

Bulletin of Central and Eastern Europe

No

13

Startup Ecosystem in the CEE Countries

Sara Koślińska

For the last couple of years, a movement that began in Silicon Valley and Boston has also been quickly becoming more and more important in Europe.

Even though countries like Poland, Czech Republic, Estonia and Hungary have grown quickly, they're still far behind cities such as London or Berlin. None of the CEE accelerators or Venture Capital Funds is among the top ones and very few regional companies get to the global top of the accelerators (in case of Poland these were 3 companies so far). Warsaw is the only CEE city to be listed in the Startup Ecosystem Report as one of the next runner-ups after 20 main startup Hubs.

Purpose

The presented bulletin was created as an answer to an emerging need for understanding the development and changes in the startup ecosystem in the CEE region.

Although it doesn't cover all the areas that are necessary to describe and compare local ecosystems, it does present basic information shining some light on startup growth and activity in recent years. The juxtaposed data has been chosen so as to draft current importance of national startup communities in the region and forecast which of them will gain importance in the short and longer term.

Specifically, it presents approximate number of startups, their abundance in their respective countries, media coverages and popularity of the term "startup" in the net.

Regarding definitions:

Startup

There are many definitions of what a startup is, but the two most common understandings are either any new venture or a new technological venture. Unlike in English-speaking countries, where the first understanding is more common, in most of Europe, it specifically refers to internet-based companies who meet most of the criteria related to: scalability, market size, innovativeness, business model, capital and usage of technology and trends. The research focuses on the second understanding.

Ecosystem

Most capitals around the world as well as big cities in most developed countries have a sort of structure referred to as a Startup Ecosystem. Even though this term also has several additional meanings besides that used here, the meaning used in the bulletin is that of a network of institutions and individuals connected to startup and enabling it to grow by enriching it with either capital, knowledge, services or contacts. These are among others VCs, Seed Funds, Business Angels Networks, Accelerators and Incubators.

Data

The available data on startups in the region aren't sufficient in order to fully present and compare the ecosystems. These ecosystems aren't mapped properly by meaning, so we don't know the exact number of startups (this is also due in part to the fact, that there's no one coherent definition of startup neither in the legislature, nor in the community), the exact number of accelerators, incubators, seed funds and VCs, both private as well as financed by European Funds, and there's neither a benchmarking of them nor any information of what fraction of it all is actually "smart money" (being, those investments backed with know-how and network). And so we don't know how many startups get investments or go through an incubation/acceleration programme. Neither is it known what the size of the community is, meaning the founders, employees, investors, influencers, etc. There are international and local event platforms listing technology and business events, but the matter of how many people attend rather than simply register is not known for certain, as is that of how many of startups events take place without being posted.

There have been several efforts to map European Ecosystems, but none of them were comprehensive enough, that they covered all the areas of the ecosystem or were consistently updated.

The data referred to in this bulletin comes from websites and databases focused on startups, with the CrunchBase database gathering a significant portion of the information available on investments of different types, exits and startups in different sectors; AngelList, F6S, Medium and Startupranking.com

Number of startups in the Top 100

The impossibility of presenting a number of startups is due to the fact, that:

1. a startup does not need to be registered as a company
2. there are no regulations regarding startups and defining what company is a startup
3. even in the startup communities, there are different definitions of startups.

Table 1 Number of startups in the Top 100 per country

Country	Number of startups in the Top 100	Total number of startups in the rank
Estonia	0	58
Latvia	2	31
Lithuania	0	65
Poland	0	141
Czech Republic	1	56
Slovakia	0	20
Hungary	2	155
Slovenia	0	41
Croatia	0	51
Romania	0	80
Bulgaria	0	58
Finland	0	133
Israel	4	119

Table 1 source: Own study based on Startupranking.com, 01.2015

For the purpose of presenting estimated numbers of startups by country, the data from Startupranking.com have been used. While the most popular worldwide startups are added by admins, everyone can register their startup on the website and compare their results with other startups presented in the rankings.

The Startup Ranking omits mobile startups, what is quite problematic, as mobile industry is big in our region, especially in Poland, Romania and Bulgaria. Additionally, it only takes business to client(B2C) services and products into account. The top companies are chosen on the basis of the quality of their Search Engine Optimisation (SEO) and their social media communication, specifically Facebook and Twitter.

