystems are not created with single policy interventions – they require a lasting and patient commitment. They are a product of constant development, with inevitable failures and tweaks over time. With this report our hope is to support this process.

## COMMENT

*The V4 economies are in the pivotal moment. The first 25 years of entrepreneurship focused mostly on creating firms which were locally or regionally focused and were imitating business models and solutions already existing on the developed market. The region did a good job catching up with the developed countries. Now the bar for the entrepreneurial challenge was raised - we have to think globally and build companies which will be successfully competing with businesses built not only in the region, but places like San Francisco, Singapore, London or Berlin. In order to do that the entrepreneurs from the region need to be plan for the global success from the very beginning. That very often means going outside of their comfort zone, moving to places like London or Sillicon Valley and competing with the best in the world from the very beginning.*

*Companies in this region struggle with two key issues: limiting mindset and the ability to scale. Historically there were not many globally successful entrepreneurial role models coming out from the region. As a consequence, local entrepreneurs have more modest (they might say realistic) ambitions, when compared to their counterparts from the US or western Europe. Another big issue is the ability to scale-up. The region is naturally divided into smaller countries (markets) with different languages and cultures. This is an additional layer of complexity that CEE companies have to solve on their way to global success.*

*It sounds difficult, but we should be optimistic about that as the founders of companies such as Eset, Sygic, AVG, Livechat or Prezi has already achieved such success and could be a great inspiration for all upcoming global leaders.*

**Marian Gazdik**, Director of Europe at Startup Grind, CEO & Founder at BHere.tv

**Pawel Tomczuk**, Co-director of London at Startup Grind, Partner & Founder at Trigon Venture Capital

## 2.2 Introduction to our framework.

Entrepreneurship is vital to **wealth creation and job growth**. It fuels innovation, makes economies more competitive, and encourages people to pursue their dreams. This is why it is in the best interest of every nation to support its entrepreneurs.

The environments in which entrepreneurs operate are often referred to as **ecosystems**. An entrepreneurial ecosystem is characterized by its human and financial resources, proper infrastructure as well as adequate governmental policies. Key features that determine whether an entrepreneurial ecosystem is successful include<sup>11</sup>:

1. legal and regulatory framework that provides certainty ("**institutions**"),
2. good educational system that responds to the needs of entrepreneurs and their work force ("**education**")
3. quality of human capital ("**research**"),
4. access to capital and financing ("**capital**"),
5. mechanisms of sharing experience and resources ("**networks**"), and
6. supportive culture that embraces both success and failures ("**culture**").

It is essential to remember that entrepreneurial ecosystems are not created by a single act; rather, they develop organically as a **product of interactions** between various entities and institutions<sup>12</sup>. For the system to function, all these components must **fit together** and **play their roles** properly. If this happens, firms have good conditions to **adapt and grow**. As they do, their voices become more important in the democratic debate. In this way, they can create a virtuous cycle of entrepreneurial reforms. Because of the broad nature of this phenomenon, the support provided to entrepreneurial ecosystems reinforces **democratic foundations** of the society.

Entrepreneurs are drivers of change that fuels **innovation**. Since the 1950s, economists have emphasised that innovation is crucial to achieve long-term, sustainable development of a country. Joseph Schumpeter even argued it is **the most important feature** of capital market economy<sup>13</sup>. The strong connection between technological progress and economic prosperity goes back to studies of Moses Abramowitz, who realized there are, ultimately, only two ways of increasing the output of the economy:

- increasing the number of inputs that go into the productive process (for example, by raising the retirement age), or
- developing new ways to get more output from the same inputs.

The analysis conducted by Abramowitz led to a conclusion<sup>14</sup> that the actual growth in the output of economy is 85% attributable to innovation<sup>15</sup>. In other words, the economic future of a country depends not only on what and how much it produces, but how it produces it.

Relying on this knowledge, we tried to find underlying conditions for creation of a successful regional entrepreneurial ecosystem. We asked ourselves several questions:

- Under which conditions can entrepreneurs thrive in V4 countries?
- What makes a healthy entrepreneurship ecosystem possible?
- What would be the reasons for start-ups and potential high-flyers to stay in V4 rather than go abroad?

<sup>11</sup> This approach is coherent with the "Triple helix" concept, developed by Henry Etzkowitz and Loet Leydesdorff. The Triple Helix thesis is that the potential for innovation and economic development in a knowledge society lies in a university, industry, and government cooperation. Our approach is also consistent with Daniel Isenberg's six key domains of entrepreneurial ecosystem: conducive culture, enabling policies and leadership, availability of appropriate finance, quality human capital, venture-friendly markets for products, and a range of institutional supports (see Babson Entrepreneurship Ecosystem Project at <http://entrepreneurial-revolution.com/>).

<sup>12</sup> Steven Koltai, the creator of the Global Entrepreneurship Program for the U.S. Department of State, developed a so-called Six + Six Model, which highlights the six pillars to a successful entrepreneurship ecosystem (identify, train, connect & sustain, fund, enable, and celebrate entrepreneurs) and the six participants who must be involved in their implementation (NGOs, corporations, foundations, government, academic institutions, and investors).

<sup>13</sup> Schumpeter J., *Capitalism, Socialism and Democracy*, New York, 1942

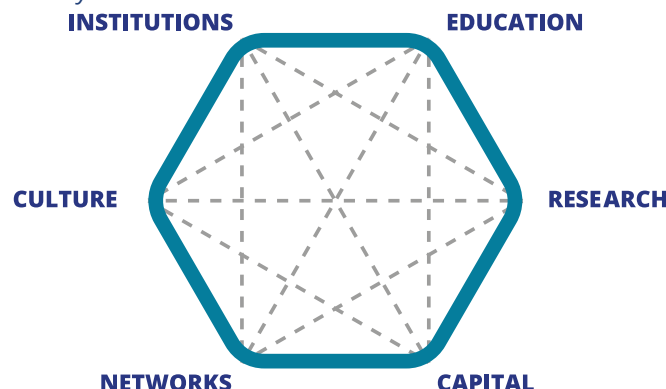
<sup>14</sup> Abramowitz, M., "Resource and Output Trends in the United States since 1870", *American Economic Review* 46, 1956, p. 5-23

<sup>15</sup> This conclusion was further reinforced by various studies in the late 1950s and 1960s, with the most famous example of Robert M. Solow, "Technical Change and the Aggregate Production Function" for which he later won the Nobel Prize.

- How to achieve this optimal state?

Developing entrepreneurial policies is difficult, because entrepreneurship is not one-dimensional. A single intervention could not possibly address all dimensions. However, designing a plan and executing it towards the intended outcome is far better than applying a loose collection of measures.

Figure 4: Our model of entrepreneurial dynamics model



We will elaborate on these areas in the paragraphs below. We hope to spark the well-thought-of process of establishing foundations upon which the next, even better Silicon Valley could emerge in the Visegrad region.

We had chosen to start with the legal and regulatory framework, because we believe well-considered policies are crucial in shaping a supportive environment for entrepreneurs. Let the example of development of two distant countries – Jamaica and Singapore – be the illustration of that fact.

### Case study – Jamaica and Singapore<sup>16</sup>

Both states are relatively small, with ca. five million residents apiece. These two nations were about equal in wealth (measured by GDP) by the time of the establishment of their independence in the 1960s. In 1965, the gross domestic product (in current USD) was USD 552 per capita in Jamaica and USD 516 per capita in Singapore. Almost 50 years later, the situation is very different. Singapore's GDP per capita is now USD 56 285 (in current USD), while Jamaica's GDP per capita is USD 5 105, eleven times smaller. What are possible explanations? In Singapore's growth story, much credit has been given to its supportive policies. The government introduced an array of measures, such as:<sup>17</sup>

- investing in infrastructure,
- subsidizing the system of education<sup>18</sup>,
- maintaining an open and corruption-free economy,
- subsidizing firms and research in targeted sectors (especially biotechnology),<sup>19</sup>
- injecting public funds to venture firms seeking to invest in Singapore,
- awarding failed entrepreneurs to encourage risk-taking,
- establishing sovereign wealth funds.

The contrast is striking. While Singapore has been striving, what happened to Jamaica? Apart from spending decades in political instability (shifting from a market economy to socialist doctrine and back again), the inability of its business to grow was also manifested in the barriers to entrepreneurs. Jamaica ranked 122<sup>nd</sup> for registering property (with the cost associated thereto of 9,8% of the value of the property), 146<sup>th</sup> for paying taxes, 146<sup>th</sup> for trading across borders, and 107<sup>th</sup> for enforcing contracts in the 2016 World Bank's Doing Business Report. To put these numbers into practice, it suffices to imagine how higher costs of registering property discourages people from registering their holdings. Combined with an unsupportive judiciary system, property rights erode, putting entrepreneurs at higher risk. This could mean that fewer companies receive loans from banks against their holdings, and the cost of capital rises.<sup>20</sup>

<sup>16</sup> We are fully aware of the fact that Jamaica and Singapore are two very different countries, and geography does play a role; however, we use this example to show that well-considered policies could have improved the state of economy.

<sup>17</sup> Lerner, J., The Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital have Failed – and What to Do About It, 2009, p. 18

<sup>18</sup> For example, funding at the National University in 2001 was three times higher than in 1996.

<sup>19</sup> Creation of Biopolis, a seven-building complex that cost approx. USD 500mn, including state-of-the-art laboratory facilities, may be one of the most ambitious examples. What is more, top researchers from the best institutions in the world (including MIT, Kyoto University and the University of California) were lured to the country with generous research funding, gigantic salaries, and a supportive political climate.

<sup>20</sup> It should be noted, however, that Jamaica has seen some improvements in the recent years. The cost of complying with tax and associated administrative regulations has been reduced by 27% (from 47,9% in 2010 to 35,2% in 2016), while starting business becomes easier with the introduction of streamlining internal procedures and reducing the number of forms required to be filed.

Institutions are a legal infrastructure that makes it easier for new firms to enter the market and easier for existing ones to stay in it. Government initiatives in this area can be broadly categorized by the **level of interventionism**, with actions creating “more hospitable” **environment** on one and **direct interventions** on the other end of the scale. All of these actions remain parts of the same equation and are often deployed at the same time.

## 2.2.1 Direct interventions

Direct interventions are regulatory actions taken by a government in order to affect or interfere with decisions made by individuals, groups or organizations. These actions can vary from imposing taxes or establishing an entity to deploy public money (e.g. buy a private firm). Looking across time, we may come to a conclusion that direct interventions are more appealing to politicians. The importance of these interventions, however, should not be underemphasized; according to data gathered by Block and Keller, 88% of key innovations that emerged between 1971 and 2006 in the US, were funded (at least partially) by state subsidies.<sup>21</sup> Silicon Valley, Singapore, Tel Aviv, Bangalore, as well as Guangdong and Zhejiang<sup>22</sup> provinces in China benefited from government-sponsored projects. Nevertheless, we should remember, for each effective intervention, there have been numerous failures committed.