Results:

- The ranking is dominated by the United States with 59 startups in the top 100, with 19 European startups: 14 from Western Europe and Scandinavia and 5 from the CEE region. Regional top startups according to the rank come from 3 countries: Latvia, the Czech Republic and Hungary.
- What is surprising is that there are 2 startups from Latvia at the top, while it has second lowest score, after Slovakia, in the total number of startups in the rankings.
- It's worth mentioning that with 2 startups in the top 100, Hungary has also a startup that's ranked at number 104, just past the ranking cut-off.
- Most of the countries in the region haven't yet been host to any startups that would be recognized worldwide.
- Interestingly, Poland and Hungary each have more startups than Israel, itself being nicknamed Startup Nation, or Finland with its own startup reputation in Europe.
- Surprisingly, there's a very high number of startups in Romania and Bulgaria and it's most likely a result of much higher popularity of the portal in these countries (for whatever reason) rather than a reflection of the actual state of startups, especially in the case of Romania.

Number of startups per 1 million citizens

The number of startups in the table is different from the one in the previous data set, and has been taken from the CrunchBase database that belongs to the biggest technology startup news website in the world, TechCrunch. The data aren't as complete as the Startup Ranking, though we can find there data for B2B and mobile startups. The number of startups is undoubtedly underestimated.

The total number of startups has been divided by the population in millions for each country.

Table 2 **Number of startups per 1 million citizens**

Country	Total	Number of startups per 1 million citizens
Estonia	44	34.27
Latvia	12	5.88
Lithuania	31	10.30
Poland	94	2.46
Czech Republic	51	4.75
Slovakia	15	2.75
Hungary	42	4.23
Slovenia	11	5.30
Croatia	8	1.87
Romania	22	1.02
Bulgaria	68	9.49

Results:

- The lowest results can be found in Romania and Croatia.
- One of the lowest numbers belongs to Poland (2.46), with the highest in Estonia (34.27), and there is a great difference between the highest number, the second highest, which is in Lithuania (10.30) and the rest.
- It's worth noting that the highest number is almost 34 times more than the lowest.
- The Czech Republic and Hungary once again have quite adjacent results (4.75 and 4.23). There's also a big difference between Romania (1.02) and Bulgaria (9.49).
- When it comes to total numbers, Poland is at the lead (94), while Croatia, Slovenia and Latvia have one of the lowest results.
- Estonia is in the middle with Czech Republic, Hungary and Bulgaria.

Growth in the number of startups founded

Below chart is also based on the data available from CrunchBase. As previously mentioned, the number of startups is most likely underestimated, but what's more important here than the number itself are:

- 1) the between-countries differences over a five-year time frame
- 2) the total growth in the number of startups in the past five years

Exhibit 1 Number of startups founded

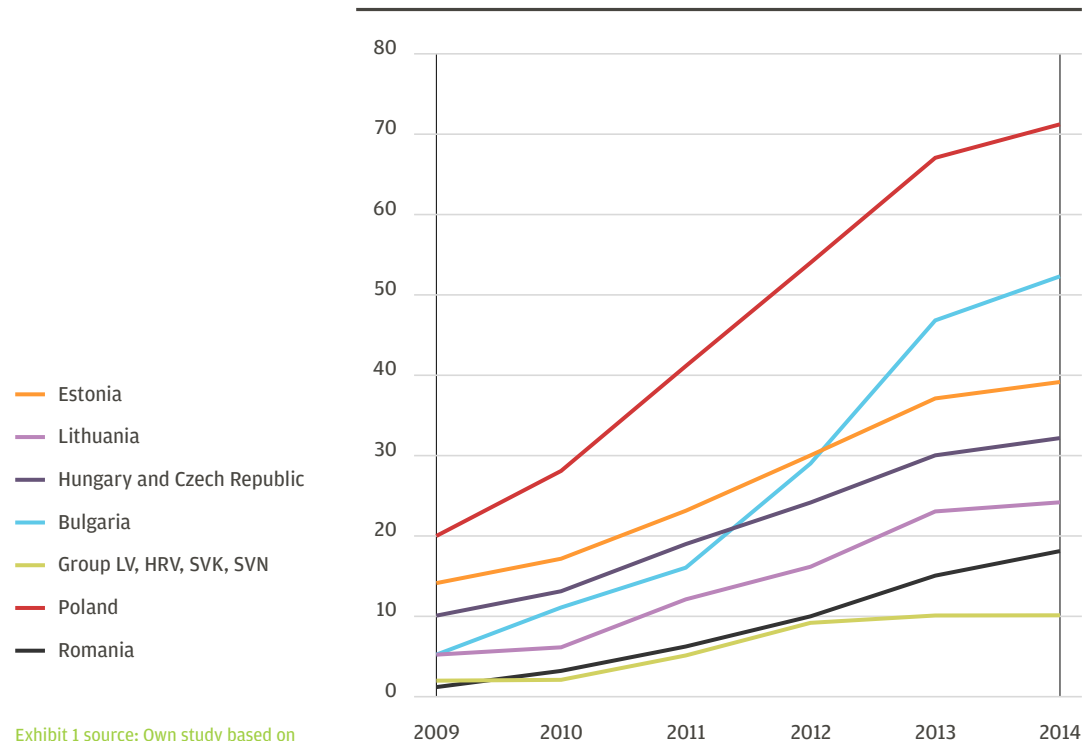


Exhibit 1 source: Own study based on CrunchBase, 01.2015

The above chart presents the total number of startups founded over six-years' time, with the period at hand starting from 2009, when all of the countries had at least one startup funded and signed in the database, up to and including 2014. For the sake of the clarity of the chart, countries with similar results (Latvia, Slovakia, Slovenia and Croatia and Hungary and Czech Republic) have been grouped together.

Results:

- Romania's result was very similar to the group presented (LV, HRV, SVK, SVN), but since 2013, has had a significantly more notable growth, while for the group's countries, it was a period of either a small increase or even a decrease.
- The Czech Republic and Hungary have had nearly the same growth rate during the specified time.
- The growth has been almost linear in most of the countries except for Bulgaria, in which that growth has occurred with a sharp increase. The chart shows an increased growth rate in 2011 for Bulgaria and, as a result, the second highest number of startups since 2013 after Poland, which, from the very beginning, took quite a lead ahead of the other countries. With the second highest entry result being Estonia, it had 3rd highest number of startups in total.
- While it's surging that the year 2013 was somewhat of a slowdown for startups, the fact that the year 2014 shows low numbers may just be a result of a time shift of uploading data to CrunchBase.
- Also, the year 2008 showed a very low number of startups.

Growth rate since 2011

The table below presents the Compound Annual Growth Rate (CAGR) for the numbers of all the startups founded till 2011 in comparison with the total number till 2014. It includes all active, inactive, acquired and failed startups appearing in the CrunchBase. Before the year 2011, some of the countries had a minimal number of startups listed and so the results wouldn't reflect on the actual situation in the region.

Table 3 Compound Annual Growth Rate (CAGR) of the number of startups between 2011 and 2014

Country	CAGR between 2011 and 2014 in %
Estonia	14.11
Latvia	18.92
Lithuania	18.92
Poland	14.71
Czech Republic	13.62
Slovakia	12.91
Hungary	13.92
Slovenia	21.79
Croatia	10.67
Romania	31.61
Bulgaria	34.27

Results:

- Comparing the numbers in 2011 with the total number till 2014, there is a wide range of results, with the lowest being in Croatia (10.67) and the highest in Bulgaria (34.27). Once again, there's a big difference between Croatia, Romania and Bulgaria, the latter two of which one can see a high growth rate. This is in part due to the fact that the ecosystems in Romania and Bulgaria started developing later than in the rest of the region. The lowest result, in Croatia, being one of the ecosystems evolving later than the others, strongly indicates a slow growth in the local ecosystem. The Visegrad group and Estonia have had a similar rate of growth (between 12.91 and 14.11). Latvia and Lithuania had the same rate of growth.

Table 3 source: Own study based on CrunchBase, 01.2015

The abundance of startups

The next table shows the number of startup centres per country and the number of startups in each country’s respective capital vs the rest of each particular country, and is based on the same data as the previous table, being that from CrunchBase.