### Case study – France and its electronics industry

In the 1980s, the socialist government in France focused on developing national electronics business. It created plans to build a high-technology cluster in Brittany - the “French Silicon Valley.” The problem was that the region had only little entrepreneurial tradition and was dominated by lower-productivity industries.<sup>23</sup> Still, the government spent approx. USD 6bn to acquire several electronics giants, including CII Honeywell, Bull, and Thomson. Several promising smaller firms were either directly acquired or forced to merge with the government’s holdings. Once these firms were nationalized, the majority of innovative ideas were canceled or extinguished, as the administration was more concerned about preserving jobs at large, existing factories rather than pursuing risky, often smaller ventures. Subsidies for annual losses grew from USD 226mn in 1980 to USD 4.6bn in 1982. As a result, the government had to either reprivatize or restructure most of these firms. The companies it continued to hold were subject to employment cutbacks. For instance, Bull halved the number of its employees between 1991 and 1999.

| 2015-2016 Global Competitiveness Index | Singapore        | Jamaica          |
|--|------------------|------------------|
| INSTITUTIONS*                          | 2 <sup>ND</sup>  | 80 <sup>TH</sup> |
| HIGHER EDUCATION AND TRAINING          | 1 <sup>ST</sup>  | 84 <sup>TH</sup> |
| INNOVATION                             | 9 <sup>TH</sup>  | 67 <sup>TH</sup> |
| BUSINESS SOPHISTICATION                | 18 <sup>TH</sup> | 66 <sup>TH</sup> |
| OVERALL                                | 2 <sup>ND</sup>  | 86 <sup>TH</sup> |

*\*Describing, among others, how efficiently the government spends public revenue or how burdensome it is for companies to comply with public administration’s requirements.*

To put it in context, let us consider Taiwan, a leading producer of hardware for major computer vendors in the world. While policymakers in other Asian countries typically target large technological champions and promote them, in Taiwan, support was given to entire sectors. In the 1990s, numerous subsidies were given to small firms expecting many would fail, but some may become global players. By 1995, this strategy began paying off, as Taiwan ranked 4th in the world in computer hardware production and exports. Taiwan’s success in the electronics industry was possible because of a coordinated government strategy to support small, innovative companies that adapt well to fast changes in technology. This enabled Taiwan’s computer industry to move from equipment manufacturing for multinationals to establish their own intellectual property.<sup>24</sup>

<sup>21</sup> Block, F., Keller, M.R. (eds.), “State of innovation: The U.S. government’s role in technology development”, Boulder, Paradigm Publishers, 2011

<sup>22</sup> It is worth mentioning, however, in China, private entities and initiatives are so seldom that most of the economic interventions in China are, by definition, direct interventions.

<sup>23</sup> See for instance: OECD Territorial Reviews: France 2006, p. 46, 50

<sup>24</sup> For more about the Taiwanese incentive programs, see Kraemer, K. L., Dedrick, J., Chin-Yeong Hwang, C., Tu, T., Yap, C. S., Entrepreneurship, Flexibility, and Policy Coordination: Taiwan’s Computer Industry, “Information Society” 12 (1996); Saxenian, A.L., The Silicon Valley-Hsinchu Connection: Technical Communities and Industrial Upgrading, 1999

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The problem with failed government interventions is they are rarely “killed off”, even if they have been declared unsuccessful or after they have exhausted their usefulness. These problems often arise if they do not consult with those who really need them – the entrepreneurs. Besides, various lobby groups, who benefit from public resources, are not likely to see the state support go. Consider, for example, an entrepreneurship incubator. Imagine such an incubator incubated no new venture for five consecutive years. Should this institution receive any further funding?<sup>25</sup> This rhetorical question gives the underlying argument for our first recommendation.

**Recommendation: Set realistic goals for direct intervention programs. Kill them off quickly if they do not show intended results.**

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<sup>25</sup> This, again, is a real life example of a program launched in 1999 in Australia – the Australian Building on Information Technology Strengths (BITS). It started with USD 158mn to establish eleven incubator centers for small and medium companies. It was awarded further funding in 2001 and 2004, although its evaluation implicated the program had not been successful. Quite shockingly, most funding went not to the incubator, but to its managers. In one example, only 31% of the funding went to start-ups. For more see: <http://www.bsi.com.au/incubators-program.html> and Lerner, J., The Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital have Failed – and What to Do About It, 2009, p. 84



## 2.2.2 Supportive legal framework

A successful entrepreneurial ecosystems function within a well-operating legal framework. A legal framework is a broad system of rules that governs and regulates decision making, agreements, etc.. Based on established research<sup>26</sup>, we deem following policy areas to be essential to the creation of a successful legal framework:

1. simplifying business entry procedures,
2. defining and ensuring strong enforcement of property rights,
3. removing restrictions on competition, especially in industries reserved for state-owned enterprises,
4. establishing simple and efficient labor laws, allowing wages to be determined by market forces,
5. simplifying and/or reducing burdens connected with taxation,
6. reducing tariffs and non-tariffs barriers,
7. establishing proper dissolution and bankruptcy regulations,
8. providing equal access to government information on regulations, requirements, and resources,
9. removing price controls,
10. establishing programs that provide entrepreneurs with professional assistance, when needed.

Over the last 25 years, our countries have experienced improvements in most of these areas. However, if we want to create an environment in which new ventures can succeed, public bodies must understand entrepreneurial risks and develop policies to support high-potential businesses even further.

### Case study: Estonia's digital revolution

Skype is perceived as one of the most successful companies from CEE. Nowadays, it comes as no surprise that its origins lay in Estonia. How could a small country of 1,3mn inhabitants, that used a telephone exchange system from 1938 at the moment of regaining its independence from the Soviet Union in 1991, become a synonym for start-ups? It may be attributed to the bold and rapid steps the Estonian government took after the transformation. Already in 2000, the government created a secure online identification and started treating digital signatures equal to 'real ones'. The effort in digitalizing the country not only enabled Estonia to transform its country, but more importantly it enabled to leapfrog the economy and society into the digital age. Citizens could open companies, fill in tax returns, receive prescriptions from their doctors, sign legal documents, or even vote, without leaving their homes. The economic gains from the increased effectiveness have been enormous. The average savings from e-tax were estimated at seven EUR per income and social tax declaration, totalling 726,000 in total, and the cumulative time savings connected to the Estonian parliamentary elections amounted to 11,000 working days – EUR 504,000 in average wages (both 2011).<sup>27</sup> The positive effects from the digitalization of governmental services not only increases cost and time efficiency, it also builds transparency and accountability. That, combined with a wide range of further initiatives<sup>28</sup>, results in "E-stonia's" perception as the first-league player on the global start-up map.<sup>29</sup>

### Dealing with taxation issues

It is often emphasized by the private sector that low taxation is one of the most encouraging factors when choosing the right investment venue. It might occur counterintuitive to hear that California, where Silicon Valley is located, does not provide a low-tax environment. It is quite the opposite. California has one of the **highest state Corporate Income Tax** rates in the US (8,84% flat), the **highest state Personal Income Tax** rate in the US (up to 13,3%, depending on the income level), and the highest **state sales tax** rate (7,50%). With state tax collections per capita of USD 3 594, it makes for a 10<sup>th</sup> spot

<sup>26</sup> Sullivan, J.D., Shkolnov, A., "The Prosperity Papers #1: Entrepreneurship", Economic Reform Issue Paper No. 0401, 2004

<sup>27</sup> <https://e-estonia.com/measuring-impact-e-services-case-study/>

<sup>28</sup> E.g. granting universal access to the Internet or introducing coding classes for children of the age of 5.

<sup>29</sup> <http://www.fastcompany.com/3030100/bottom-line/4-countries-that-are-leaving-silicon-valley-in-their-tracks>

on the list of the highest tax paying states (per capita) in the US. That is why California is often ranked as one of the most expensive states to start a business.<sup>30</sup> Despite this relatively high cost of doing business California, and especially the Valley, has been a global success.

Nevertheless, it has been argued in economic literature that decreases in capital gains tax rates might increase the attractiveness of becoming an entrepreneur.<sup>31</sup> It does so by directly affecting the willingness of investors to supply capital, on one hand, and increasing the demand of entrepreneurs for that capital, on the other. Another approach employed in many countries is to create special tax rates for capital gains from investments in entrepreneurial firms. The United States allowed noncorporate taxpayers (this category includes, i.a., partnerships) to exclude a certain amount of their gains from stock in qualifying small businesses (up to 50%) that have been held for a certain period of time (at least 5 years), reducing the marginal effective tax rate for investors. A similar solution was developed in the United Kingdom, where effective capital gains tax rates on the disposal of business assets held for over two years have been reduced by 30 percentage points to 10%.<sup>32</sup>

These ideas must be read in conjunction with our later recommendations, regarding the venture capital and private equity market. We believe that further incentives are required to build a regional venture market and encourage citizens to invest their money in domestic firms.

### Making bankruptcy more business-friendly

Taxes may be treated as a cost to succeed, but there are obstacles that make the “trying to” even more costly. While all entrepreneurs are striving for success, a majority will fail, and many end up in bankruptcy.

Bankruptcy costs, for instance, discourage entrepreneurs because of their often punitive character. It takes approximately 2 (Hungary), 2.1 (Czech Republic), 3 (Poland), and 4 years (Slovakia) to resolve insolvency in the V4 countries. The associated cost of proceedings spreads between 15 (Hungary, Poland) and 18 (Slovak Republic) per cent of the debtor’s estate value.<sup>33</sup> Besides the economic costs of inefficient bankruptcy proceedings, failure and bankruptcies still have a strongly stigmatizing effect on entrepreneurs. Business entities that went into distress with their venture face severe difficulties in developing other undertakings. Therefore, the potential of learning from their experiences is left unutilized by themselves, their (potential) peers, and our economies.

Being an entrepreneur or working in a start-up has inherent risks. Successful business hubs have been praised for embracing those risks and accepting inevitable failures. In Singapore, there used to be an initiative to award entrepreneurs, who overcame a commercial failure, learned how to adjust and, subsequently, succeeded. Our culture is much more risk-averse. We often hear not to run before we can walk. And if we fail, we get punished.

We have to change this attitude and allow ourselves to fail and to learn from both our and other people’s mistakes. This vision is encouraged by studies showing that the process of selection not only leads to less productive firms exiting and the more productive ones thriving, but also provides an important contribution to aggregate employment and productivity growth.<sup>34</sup> We have to **put an end to discouraging laws that punish people for trying to do business and introduce entrepreneur-friendly resolutions to bankruptcy issues.**<sup>35</sup>

30 Compare for instance Forbes’ annual ranking “Best States for Business” <http://www.forbes.com/best-states-for-business/> and the Tax Foundation’s Facts & Figures 2016 ranking at <http://taxfoundation.org/article/facts-figures-2016-how-does-your-state-compare>

31 Poterba, J.M., Venture Capital and Capital Gains Taxation, in “Tax Policy and the Economy”, Summers, L.H. (ed.), 1989, p. 47-67; also Gompers, P.A., Lerner, J., What Drives Venture Capital Fund-Raising?, in: “Brookings Papers on Economic Activity: Microeconomics”, 1998, p. 149-192; and Amour, J., Cumming, D., The Legal Road to Replicating Silicon Valley, Economic and Social Research Council, 2003

32 See: Organisation for Economic Cooperation and Development, “Venture Capital Policy Review: United Kingdom, 2003

33 As a comparison, it takes 11 months, on average, to resolve insolvency in Finland, with an average cost of 4% of the debtor’s estate and the company most likely sold as a going concern.

34 Bartelsman, E., S. Scarpetta and F. Schivardi (2005), “Comparative analysis of firm demographics and survival: evidence from micro-level sources in OECD countries”, *Industrial and Corporate Change*, 14(3) 365-391

35 In recent years, there have been many initiatives (e.g., France, Italy, Switzerland) to lift punitive legal sanctions imposed on managers and even nonexecutive personnel in case of bankruptcy.

## Professional assistance to entrepreneurs

While the indirect role, i.e., shaping general policies, is significant, assisting entrepreneurs and aligning policies towards their best interest is crucial in building a successful entrepreneurial hub. Some economists suggest that countries characterized by institutions that support entrepreneurial activity will, other things being equal, have higher levels of entrepreneurship than countries characterized by institutions that do not support entrepreneurship.<sup>36</sup> It means, that on one hand, entrepreneurs should be ensured that someone is listening to their needs, on the other, public officials and politicians must understand the business world better if they really want to support it. This is especially important in the areas where regulatory constraints are needed and collaboration between public and private is essential.