Table 4 The abundance of startups

Country	Total number	Number in the capital	Number of centres	Number per million citizens
Estonia	44	34	2	1.56
Latvia	12	12	1	0.49
Lithuania	31	29	3	1.00
Poland	94	41	14	0.37
Czech Republic	51	35	6	0.56
Slovakia	15	10	3	0.55
Hungary	42	34	7	0.70
Slovenia	11	9	3	1.45
Croatia	8	3	4	0.94
Romania	22	11	5	0.23
Bulgaria	68	51	5	0.70

Results:

- The number of centres in general depends on the size of any particular given country.
- The highest total number of centres, 14, is in Poland, while the lowest ones are in the smallest countries, like Baltics, Slovakia, Slovenia and Croatia. In Latvia, there’s only 1 center, being Riga, the capital.
- In Romania and Bulgaria, the total number of centres is lower than would be assumed, considering the size of each of these countries, as a result of the smaller maturity of the startup ecosystems in these countries.
- Taking into consideration the number of centres per capita, the highest can be found in Estonia and Slovenia, while the lowest in Romania and Poland. For yet-indeterminate reasons, there are high numbers for Slovenia and Croatia which can help them develop more quickly in the future. The number of centres may positively impact growth of the national ecosystem, as has been the case in Poland.
- Results for The Czech Republic and Slovakia are very similar.

Table 4 source: Own study based on CrunchBase, 01.2015

Popularity of startup terms in the net

Some more information that may be helpful in forecasting which startup communities will be growing the fastest in the next year or two is given after bringing the average monthly number of Google searches for the terms “startup” and “start up”. In order to have a complete and detailed picture of startup-related internet activity, one would need to utilize social media and internet monitoring solutions.

Exhibit 2 The average monthly number of searches in 2014

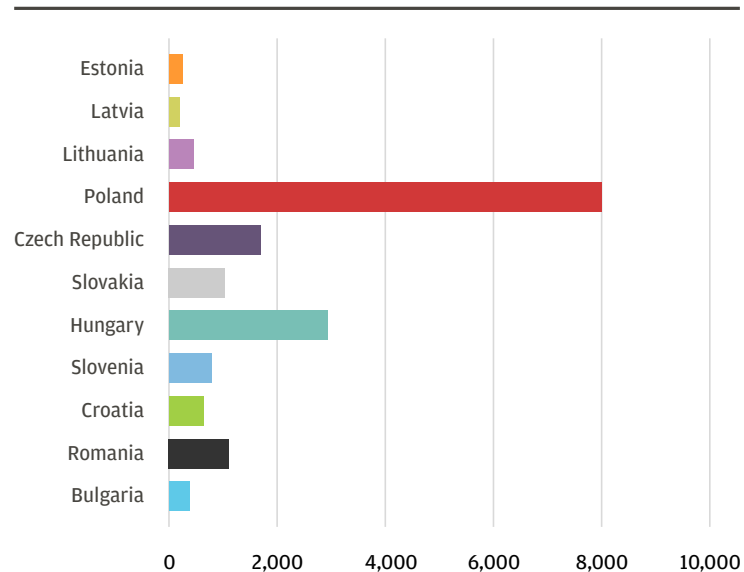
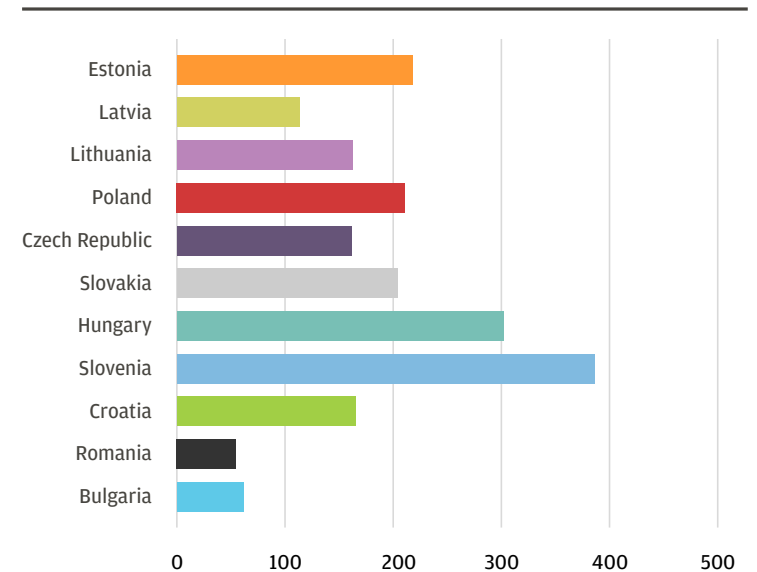


Exhibit 2 presents the average monthly number of searches in 2014. The result for Poland is almost 3 times higher than the second highest (Hungary) and over 4 times higher than those of all the other countries. Number three is the Czech Republic, so the Visegrad group has a high position considering this set of data. The lowest numbers can be found in the Baltic countries and Bulgaria.