A positive example is the Innovation Hub, launched by the UK's Financial Conduct Authority ("FCA") and Her Majesty's Treasury. The aim of the Hub is to provide help to entrepreneurs pursuing innovative financial ventures – both regulated and non-regulated. The support includes help with understanding the regulatory framework, assistance in preparation of applications for business authorization, and a dedicated contact-point for up to a year after the authorization. But the work is far from done, here. Recently, the FCA and the Australian Securities and Investments Commission ("ASIC") have entered into an agreement, under which innovative fintech companies in Australia and the UK will receive support from regulators as they attempt to enter each market. As we may read in the public statement, the regulators "will provide support [...] before, during and after authorization to help reduce regulatory uncertainty and time to market."

**We strongly recommend to establish departments in the regulatory offices dedicated to support entrepreneurs and enter into agreements with similar bodies in all V4 countries.**

## 2.3 Education – how to build an educational system that responds to the needs of both entrepreneurs and their work force?

Silicon Valley is blessed with top academic institutions, such as Stanford University and Berkeley, which attract top students, professors and researchers. Similarly, Cambridge, Massachusetts evolved with the strong presence of MIT and its research, innovations, and inventions, just as Boston did with Harvard. These universities offer courses that blend theory and practice, especially in the field of entrepreneurship and technology. They place students with companies from around the world and let them work with real life problems faced by those businesses. Support is offered to everyone, from students to retired alumni, on all stages of the business life-cycle, from developing ideas to preparing an IPO. Consider, for example, a class called Launching Technology Ventures at Harvard University, where students are trained in the art of launching, building, and scaling businesses.

Our regional academic institutions do not fare well against global competitors, at least, according to the most known rankings.<sup>37</sup>

| Name of the institution                       | Country | Shanghai Ranking | TIMES Higher Education Ranking | QS Top Universities Ranking |
|---|---------|------------------|--------------------------------|-----------------------------|
| Charles University in Prague                  | CZ      | 201-300          | 401-500                        | 279                         |
| Brno University of Technology                 | CZ      | --               | 401-500                        | 601-650                     |
| Eötvös Loránd University                      | HU      | 401-500          | 601-800                        | 601-650                     |
| University of Szeged                          | HU      | 401-500          | 601-800                        | 501-550                     |
| University of Warsaw                          | PL      | 301-400          | 501-600                        | 344                         |
| Jagiellonian University                       | PL      | 301-400          | 601-800                        | 411-420                     |
| Comenius University in Bratislava             | SK      | --               | 601-800                        | 651-700                     |
| Slovak University of Technology in Bratislava | SK      | --               | 601-800                        | --                          |

<sup>36</sup> Acs, Z.J., Laszlo, S., Entrepreneurship, economic growth and public policy, "Small Business Economics", 2007, 28 (2), 109-122, and Peng, M.W., Sun, S.L., Pinkham, B., Chen, H., The institutions-based view as a third leg in a strategy tripod, "Academy of Management Perspectives", 2009, 23 (4), 63-81

<sup>37</sup> The data has been pulled out of the websites on April 15th 2016.

As we all are alumni of universities from V4 countries, who also have experience from abroad, we can fully confirm the statistics presented above. Regrettably, the transformations of our economies did not go in pair with our educational sectors, often leaving our universities in old structures. We are still doing research for the sake of research, far away from the demands of the real economy. We have to find a way to change that.

### 2.3.1 Engage students with the business world

An educational system involved in cultivating and nurturing an entrepreneurial ecosystem must in fact exhibit its own entrepreneurial spirit. In order to build this spirit, we need to reconsider the long-established, one-size-fits-all model of our educational systems. Based on our own experience, we believe that this model does not offer experience that changes mindsets and provides the necessary skill to thrive in the business world.

#### Case study – business@school<sup>38</sup>

In 1998, even before the first PISA study had taken place, the Boston Consulting Group (“BCG”) launched business@school – an initiative that gives senior high school students (aged 15 to 19) the opportunity to get a closer look at business, including hands-on experience. The project covers one school year and can be conducted during class time or after school. It is divided into three phases:

- Analysis of a large company,
- Analysis of a medium-sized or small company,
- Development of a business concept and business plan.

Each phase takes 2 to 3 months and ends with a presentation. Participating students and teachers meet regularly (at least once per week) to plan project work and discuss open issues. All teaching material (business basics, business plan templates, tips for effective teamwork, etc.) are available online on a dedicated platform. Teachers need not have prior business experience or education to participate. Enthusiasm and openness to project work suffices. Regional introductory workshops are held before summer break with experienced teachers and coaches to provide an introduction to the project. Throughout the projects, teams are coached by BCG consultants and volunteers. Teams of 4 to 6 students present their cases at final local, regional, and national levels. Juries of experts award prizes for the best concepts.

The project started at two pilot schools in Daun and Hockenheim, and now, over 90 schools in Europe participate in the challenge. In 2002, BCG received the Freedom and Responsibility award for outstanding entrepreneurial commitment to social objectives in Germany. There are many prominent firms among partners of the project, including Commerzbank, Oracle, Viessman or Axa.

In our opinion, entrepreneurial education must start sooner than at the university level. Although some classes already teach „entrepreneurship” at the high-school level, these are mostly theoretical courses, loosely linked to real business issues. We are not alone in this thinking- Social Wolves, a social start-up from Poland organizes the „Exempt from Theory” project. It is a contest for secondary and academic students that aims to develop practical abilities in project management and encourage social activities.<sup>39</sup> Thanks to the project’s strategic partners, participants receive help from several dozen directors and managers from the biggest companies in the country. The project offers access to an interactive portal and mentors support. The winners receive a cash bonus and prestigious titles, but most importantly, an upstart, while entering the job market. The first edition of the project gathered 7000 participants, who worked on 339 projects. The number of beneficiaries was estimated at 500 000.

**Recommendation: we encourage the business community to establish similar programs. These could be supported and aligned by public bodies, but should remain private business initiatives. This is also a great way to find and teach prospective employees.**

While continuing their education at university level, students must engage with real-world business issues and establish close ties to the business world. For instance, the South East European University in the Republic of Macedonia organizes a “Work and Study Program.” All students who follow full-time

<sup>38</sup> For more visit: <https://www.business-at-school.net/www/home.php?sid=48826897177193248046089348942250>

<sup>39</sup> For more visit: <http://zwolnienizteorii.pl/en/>

studies are eligible; however, priority is given to those who need financial aid and those who demonstrate skills for the workplace. Students may be engaged by several departments and laboratories. Most importantly they can be hired by companies using the facilities of the SEEU TechPark to work on real projects. The Work and Study Program is meant to help cover the payment of tuition fees during the academic year, but is also a way to find the best talent among the students.<sup>40</sup>

**Recommendation: We recommend to adopt the approach of mixing theoretical with practical education and to organize the “V4 Work and Study Programs.” This offer might compliment current “study abroad” programs, but would be more focused on working experience.**

After finishing university-level education, we should not only encourage people to pursue their entrepreneurial ideas, but also to provide them with real assistance in doing so. We will expand on this idea in the following chapter, but let us note that such a liaison between university and industry could be offered by technology transfer offices, like the Humboldt-Innovation GmbH, a subsidiary of the Humboldt-Universität zu Berlin that offers a variety of services from trainings to corporate financing.

## 2.3.2 Engage teachers with business-thinking

We should **treat teachers much more like start-up founders or even venture capitalists**. Teachers ought to be able to “incubate” and “accelerate” their and their students’ ideas, be financially supported for their best initiatives, and receive access to a pool of mentors who could boost their “growth”. Should they succeed, we have to encourage them to “go global”, i.e. promote their success and attract more talent to their classes.

### Case study – “Teachers Pay Teachers”

After graduating, Paul Edelman, a New York City public school teacher, arrived at a middle school in Brooklyn. He quickly realized that his students did the best when he incorporated ideas from other teachers. However, he had limited access to educators outside of his school. And so he created the Teachers Pay Teachers (“TpT”). TpT is a community of millions of educators (3,8mn active members) who share their work and insights with each other. It became the first and largest open marketplace where teachers share, sell and buy original educational resources. TpT offers lessons plans, interactive notebooks, exams and white board activities. If a teacher can’t find good materials for her classroom – she may access over 2mn resources available online in one place. Thanks to TpT the teacher-authors are able to evolve and improve quickly, because they receive feedback for their offerings.

High-schools and universities have to measure teaching quality systematically. They should reward the best and make place for teachers with industry experience. We have to attract more practicing business people to teach students how to succeed. We cannot expect next generations to think differently if we employ the same old teaching methods: without critical thinking and practical applications of the gained knowledge.

**Recommendation: Treat teachers more like start-up founders. “Sell” their best products on the market. Enable and encourage more businesspeople to join the staff.**

## 2.3.3 Join the global competition in education

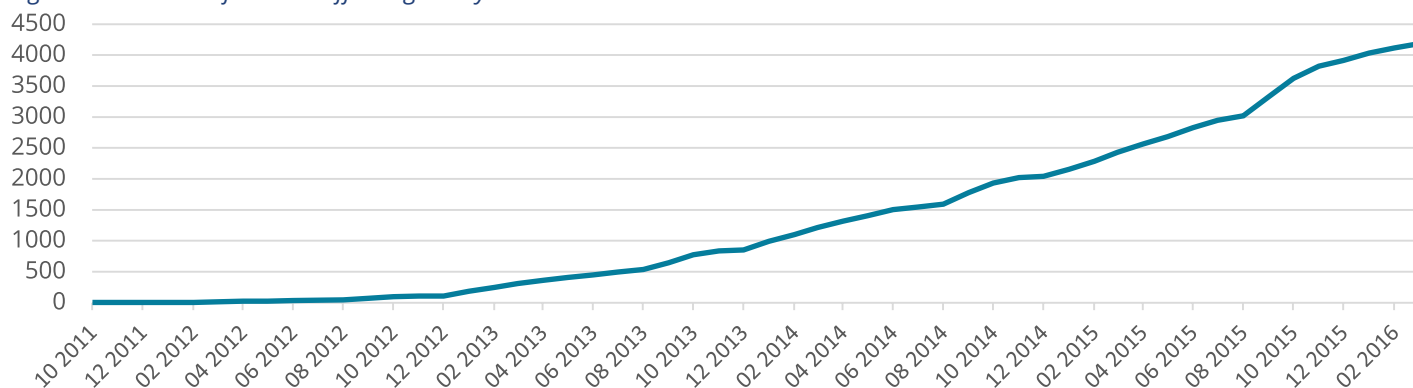
Among the 1880 courses offered on Coursera and more than 650 courses taught on edX, we did not find any coming from V4 universities. Both Coursera and edX are online platforms that provide universal access to the world’s best education. They partner with top universities and organizations to offer unique learning experiences. By now, 143 academic institutions from 28 countries have partnered with Coursera, and 46 universities have their offerings on edX. Partners include: Harvard, MIT, Stanford, and other educational giants. Most courses not only offer an interactive network of students, textbooks, and video classes, but also reward students with certificates of accomplishment (at little to no cost).

40 <http://www.seeu.edu.mk/en/future-students/financial-aid#work>








Courses offered on platforms, like Coursera or edX, are referred to as s, for Massive Open Online Courses. According to data collected by Class Central, the MOOC space doubled last year. More people signed up for a MOOC in 2015 than they did between 2011 and 2013. The total number of students who signed up for at least one course has crossed 35 million – up from about 16-18 million in 2014.<sup>41</sup> While the MOOC platforms started with merely selected courses, they now offer entire curricula or even degrees - like the iMBA from University of Illinois at Urbana-Champaign.<sup>42</sup>

Figure 1: Number of MOOCs offered globally<sup>43</sup>



We perceive innovation and creativity as the cornerstones of our future prosperity, and yet, education that guides students in developing their abilities to innovate is rarely covered in “teacher” education. Schools systems have focused on mastering one curriculum to move into the next course. Meanwhile, education around the world has become much more about acquiring certain competencies. It is not about what courses we provide; it is about how we prepare students to achieve their goal when they leave. Thanks to globalization, it became easier to receive education anywhere in the world. Our educational system should understand these challenges and prepare students to work in a dynamic, rapidly changing environment.

|  | EU<br>AVERAGE   | PL  | CZ  | SK  | HU  |
|--|---|---|---|---|---|
|  |  |  |  |  |  |
| Employment in knowledge intensive activities<br>(% of total employment)  | 13,8  | 9,6   | 12,9  | 9,6   | 12,8  |
| Knowledge-intensive services exports<br>(as % of total services exports) | 49,5  | 26,6  | 35,2  | 31,3  | 28,8  |

We can stand aside and let the world of higher education be reshaped, or we can enjoy a future where our influence is growing. If we want to set trends, we have to become exporters of know-how, not only importers. To achieve that state, our universities have to compete with other educational institutions for talent – globally! If people get to choose whether to study at the little known university, ranked in the 4th hundred, or take classes at one of the best institutions in the world, the most talented will choose the latter. One way to change this perception is to share our knowledge and showcase our best academic practices with the help of MOOCs.

**Recommendation: Develop MOOCs at the leading V4 universities. The pioneer projects should focus on teaching entrepreneurship. Teach these in courses both English and local languages to create demand.**

41 <https://www.class-central.com/report/moocs-2015-stats/>

42 <https://www.coursera.org/university-programs/imba>

43 <https://www.class-central.com/report/moocs-2015-stats/>








## 2.4 Research – how to incentivize quality research?

Successful university-business cooperation (“UBC”) is considered an essential driver of building entrepreneurial hubs. If this cooperation works properly, societies benefit from transfer of knowledge in the form of practical solutions. However, our universities still have not developed a framework for fruitful cooperation with the business world. In a study on the cooperation between higher education institutions (“HEI”) and public and private organizations in Europe, 6280 academics and higher-education institution representatives were asked to indicate to what extent their HEI cooperate with business. According to this study, our countries were perceived as ones with the lowest extent of UBC in Europe.<sup>44</sup>

In Poland, the results of the study have shown a significant lack of commitment and cultural orientation to university-business cooperation, as well as commercialization of research and development.<sup>45</sup> It turns out that “Polish higher education institutions managers and academics rate themselves and their environment to be one of the least oriented to university business cooperation in Europe”.<sup>46</sup> Poland ranks as one of the three countries with the lowest influence of business in curriculum development and delivery and the meeting of business needs, right after Greece. It is also identified as a country with the lowest collaboration in and commercialization of R&D. Slovakia and Hungary were also below the mean .

In the case of Poland, the research suggests the main barriers to cooperation in Poland lie in lacking financing (on the university level and external), lacking awareness of university research activities, and limited ability of business to absorb research findings. This might be also applicable to other V4 countries.

|  | EU<br>AVERAGE   | PL   | CZ  | SK  | HU  |
|--|---|--|---|---|---|
|  |  |  |  |  |  |
| Gross Domestic Expenditure on R&D = GERD (% 2014 GDP)      | <b>2,03</b>   | <b>0,94</b>  | <b>2</b>  | <b>0,89</b>   | <b>1,38</b>   |
| R&D expenditure in the public sector (% GDP)               | <b>0,72</b>   | <b>0,48</b>  | <b>0,87</b>   | <b>0,44</b>   | <b>0,41</b>   |
| Number of public-private co-authored research publications | <b>50,3</b>   | <b>4,7</b>   | <b>25,1</b>   | <b>13,7</b>   | <b>26,8</b>   |
| R&D expenditure in the business sector (% GDP)             | <b>1,29</b>   | <b>0,38</b>  | <b>1,03</b>   | <b>0,38</b>   | <b>0,98</b>   |

While creating successful entrepreneurial hubs in the United States, the U.S. government invested heavily in university-based research. For instance, Cyril Elwell, founder of the Federal Telegraph, raised initial financing in 1909 with the help of Stanford’s president and used the university’s High Voltage Laboratory. The result was creation of human capital in form of scientists, researchers, and innovators. In 1948, MIT started its Industrial Liaison Program (“ILP”), intending to establish relationships with large corporations that would benefit the university with sponsored research and donations. Nowadays, the ILP serves as a facilitated gateway to a wide range of services, from setting up face-to-face meetings to facilitating companies’ engagements with faculty members. This system is designed to “replace the informal, often ad hoc, in which industry technologists get connected with faculty, staff and students at many universities”.<sup>47</sup> In 2013, ILP member companies significantly contributed to financing research at MIT; approximately 54% of all corporate gifts and single-sponsored research expenditures were facilitated by the ILP.

<sup>44</sup> Davey, T., et al., The State of European University-Business Cooperation Final Report – Study on the cooperation between Higher Education Institutions and public and private organisations in Europe, 2011

<sup>45</sup> Davey, T., et al., The State of University-Business Cooperation in Poland, 2013; there are no country reports for other V4 states

<sup>46</sup> Davey, T., et al., The State of University-Business Cooperation in Poland, 2013

<sup>47</sup> Tornatzky, L.G., Rideout, E.C., “Innovation U 2.0: Reinventing University Roles in a Knowledge Economy”, 2014, p. 169

Another measure worth mentioning is the introduction of the Bayh-Dole Act of 1980 that gave US universities automatic title to research funded by the federal government performed at their institutions. Prior to that, the schools had to file for permission to license, which was a lengthy and uncertain process. This legislation resulted in creation of technology transfer offices at many universities and a considerable increase in the patenting of academic research. MIT's Technology Licensing Office ("TLO") was reorganized in 1985. Its essential function became to license patents on MIT-owned inventions to businesses that would develop the technology commercially.<sup>48</sup> The TLO is an esteemed and productive operation. In 2015, it had 795 invention disclosures, 314 US patents issued (out of 469 filed), and 91 licenses granted (not including trademarks and end-use software and 28 companies started).<sup>49</sup> It has also produced "An Inventor's Guide to Startups: for Faculty and Students", which provides members of MIT with information on the MIT Entrepreneurial Ecosystem.<sup>50</sup>

Commercialization of research should be at the center of universities' lifeblood. We could use existing examples as paragons for our local institutions. For instance, the Humboldt-Innovation GmbH ("HI"), a wholly-owned subsidiary of the Humboldt-Universität zu Berlin and the knowledge and technology transfer office of this university, is an example to follow. It was set up to act as a liaison between industry and academia and to "provide universities contribution into invigoration of the region as a center of knowledge and economy [...]"<sup>51</sup>.

HI offers a wide range of services:

- **Research services:** HI promotes and manages R&D agreements and contracts for scientific services between scientists and the private and public sector. Humboldt Innovation can manage all project stages, from initiation and launch to administration and completion. The Innovation Management team of HI helps to recognize the commercialization potential of the research in the early stages and arranges for the steps in this direction.
- **Venture services:** HI consults and supports startups and spin-offs of the University and manages the collaboration with investors and accelerators. These services include managing the spin-off zone at the campus, a pre-incubator that provides space and creative environment to develop successful ideas. Also, HI acts as an agent to help in acquiring different forms of funding for promising university ventures. HI assists with the application for public funding; it can also negotiate subsequent funding by angel investors, venture capitalists, banks, and crowdfunding platforms. Venture services also include validating the research for industry applications. This job is done by two Transfer Managers, who help to acquire financial support for the transfer.
- **Marketing:** HI markets and commercializes resources and rights (including trademarks and archives) on behalf of the University, mainly through licensing or entrepreneurial activity.
- **Consulting:** HI, in cooperation with external partners, offers professional training in knowledge and technology transfer
- **Education:** HI organizes presentations and workshops on knowledge and technology transfer, conducts studies and counsels clients.

Our proposal is to follow this example and establish similar modern and market-based Technology Transfer Managers at local universities. The first actions of these companies should focus on research promotion and management and venture services (as described in the example above), as those areas require immediate attention in the V4 countries. These subsidiaries should employ people with market experience, with extensive knowledge of the industry with which they would have to work. We believe these companies could, potentially, be co-financed by the private sector<sup>52</sup>, as their mission would be to improve the quality of inventions and their market readiness.

**Recommendation: Establish technology transfer managers at the leading local universities on the basis of existing models (e.g., Humboldt Innovation GmbH).**

48 Polenske, K.R., The Economic Geography of Innovation, 2007, p. 271

49 <http://tlo.mit.edu/about/statistics>

50 [http://tlo.mit.edu/sites/default/files/documents/MIT%20Startup%20Guide\\_Final%2011-19-2010\\_0.pdf](http://tlo.mit.edu/sites/default/files/documents/MIT%20Startup%20Guide_Final%2011-19-2010_0.pdf)

51 <https://www.humboldt-innovation.de/projects/HumboldtInnovation/static/custom/file/HI-Jubilaeum-2015.pdf>

52 This could be done via tax-free donations or by buying shares in such companies.

In the most optimistic scenario, several V4 universities could join forces and establish one organization with the mission to promote regional collaboration and enhance the potential of academia-business cooperation. We believe such an organization could evolve into a “R&D bank.” This “bank” could serve as an intermediary between researchers and business. We imagine two possible jobs for such an institution:

1. acquiring intellectual property (“IP”) from researchers for a fixed fee, with potential variable upside after the IP has been resold to the private sector,
2. “lending” IP, i.e., transferring the “ownership” of an IP for a pre-determined period, with an option to prolong and potential to grant it to more than one user.

In the first case, the researchers would receive additional funding (although low) early, which could allow them to continue their research. If an IP could be granted to more than one user, and/or the value of the IP can, foreseeably, grow quickly over time, the “bank” could transfer it temporarily and receive a fee. We hope this could prevent the so-called “patent wars”, i.e., companies acquiring IP to hinder their competitors from using it.

Finally, we would encourage V4 governments to allow universities to establish venture funds at universities. These funds, run by professional venture capitalists, should be mandated to invest in the university spin-offs on a market basis. They could be established as part of the “venture services” provided by the technology transfer centers mentioned above or exist independently. We propose to make those funds evergreen, i.e., allow proceeds from successful sales of businesses to refuel the funds and refrain from fixing the funds’ lives.

**Recommendation: Establish evergreen funds at the local universities with a mandate to invest in university spin-offs.**

## 2.5 Capital – how to attract quality capital and financing for entrepreneurs?

Thirteen unicorns, i.e., companies estimated to have exceeded the value of USD 1 bn, emerged in Europe between January and May 2015. The United States produced 22 unicorns. However, the total value of all unicorns in Europe has been estimated at USD 120bn.<sup>53</sup> This is not even close to market capitalization of Facebook, a single company with a market cap of more than USD 300bn.<sup>54</sup> Research shows building a unicorn company takes approximately USD 140mn in investment.<sup>55</sup> The majority of European unicorns received investment from 5 to 8 institutional investors to date. Only 10% have raised more than USD 300mn, while 20% have raised less than USD 50mn. This indicates the vast majority of very successful companies need funding in the range between \$50m and \$300m.

Some authors<sup>56</sup> argue the state is the only “entity” able to take the risk of financing early stage innovation that may be “the next big thing.” They refer to the role governmental support played in launching Silicon Valley, where several companies were spun out from Stanford University in the 1950s to develop microwave technology for the Cold War under government contracts, followed by government-sponsored projects around spy satellites and ballistic missiles in the 1960s.

We argue that our countries should not look to public money to fund breakthrough innovations. Due to an economic crisis, lack of public money forced many governments to maintain running expenses to the detriment of long-term development goals. To avoid this financing gap, we should focus on creating the private market for financing innovative, yet untested ideas. Even in the early days of the Silicon Valley, it was also private capital that helped finance new ventures. Consider, for example, Frederick Terman, the dean of Stanford’s Engineering School, who directly assisted in financing Hewlett-Packard in 1938.