Exhibit 3 The average monthly number of searches in 2014 per 1 million citizens



The picture looks quite different for numbers per 1 million citizens (Exhibit 3). Hungary and Poland still maintain high positions, now together with Estonia and Slovakia, all outpaced by Slovenia. The results for Bulgaria stay low, being the second lowest before Romania.

This numbers may in a way indicate the level of awareness in the society of what a startup is. Higher numbers may suggest greater and more prevalent awareness of startups in a given society.

Growth rate in Google search

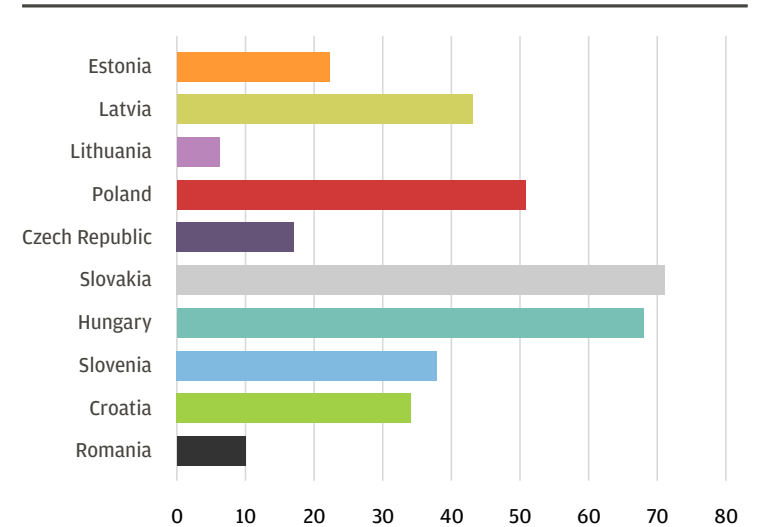
The comparison of the period January-December 2013 and January-December 2014 has been presented in percentages in the Exhibit 4 and shows interesting results.

Most of the countries show notable growth in the numbers of startup Google searches, except for Bulgaria, where the numbers have stayed the same.

Slovakia and Hungary, as well as Poland (though with lower results), had over a 50% increase in the search results. The Czech Republic had a significantly lower growth rate, and the lowest results are these for Latvia and Romania.

The growth rate possibly indicates a rise in interest in the subject of startups, regardless of whether this is due to media exposure or to people seeking to establish their ventures, and may be caused by a range of factors, such as startup successes or foreign investments in the ecosystem.

Exhibit 4 Growth rate in Google search



Tech media coverage

One of the indicators of the current state of the startup ecosystem and its short-term development is its coverage by the main international industry media. High media coverage supports further development of the startup community, as it brings recognition and foreign investment, and it also shows how the local ecosystems are perceived.

The result do yield some indication not only about the startup -related PR strategies of countries but also about the level of success achieved by startups and, the “activity” chart especially, about investments, exits and accelerations.

Recently, over 1,300 articles published in 2014 by the dominant tech media in Europe, TechCrunch Europe, Tech.eu and The Next Web Europe have been analysed.

It was the first analysis of its kind and given that the data provided presents only the content published in 2014, there’s no way to compare it with the previous years in order to show trends.

Only less than 6% (5.96) of the total coverage is dedicated to the countries of the region. This gives even the highest ranked country, Poland, a very low result, specifically of 1.3% meaning only 17 articles that year.