<sup>53</sup> GP.Bullhound, „European Unicorns: Do They Have Legs?”, June 2015

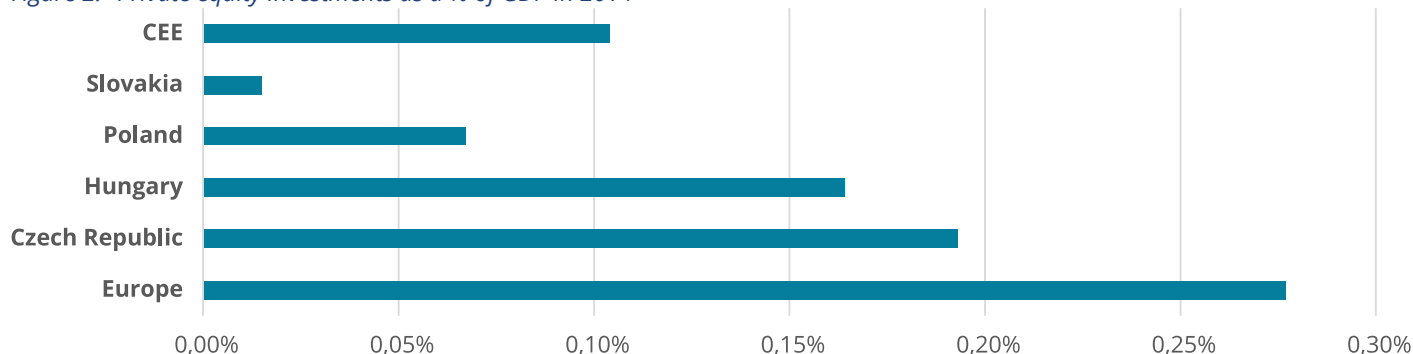
<sup>54</sup> As per April 13th 2016.

<sup>55</sup> DEPENDENT TECHNOLOGY RESEARCH EUROPEAN BILLION DOLLAR COMPANIES 2015 European Unicorns: Do They Have Legs?

<sup>56</sup> Mazzucato, M., The Entrepreneurial State: Debunking Public vs. Private Sector Myths, 2013





Venture capital is a subset of private equity. Venture capital firms are professional managers of risk capital. They aim to support the most innovative and promising, yet untested, business ideas. Venture capital firms acquire ownership stakes and help companies grow in exchange. The money is made on existing investments that become more valuable over time.

Figure 2: Private equity investments as a % of GDP in 2014<sup>57</sup>



The value of venture investment in CEE rose by 38%, with all venture sub-segments increasing in 2014. The most notable rise was observed among companies receiving start-up funding, with 106 companies financed. Hungary and Poland are regional leaders and account for combined 55% of total CEE venture investments.<sup>58</sup> Across the CEE region, the VC sector accounted for 7% of total private equity investments by value, but 72% by number of companies backed. We have to note that 2014 was a record year in terms of VC investment activity, with USD 86.7bn invested in 6507 deals globally.<sup>59</sup>

Table 1: Type of investment by CEE country in 2014 (no bank leverage included)<sup>60</sup>

|                       |  |  |  |  |
|-----------------------|---|---|---|---|
| Amounts in EUR ('000) | Czech Republic  | Hungary   | Poland  | Slovakia  |
| STAGE                 |   |   |   |   |
| Seed                  | 0   | 1 496   | 1 820   | 800   |
| Start-up              | 2 933   | 22 174  | 9 722   | 900   |
| Later-stage venture   | 6 134   | 8 477   | 10 472  | 3 000   |
| <b>TOTAL VENTURE</b>  | <b>9 067</b>  | <b>32 146</b>   | <b>22 014</b>   | <b>4 700</b>  |

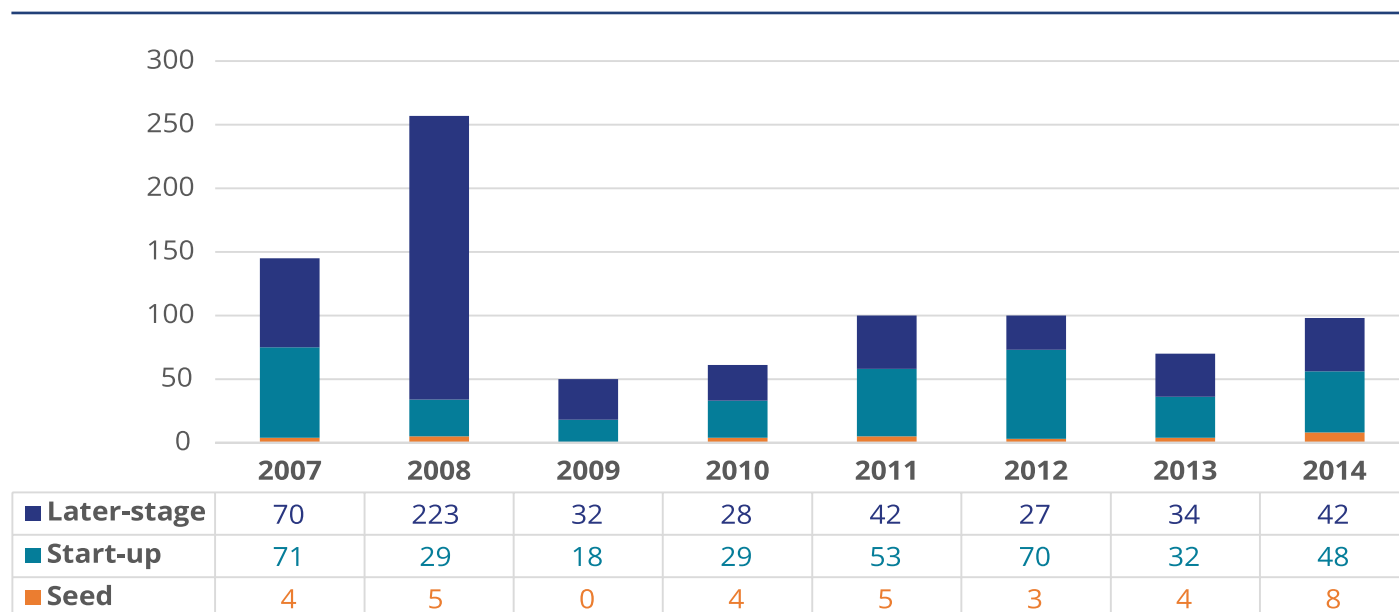
Despite the growth of the CEE venture capital market, it has not reached its pre-2008 levels. Also, the CEE share of European venture investment value was merely 2,7% in 2014; however, it has grown by 0,6 percentage points, with 2,1% in 2013.

<sup>57</sup> European Private Equity and Venture Capital Association, EVCA Central and Eastern Europe Statistics 2014, August 2015

<sup>58</sup> European Private Equity and Venture Capital Association, EVCA Central and Eastern Europe Statistics 2014, August 2015

<sup>59</sup> EY, Venture Capital Insights 4Q14, Global VC investment landscape, January 2015

<sup>60</sup> Adopted from European Private Equity and Venture Capital Association, EVCA Central and Eastern Europe Statistics 2014, August 2015



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Let us compare the European Union to the United States. In the US, the venture capital investments represented 0.3% of GDP in 2014, compared to 0.02% of GDP in Europe (which represents a 60% decrease in nominal terms from 2008).<sup>62</sup> Silicon Valley may have over three times as many early stage tech investors as Europe.<sup>63</sup> It means there are more funds available for creating companies in the US. According to a recent study conducted in Poland<sup>64</sup>, 55% of start-ups want to partner with a venture investor.

### Case study: India

Venture capital industry in India has come a long way. Its modern origins can be traced to the setting up of a Technology Development Fund in the years 1987-1988, with the aim to provide financial support to innovative and high-risk technological initiatives. By that time, venture capital received official recognition. In 1991, thanks to economic liberalization<sup>65</sup>, India became more open to foreign investors. Then, several reforms were introduced by the government, looking for ways to attract FDI in India. These reforms included the elimination of multiple overlapping regulations referring to VC, introduction of a tax pass (tax neutrality) for venture assets, expansion of the number of domestic institutional investors permitted to commit funds to venture vehicles, or augmentation of the IPO requirement to present a three-year track record of bank financing to include companies funded by the registered VC funds.<sup>66</sup> The availability of venture capital increased sharply, especially after 1998, following the Internet bubble, but it did not stop there.

The VC investment in India reached USD 5.2bn in 2014. This amount rose by 49.3% CAGR between 2009 and 2014!<sup>67</sup> Much of this growth was driven by foreign investors. Many were attracted to a growing capital market. In September 2008, just before the beginning of the financial crisis, there were almost 5000 companies traded on the Bombay Stock Exchange, with over 200 IPOs over the previous 2.5 years. Between 2008 and 2014, more than USD 850mn (in nominal terms) was raised by VC-backed companies through IPO exits in India, over USD 100mn more than in Israel.<sup>68</sup>

One of the most compelling success stories was the investment made by Warburg Pincus. Between 1999 and 2001, this global private equity investor acquired 18% of Bharti Televentures, an Indian mobile telephony firm, for USD 292mn. By the time the investment was made, Bharti had a market capitalization of USD 100mn. The company used the money to expand its operations. By the time Warburg Pincus exited the investment (2005), Bharti's market cap was USD 15bn. Experts estimate Warburg's realizations at USD 1,6bn.<sup>69</sup>

61 European Private Equity and Venture Capital Association, EVCA Central and Eastern Europe Statistics 2014, August 2015

62 [http://www.eif.org/news\\_centre/publications/tackling-smes-asymmetric-risk-the-eib-approach.pdf](http://www.eif.org/news_centre/publications/tackling-smes-asymmetric-risk-the-eib-approach.pdf)

63 <http://www.businessinsider.com/white-star-capital-on-early-stage-funding-gap-in-europe-2015-11>

64 Polskie Startupy Raport 2015

65 E.g. removal of the minimum size of VC funds, relaxation of permission procedures, etc. For more see: Bowonder, B., Mani, S., Venture Capital and Innovation: The Indian Experience, available at: <http://www.insme.org/files/148> (accessed on April 17th 2016).

66 Bowonder, B., Mani, S., Venture Capital and Innovation: The Indian Experience, available at: <http://www.insme.org/files/148> (accessed on April 17th 2016).

67 EY, Venture Capital Insights 4Q14, Global VC investment landscape, January 2015

68 EY, Venture Capital Insights 4Q14, Global VC investment landscape, January 2015

69 This story has been adapted from Lerner, J., The Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital have Failed – and What to Do About It, 2009, and was in turn based on Hardyman, F., Leamon, A., Motilal Oswal Financial Services – an IPO in India, Harvard Business School Case (2007): no. 9-807-095; and Fang, L., Leeds, R., Warburg Pincus and Bharti Tele-Ventures, in "The Globalization of Alternative Investments: Working Papers", Gurung, A., Lerner, J. (eds.), World Economic Forum, 2008, Geneva, p. 151-163

Table 2: Phases of Growth of Indian Risk Capital<sup>70</sup>

|                              | PHASE I   | PHASE II                  | PHASE III                                  | PHASE IV                      |
|------------------------------|---|---------------------------|--|-------------------------------|
|                              | PRE-1995  | 1995-97                   | 1998-2001                                  | 2002-2005                     |
| Total Funds (in USD mn)      | 30  | 125                       | 2 847                                      | 5 239                         |
| Number of Funds              | 8   | 20                        | 50   | 75                            |
| Primary Stages and Sectors   | Seed, Early-stage and Development – Diversified | Development – Diversified | Early-stage and Development – Telecom & IT | Growth/Maturity – Diversified |
| Primary Sources of Funds     | World Bank, government                          | Government                | Overseas institutional                     | Overseas Institutional        |
| Total Number of Transactions | 30  | 65                        | 548  | 446                           |
| Average Investment (USD mn)  | 1   | 2                         | 5,20                                       | 11,75                         |

Plenty of arguments supports our vision. **First**, venture funding has a strong positive impact on innovation. A dollar of VC funding appears to stimulate patenting 3 to 4 times stronger than a dollar coming from corporate R&D. What is more, the patents of venture backed firms are more frequently cited and more aggressively litigated, hence, perceived as higher quality than their peers.<sup>71</sup> **Second**, venture capital has relatively low impact on developed industries, because its success is based on capitalizing on revolutionary changes. Therefore, it does not threaten mature businesses if they are not affected by an industry disruption supported by VC. **Third**, the presence of venture capital might reduce the time taken to bring a product (especially an innovative one) to market.<sup>72</sup> **Fourth**, venture market is temporary by nature, as venture funds are typically required by investor agreements to exit their investments within a certain timeframe (e.g. 3-5 years). Therefore, we should not be worried about foreign investors “expropriating” us of our crown jewels. Instead, we should encourage them to “validate” the market by investing in local companies. Many of recent success stories, such as Israel and Singapore, experienced a major boost from global players, while building their venture markets.

How can we build a hefty venture capital market in our region? We should focus on the following areas:

- expanding potential investor base
- providing exit options,
- supporting capital providers.

### 2.5.1 Expanding potential investor base

A plentitude of options have been used. A good example of a supportive initiative was the relaxation of Employment Retirement Income Security Act restrictions in 1979 by the US Labor Department. It allowed corporate pension funds to invest in venture capital. As a consequence, pension funds became the prime funder of VC, rising from USD 100-200mn per year in the 1970s, to over 4bn at the end of 1980s. According to the National Science Board, by 1989, the capital managed by venture capital firms totaled nearly USD 33.5bn, up from USD 4.1bn in 1980.<sup>73</sup> Based on the data collected by the National Venture Capital Association, over 40% of this amount has been provided by pension plans. Other options worth mentioning include lowering the capital gains tax, as already suggested before.<sup>74</sup>

### 2.5.2 Providing exit options

One of the greatest fears of venture capitalists, especially in the emerging markets, is their investments will be difficult to exit. The possibility of an exit, especially via public markets, is also important to entrepreneurs, because they value independence and, usually, perceive VC investors as temporary sharehold-

<sup>70</sup> Surineni, S.K., Venture Capital and Private Equity in India: Systems Analysis and Development Framework, MIT, 2012 p.15

<sup>71</sup> Lerner, J., The Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital have Failed – and What to Do About It, 2009, p. 62

<sup>72</sup> Hellmann, T., Puri, M., The Interaction between Product Market and Financing Strategy: The Role of Venture Capital, Review of Financial Studies 13, 2000, p. 959-984

<sup>73</sup> <http://www.nsf.gov/statistics/seind02/c6/c6s6.htm>

<sup>74</sup> Kenney, M., Florida, R., Venture Capital in Silicon Valley: Fuelling New Firm Formation “Understanding Silicon Valley: the anatomy of an entrepreneurial region”, M. Kenney, Stanford University Press, 2000, p.98-123

Rao, A., A history of Silicon Valley: The Greatest Creation of Wealth in the History of the Planet”, 2013, 2nd edition



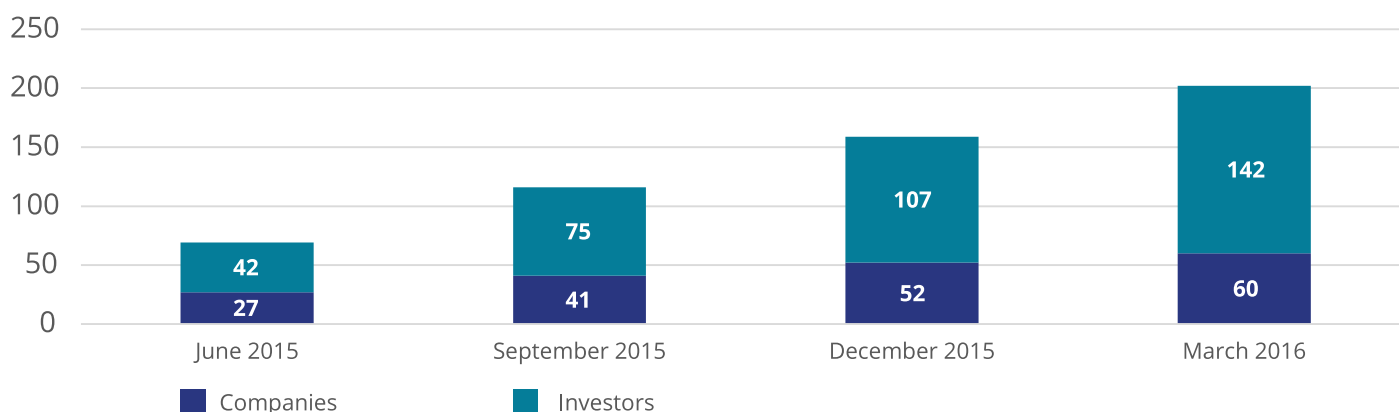
ers.<sup>75</sup> In recent years, the most favored exit option were trade sales and sales to management. In 2014, these both accounted for 63% of venture-backed companies that exited in CEE. None of the 2014 VC exits occurred via an initial public offering.

| Amounts in EUR ('000)          | Amount        | Number of companies | Amount        | Number of companies |
|--------------------------------|---------------|---------------------|---------------|---------------------|
| Trade sale                     | 4 118         | 6                   | 24 728        | 6                   |
| Public offering                | 7 677         | 3                   | 1 400         | 1                   |
| <b>IPO</b>                     | <b>0</b>      | <b>0</b>            | <b>0</b>      | <b>0</b>            |
| Sale of quoted equity          | 7 677         | 3                   | 1 400         | 1                   |
| Write-off                      | 1 168         | 4                   | 1 520         | 2                   |
| Repayment of principal loans   | 0             | 0                   | 1 076         | 3                   |
| Sale to another private equity | 4 000         | 1                   | 0             | 0                   |
| Sale to financial institution  | 5 272         | 3                   | 7 250         | 1                   |
| Sale to management             | 23 465        | 10                  | 5 237         | 6                   |
| Other means                    | 0             | 0                   | 0             | 0                   |
| <b>TOTAL</b>                   | <b>45 699</b> | <b>26</b>           | <b>41 212</b> | <b>19</b>           |

There might be several possible explanations of this phenomenon. For instance, the valuations might not have been attractive, or the companies were not yet ready to sell their stocks. However, other possible explanations include: lack of adequate offer for young firms, lack of know-how required to conduct a public offering, or lack of liquidity and trust in our stock exchanges (and their environment). We hope this is not the case, because – as research suggests – the number of IPOs affects the amount of venture capital invested, especially in later-stage investments.<sup>76</sup> To remain competitive, our regional stock markets should consider all these scenarios.

The same idea seems to have guided Deutsche Börse, when it launched the “Deutsche Börse Venture Network” Program in June 2015. The Program aims to improve funding opportunities for young growth companies. Venture Network comprises a non-public online platform, where funding rounds will be initiated, with training and networking events. To qualify, companies must meet selection criteria (certain revenue, revenue growth, and/or annual net profit requirements). The platform, resembling equity-crowdfunding solutions, might **offer both a primary and secondary market for offerings online.**

Figure 3: Number of DBVN participating investors and companies



<sup>75</sup> This notion goes back to the work done by Gilson and Black, who showcased that venture capital has greater vitality in stock market-centered systems. Gilson, J., Black, B.S., „Venture Capital and the Structure of Capital Markets: Banks versus Stock Markets”, *Journal of Financial Economics* 47, 1998, 243-277

<sup>76</sup> Jeng, L.A., Wells, P.C., The Determinants of Venture Capital Funding: Evidence across Countries, in: *Journal of Corporate Finance*, 6, 2000, p.241-289

Deutsche Börse Venture Network has been quite successful so far, attracting over 140 investors and 60 companies in 9 months since it started operations. The Budapest Stock Exchange (“BSE”) is also waging a similar project and aims to proceed with the specifics in the first half of this year. The candidate companies would have to enter into an agreement with the BSE and provide certain information prior to being eligible for the platform. Transactions between investors could be concluded as an auction or 1-on-1 negotiations.

This should not be a surprise. The market for alternative finance (including equity-based products) has grown, with an average yearly growth rate of 146% between 2012 and 2014. It was estimated to be worth nearly EUR 3bn in 2014.<sup>77</sup> Equity-based crowdfunding reached EUR 47.45mn in 2013 and EUR 82.56mn in 2014, which seems like nothing, compared to the total European early-stage investment market (worth EUR 7.5bn in 2013<sup>78</sup>). However, equity crowdfunding is growing fast, with a 116% average growth in the last 3 years. To summarize: crowdfunding grows rapidly and might, at one point, disrupt the business of stock exchanges. Missing out on this opportunity might have disastrous effects to our local capital markets. The venture capital industry is driven by a continuous pipeline of investment opportunities that promise significant returns. These platforms may serve as a stream of promising businesses that could help us build and sustain the venture capital market.

**Recommendation: We recommend other V4 countries to follow suit. A platform like Deutsche Börse Venture Network is a chance to educate companies, expand the local VC investor base, and prepare an exit market.**

### 2.5.3 Supporting capital providers

Building friendly ecosystems for capital providers requires understanding their needs and challenges. Policymakers often try to support businesses, making decisions based on incomplete information. As one study determined, 49 of 50 U.S. states started programs to promote certain industry, hoping to create a cluster of activity, but only a handful succeeded.<sup>79</sup> Having this in mind, we would encourage public bodies, regulatory offices, especially, to work closer with the business world. One way to do this is the already mentioned Innovation Hub in the United Kingdom. Another great idea is a public consultation online platform, launched recently by the Start-up Poland Foundation in cooperation with the Polish Ministry for Development. One way or the other, building a robust venture capital market requires a **lasting commitment by public officials**. Immediate returns should not be expected, and initial failures should not work as discouragements.

## 2.6 Networks – how to support mechanisms of sharing experience and resources?

According to Linda Rottenberg – co-founder of Endeavor and one of TIME’s 100 “Innovators for the 21st century” – the best incubator for entrepreneurship occurs when entrepreneurs form close networks and nurture fellow risk-takers with their experience and resources.<sup>80</sup> Networks are powerful because of their ability to achieve more than one entity could do alone. Their value lies in diversity. A diverse network of people with expertise in different disciplines and the ability to solve various problems attracts more talented people in a self-reinforcing virtuous cycle.

### Case study – the Rust Belt

The Rust Belt (formerly known as the “Manufacturing Belt”) is a term used to describe the oldest and the biggest industrial region in the United States. It encompasses the upper Northeastern United States, the Great Lakes, and the Midwest States. The term “Rust Belt” has become a synonym to economic decline, loss of population, and urban decay due to hardships of a once powerful industrial zone. Let us look at two

77 Zhang, Z., Wardrop, R., Rau, P.R., Gray, M., Moving Mainstream. The European Alternative Finance Benchmarking Report, February 2015

78 EBAN, The European Trade Association for Business Angels, Seed Funds, and other Early Stage Market Players – Statistics Compendium for 2014

79 Feldman, M. P., Francis, J.L., Fortune Favors the Prepared Region: The Case of Entrepreneurship and the Capitol Region Biotechnology Cluster, in: European Planning Studies, no. 11, 2003, p. 765-788

80 <http://knowledge.wharton.upenn.edu/article/making-entrepreneurship-contagious/>

towns in the Rust Belt area: Youngstown and Allentown. Both had similar demographics and economic structures and fell prey to the declining steel industry. The difference was, while Youngstown was ruled by highly intertwined elites that wanted to isolate their city from any economic changes that could question the status quo, Allentown had looser networks that enabled nurturing relationships across social and political lines. Some researchers suggest Allentown better managed to bounce back from the downturn because of that: it had individuals and organizations that served as bridges between various groups that needed to be engaged in the region's recovery.<sup>81</sup>

It is hard to replicate a particular alchemy of networks, as all sorts of different actors are needed to create it. Every actor and every interaction could both reinforce the network and end it. There are, however, several factors that could support building a well-functioning entrepreneurial collaboration system.

## 2.6.1 Creating an open environment

Successful entrepreneurial networks are open environments. The culture of openness attracts top human resources and causes a brain drain in other parts of the world, mainly because systems of easy information exchange and job-hopping allow people to pursue new ventures faster. Let us take Silicon Valley as an example. Over 50% of Silicon Valley's companies are founded by immigrants, not "local talent".<sup>82</sup>

**Recommendation: V4 countries must work on removing barriers for people who want to work and study abroad and, simultaneously, attract global talents to come to work and study in our countries.**

This recommendation, however, has to be read in conjunction with the next point.

## 2.6.2 Embracing interdependencies and creating sharing mechanisms

Over the years, people who used the opportunity to pursue a cutting-edge experience abroad tend to get involved in ventures in their native lands as financiers, advisors, or local entrepreneurs. A network of expatriates is an important source of new ideas and capital for ventures. **Consider, for example,** the Hsinchu-Taipei region of Taiwan. It is perceived as one of the most cited success stories, regarding entrepreneurial hubs. Much of its prosperity might be attributed to a decentralized process of reciprocal transfers of capital, skill, and know-how of Taiwanese talent taught at the best universities in the world.

### Case study – Chinese Institute of Engineers

In 1979, a group of Taiwanese immigrants in San Francisco started a local branch of a New York-based organization - Chinese Institute of Engineers ("CIE"). The aim was to promote communication and cooperation among the region's Chinese engineers. In its early days, CIE was based on pre-existing social ties. The first meetings were focused on helping members find a job or start a business. As the organization grew, previous generations of CIE members became role models for the newcomers. But this was just a beginning. The Institute quickly surpassed its NY headquarters to become the largest of its kind in the US. In following years, Taiwanese immigrants established various technical and business associations.<sup>83</sup> All these organizations shared the same feat: they simultaneously fostered ethnic identities and facilitated professional networking and information exchange. People of CIE integrated into the international community. Many regularly return to Taiwan for technical seminars sponsored by government agencies or professional associations, like the CIE. The density of network dramatically accelerates the exchange of know-how, skill, and information.

81 For more see Safford, S., *Why the Garden Club Couldn't Save Youngstown: The Transformation of the Rust Belt*, 2009

82 Saxenian, A. L., *Local and Global Networks of Immigrant Professionals in Silicon Valley*, Public Policy Institute of California, San Francisco, 2002

83 For instance, the Chinese American Semiconductor Professional Association, or the North American Taiwanese Engineers Association.

Another great example is India – a country with a diaspora estimated to have totaled 18mn people in 130 countries by 2007.<sup>84</sup> According to research, 2/3 of the Indian-born entrepreneurs working in Silicon Valley advised entrepreneurs in India, and 18% invested in Indian-based firms.<sup>85</sup> As research suggests, cross-border social networks play an important role in helping entrepreneurs to overcome the barriers arising from imperfect domestic institutions in developing countries.<sup>86</sup>

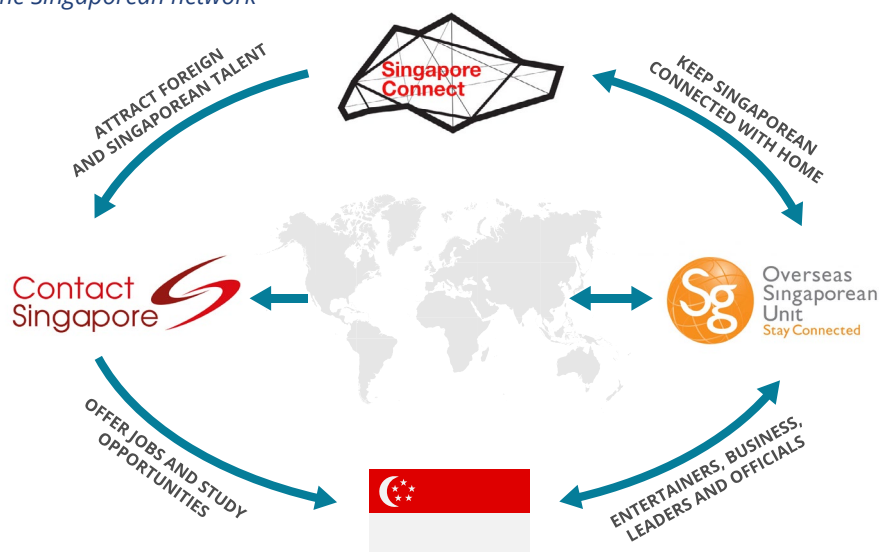
Among efforts employed by other countries, it is worth mentioning the establishment of “connect@sg”, a voluntary, non-profit Singaporean initiative, which sought to contact Singaporeans expats and connect them with native entrepreneurs. The initiative launched in 2000 and is still operational. The organisation, now known as Singapore Connect, runs several events, only some “professional.” Until 2008, it received annual funding from the Singapore International Foundation, but since then, money comes from donations, registration payments, and occasional sponsorships or grants. On these fundaments, the Singaporean government has built several initiatives and organisations to reconnect the Singaporean expats with their country.

Table 3: Selected organisation supporting Singaporean overseas<sup>87</sup>

| Organisation | Overseas Singaporean Unit   | Contact Singapore   | Consulate General   | Singapore Connect   |
|--------------|---|---|---|---|
| Focus        | Help overseas Singaporeans stay in touch with Singapore via newsletters and discount passes, bringing Singaporean entertainers and speakers to your city, and major events, like Singapore Day. | Help connect foreigners and Singaporeans to job and study opportunities in Singapore. | Help overseas Singaporeans renew their passport, help if they need special assistance, and process visas for foreigners | Help Singaporeans and friends staying in each overseas city connect over social and business events, like potlucks, dinner functions, sports, and family gatherings |
| Supported by | Prime Minister's Office   | Economic Development Board  | Ministry of Foreign Affairs   | Local Singaporeans around the world   |
| Funding      | Taxpayer money  | Taxpayer money  | Taxpayer money  | Local support, grants, and sponsorships   |

While Overseas Singaporean Unit and Contact Singapore seek to link the government in Singapore to people overseas and people who wish to study or work in Singapore, SingaporeConnect works on a more casual basis. We believe these organizations complement each other in building a successful network. It is important to remember that people who run successful organizations will not join a network because somebody orders them to. They have to feel the need to join and know that participating is helping them make progress toward a shared goal. That is why these different ties should be supported.

Figure 4: Dynamics of the Singaporean network



84 Nanda, R., Khanna, T., *Diasporas and Domestic Entrepreneurs: Evidence from the Indian Software Industry*, Harvard University, 2009

85 Saxenian, A. L., *Local and Global Networks of Immigrant Professionals in Silicon Valley*, Public Policy Institute of California, San Francisco, 2002

86 Nanda, R., Khanna, T., *Diasporas and Domestic Entrepreneurs: Evidence from the Indian Software Industry*, Harvard University, 2009

87 Adopted from: <http://www.singaporeconnect.org/pages/about-us>

We think it is necessary to build a local organization(s) to reconnect our expats with their home countries. Such an organization could be built on the example of Contact Singapore, on a per country basis, or as an alliance between several Ministries. It is in our best interest to engage global talent to **work, invest, and live in the Visegrad countries**. Knowing that a plethora of our local problems stretch locally, we could use this platform to exchange know-how and help our enterprises go international from the beginning. In order to cement the network, our countries should support the establishment of informal, decentralised networks around the world, especially in the best entrepreneurial hubs.

**Recommendation: Attract expats, global talent and investors by building a professional network organization, e.g., “Contact Visegrad”. Support local informal networks, e.g., with grants and donations.**

## 2.7 Culture – how to spur a culture that embraces both successes and failures?

There have been many attempts to replicate the success of the Silicon Valley, but nearly all of them have failed. We believe the reason lies in ignoring the intertwined character of features that make an entrepreneurial ecosystem successful, its **culture**.

### Case study: New Jersey

New Jersey is one of the leading high-tech centers in the US, home to the laboratories of over 700 companies (including giants, like Johnson&Johnson, Merck, Bayer, or Bristol-Myers Squibb) and over 50 000 science and engineering workers. As a former home to both Thomas Edison and Albert Einstein, it has a rich history of scientific research. The geography also seems advantageous – New Jersey is situated close to Philadelphia and New York City. Because of time zones, people can communicate with both California and Europe in the same day. It has renowned universities, like Princeton, Rutgers, or the New Jersey Institute of Technology, to name few. Since the 1960s, New Jersey has continuously attempted to become the next Silicon Valley. It put together a consortium of local research organizations and hired Fred Terman, the Stanford University dean, credited for creating Silicon Valley. Although New Jersey had the greatest concentration of engineers and scientists in the US, Terman’s idea was to establish a new graduate university, with enough credibility to recreate the Silicon Valley’s culture of innovation. But neither the industry nor the academia wanted to collaborate on this project. Big drug firms did not want to reveal their research to the public, and other leading companies did not want to share their best researchers with universities. The culture of the East Coast favored academic publications, instead of entrepreneurship. The consortium established to execute Terman’s ideas fell apart, and there was no new university, nor the new Valley.

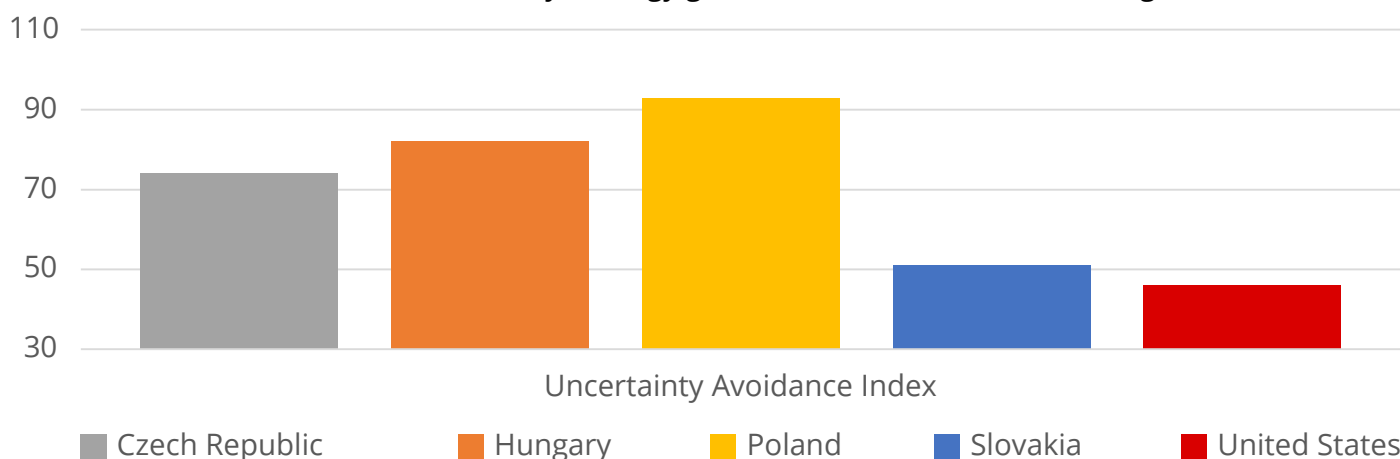
There are many other examples of how government-led initiatives produce lackluster results. Consider, for example, the Kuala Lumpur based BioValley, where a USD 150mn project incubated only a handful of biotech companies. Look at USD 40mn injected into over 800 start-ups in Chile, of which almost 80% have moved to the Silicon Valley or New York City. Imagine USD 2bn spent for a start-up hub in Moscow, without a groundbreaking success. But why is this so?

We believe the “glue” for all required components is the powerful culture that drove Silicon Valley during its growth. It is a culture that supports experimentation and risk-taking, a culture that, as we already described, developed mechanisms of sharing both good and bad experience. It is a culture of close ties between local universities and startups. This culture encourages job-hopping and absence of legal and social barriers. Silicon Valley’s culture means competing and collaborating, at the same time. Such a culture is hard to nurture and takes time to build.

As you can see, we perceive culture as an **act of balancing many elements of the entrepreneurial hub** described above. It comprises many small actions that, when put together, create something larger than the sum of its parts. We believe the act of sparking this culture must start with inculcating a set of beliefs that make entrepreneurship a **valid and respected career choice**. A study conducted by

EY in the G20 countries showed 84% of entrepreneurs were of the opinion that **raising awareness of entrepreneurs' role** as job creators would significantly improve attitudes to entrepreneurship.<sup>88</sup> This could be done by following our recommendations in “education.”

Another point raised in the EY study was the view of 67% of entrepreneurs that business failure is a negative experience, rather than a way to get better. We have already indicated how important it is to **remove the stigma of failure**. We want to stretch it and say that risk, **especially the risk of failure, is inherent** in any business activity. We have to learn to **deal with it** in a way that does not discourage next generations of entrepreneurs to face it. This is important, because our countries do not deal well with anxiety. Our countries (except for Slovakia) score high on the Hofstede's Uncertainty Avoidance Index. Countries exhibiting high uncertainty avoidance are mostly intolerant of unorthodox behavior and ideas. In these cultures, security is important and innovations may be resisted. Even worse – when potential entrepreneurs, especially highly talented people with many career options see the efforts of their colleagues who chose to be entrepreneurs fail, they choose safer paths. How can countries, like ours, succeed in a world, where the only strategy guaranteed not to fail is not taking risks at all?



In our opinion, it could be achieved by mobilizing regional role models to participate in events and campaigns that promote the entrepreneurial way of life. These people inspire and attract new generations of successful entrepreneurs. They should emphasize the benefits of entrepreneurship, from innovation to creation of jobs and broader economic prosperity. They have to demystify the art of failing and getting through the hard times, because, after all, we all have failed in our lives. If we could create confidence and optimism among talented people in the V4 region, these people might succeed beyond their wildest dreams!

**Recommendation: Showcase successes and failures. Teach to embrace and deal with risks.**

## 2.8 Closing remarks

Visegrad Valley, a place between mature Europe and the “Wild East”, is a mix of two worlds that successfully transformed from communism into capitalism. Now, it looks up to its entrepreneurs and leaders, who are not afraid to dive deep into the unknown and stand as role model for bold economic development. On its course to shape the future, it will need help with institutional voids, political resistance, knowledge, and financial gaps. To overcome those challenges and create the Visegrad Valley, the Visegrad countries will need help from all stakeholders. Having heeded the lessons of recent decades of transformation, the first steps on the path to future prosperity have been made. We hope we can lead our countries into the next 25 fruitful years.

<sup>88</sup> The EY G20 Entrepreneurship Barometer 2013



### 3. AUTHORS



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Born in Poland, raised in Germany, Damian understood early on in his life about the benefits of cross-cultural cooperation. His career path led him through some of the world's financial centres, including London, Frankfurt, Moscow, Shanghai and Singapore. For his studies in CEMS International Management and International Business he has chosen Cambridge, Berlin, Warsaw and Hong Kong.

As alumni of the Academy of the Leaders of the Capital Market, the American Institute of Political and Economic Systems in Prague and Visegrad School of Political Science, he is largely engaged in Central Europe's integration. He organised the Central and Eastern Europe Capital Markets Leaders Forum in Warsaw and contributes to the public debate on the region's development in finance, education and entrepreneurship through publications and comments in media. In his free time Damian is a passionate football and rugby player and a dedicated passport stamp collector.



**Pawel Michalski**  
Project Leader  
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Pawel has two years of experience in project and structured finance with the biggest bank in the CEE. He is also involved in matters relating to infrastructure and energy investments. Prior to his role at the bank he gathered experience in at legal firms, providing capital market related services.

He graduated from the Faculty of Law at the University of Warsaw (with distinction) and pursues his second degree at the Warsaw School of Economics. He also studied at the University of Zurich and completed the German Law School organised by the University of Bonn.

In his spare time Pawel develops non-governmental and charity projects. He leads the Infrastructure Team at the Young Reforming Poland and is a member of the board at Weimar Triangle Association. Pawel also helps developing several projects of the Lesław Paga Foundation, including the Capital Market Leaders Academy. He also enjoys reading books and playing basketball.



**Damian Szewczyk**  
Team Leader Energy and Infrastructure

Damian has 5 year experience both in private and public sectors. He is currently engaged in FinTech and Venture Capital sectors developing an international private bank. Previously he has been working an investment professional in Polish State Railways Group (transport and real estates), Credit Suisse and Bastion Group (investment banking).

Besides business he is engaged in a number of pro bono initiatives concentrated on capital markets education in Leslaw Paga Foundation through participation in Capital Market Leaders Academy and CEE Capital Market Leaders Forum as an originator and project manager. He is also a member of the Board in "The Young Reforming Poland" association dealing with public policy issues as an expert for energy, infrastructure and capital markets.

He graduated from Cracow University of Economics and holds a MSc in Corporate Finance Management and Controlling. He studied also in Wirtschaftsuniversität Wien. In free time he runs and travels.



## Dominik Keil

### Finance

Dominik is a passionate of analysing varying businesses from financial and strategic perspective. He started his career while pursuing two bachelor faculties at Poznan University of Economics, namely: Strategic Management and Finance & Accounting. During his studies he completed a one year internship in the Valuation and M&A department of Polish branch of international advisory firm Grant Thornton. After exploiting opportunities in Poznan he decided to move to Warsaw, where he completed summer internship at Innova Capital – one of the leading Private Equity firms in the CEE region. The internship sparked his interests in the Private Equity industry, in which he decided to specialize in his further academic endeavours. Currently Dominik is pursuing his two-year master's degree in Finance & Investments at Copenhagen Business School. This year, he will also join Deutsche Bank, as a Summer Analyst at Investment Banking Department in London. In his spare time Dominik enjoys traveling, cinematography and ethnic music.



## Sebastian Wieczorek

### Finance/Euro

Sebastian has over three years of experience in corporate finance. Currently he works as an Analyst in the Investment Banking Division of a leading bank in CEE. Previously engaged in the venture capital sector, the capital market and research on the financial institution regulations. He is an alumnus of the Capital Market Leaders Academy.

Systematically uses professional and academic background to leverage various charity and social projects. He is a member of the innovation policy team in The Young Reforming Poland association. While studying he was the vice chairman of the leading student project in the field of monetary policy in Poland. His passion to share knowledge with others caused him to develop an educational project which aims to increase awareness of economics and finance, especially among young people.

Sebastian graduated from Warsaw School of Economics and holds a Master degree in Finance and Accounting with specialization in Banking. He was awarded a best master thesis in the field of economics and finance. In his free time Sebastian writes articles, runs or lifts weights.



## Petra Kaciakova

### Euro

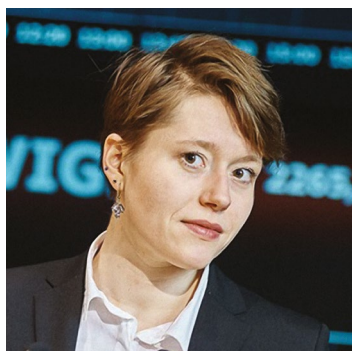
Petra was born in Slovakia, but moved to Prague, Czech Republic, where she is already living for 6 years. She finished bachelor's degree in economics at University of Economics in Prague and is currently finishing master's degree in Law at Charles University. During her studies she participated in different student NGO projects as a project manager or financial director. She is interested in business and investments and is working for small czecho-slovak investment company as a financial analyst engaged not only in analysis, but also in many legal questions targeting the ongoing business. Her hobbies are fitness, weight lifting and travelling.



## Zsombor Incze

### Finance

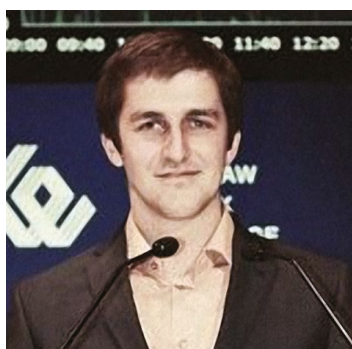
Zsombor was born in Budapest, Hungary. He has a strong interest towards entrepreneurship and capital markets, he has launched his first business as a high-school student. Currently he studies Finance MSc at Corvinus University of Budapest after his BA in Applied Economics. His engagement in student life was topped by serving as the Chief Financial Officer, Member of Directorate at Heller Farkas College of Advanced Financial Studies. He has done several internships in various industries. His most recent internship was at Morgan Stanley's Budapest-based securitized products structuring team where he had focused on residential mortgage backed securities. He still has his business interests in IT/real estate. His scientific achievements include student papers in the topics of SMEs, behavioral finance, FDI or energy. In his free time he likes orienteering, sailing and natural photography.



## Joanna Rycerz

### Energy

Joanna is a lawyer, currently on the last year of Advocates' Training at Warsaw Bar of Advocates. Joanna is scholar of double scholarship of the Rector of the University of Rzeszow for the best students and double scholarship of Lesław A. Paga Foundation in programs Academy of Energy and Academy of Analysis and Media. Joanna is also an alumni of Florence School of Regulation, a Programme Specialised Training Course on Regulation of Gas Markets. Joanna gained experience about the Polish and EU regulations during her work for Polish Energy Regulatory Office, law firms, Polish Power Exchange as well as during course in Florence School of Regulation. Currently Joanna works at Tax & Legal Department at PwC Poland where provides tax and regulatory consulting for energy and oil&gas companies. As an alumni of Lesław A. Paga Foundation she was co-author of numerous publications regarding energy sector and tax law. Joanna is passionate of energy sector and new technologies.



## Tomasz Nisztuk

### Infrastructure

Graduated from Finance and Accounting at the Warsaw School of Economics and from CEMS Masters' in International Management at Bocconi University and Warsaw School of Economics. During his Bachelor studies he completed an exchange program at the City University of Hong Kong.

Although, during studies he never considered working in rail industry, after graduation he became Business Assistant to the CFO of Polish Intercity Railways and became passionate about railways. As Assistant he helped to coordinate implementation of high-speed railways in Poland and supported CFO in daily activities. Currently works as analyst at EY.

Tomasz took part in multiple extracurricular activities such as Youth Reforming Poland. He has reached the finals of EY Financial Challenger, the most prestigious transaction advisory competition in Poland and is a scholar of the Capital Markets Leaders Academy, prestigious fellowship program for young high-potentials. Privately passionate about travelling and mountaineering. Occasionally Tomasz publishes columns on railways, Warsaw and travelling.



## Ondřej Dvouletý

### Entrepreneurship

Ondřej was born in the Czech Republic. Currently he is a doctoral student at the University of Economics in Prague, Faculty of Business Administration, Department of Entrepreneurship. He is interested in entrepreneurship and evaluation of impacts of entrepreneurial policies. Previously he obtained master degree in economic policy at the same University. Ondřej also studies a master degree in Entrepreneurship at Linnaeus University in Sweden. Ondřej is not only theoretically interested in entrepreneurship, he has been also engaged in his own business activity focused on data analysis and econometrics tutoring since 2013. To his hobbies belong sport, geocaching and playing chess.



## Piotr Krzemiński

### Infrastructure

Piotr is currently an entrepreneur, running a family business in Bydgoszcz, Poland. Since 2011 he has been working both in private and public sectors. Among others, he took part in consulting projects in PwC, advised Polish Minister of Infrastructure on road, railway and aviation regulations, and co-managed the market analysis department in Polish State Railways. He graduated from ESCP Europe Business School (MSc) and Poznan University of Economics (BA). Piotr is also engaged in numerous non-profit initiatives such as Lesław Paga Foundation, Civil Development Forum, Youth Reforming Poland association and Toastmasters International. He is passionate about mountain trekking, exotic travels and public speaking.

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**Martin Vlachynsky**, Think Tank INESS

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