Total coverage

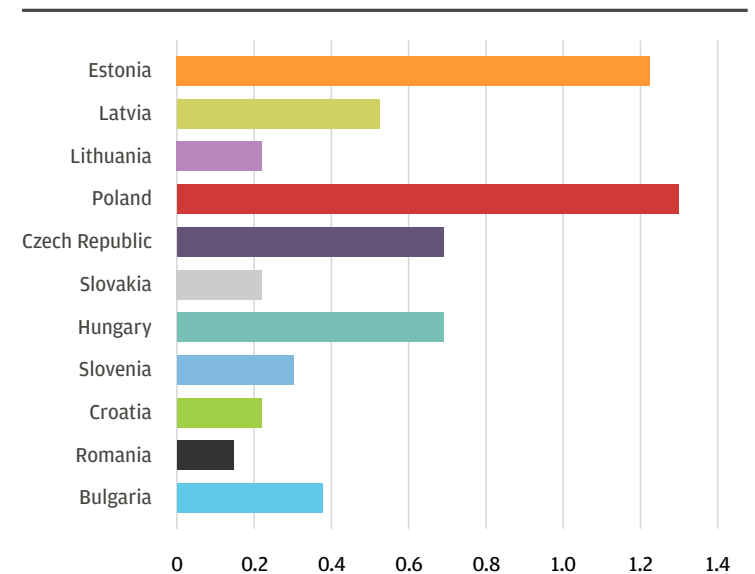
Poland and Estonia make up almost 50% of all the regional media coverage, while the rest of the publicity is divided quite evenly among all the other countries with Czech Republic and Hungary dominating.

This information supports the opinion that Poland and Estonia are the most developed startup ecosystems in the region.

If we look at the groups of the countries, the Visegrad Group gets the most coverage, followed by the Baltic Countries.

The lowest results are those of 0.15% for Romania, signifying only 2 articles that year.

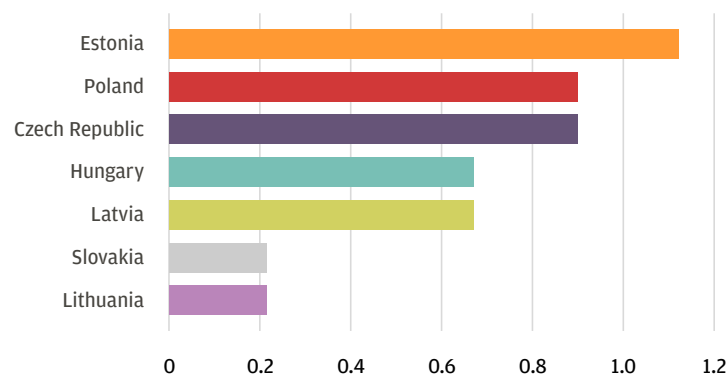
Exhibit 5 Total tech media coverage per country in 2014



The Activity Index

The Activity Index measured the same articles and specifically omitted ones that only reported milestones, new startup ideas or startup advice and took into consideration only articles about “funding being raised, or startups being acquired”¹.

Exhibit 6 “Activity” media coverage per country in 2014



Results:

- Only less than 5% (4.7) of the content was dedicated to the region.
- There were no articles on Slovenia, Croatia, Romania and Bulgaria in 2014 dedicated to their investment or exit.
- In measuring the “activity”, it’s shown that the best results were these of Estonia, Poland (Exhibit 6) and The Czech Republic. For Poland, it may suggest that more Polish startups may be among journalists’ networks, and it yields the highest total number of articles for Poland (Exhibit 5).
- Once again, Hungary and The Czech Republic have similar results and, while behind the leaders, are still in a high position.

Exhibit 6 source: Own study based on Medium.com

¹ Neil Murray for Medium.com
<https://medium.com/@neilswmurray/analysis-of-europes-top-startup-countries-as-depicted-by-europes-tech-media-4ace16741b37>

Summary

It's hard to say what factors most contribute to the development of a given startup ecosystem. The authors of the Startup Ecosystem Report believe that it is the ability to create innovation. If it were so, then the research for finding the next leaders should be focused more on the education system and creativity in a given society rather than capital, the labour market and other similar factors. Still, we can try to forecast what's going to happen in the next years.

Bigger markets may still be facing the "ambition issue", meaning that their domestic markets would be big enough to allow for relative success and, as a result, in this context, global or regional thinking and expansion would occur less widely and less often than in the smaller countries.

All of the countries of the region will be growing steadily, with the least developed countries possibly growing at a faster pace. Romania and Bulgaria will follow this pattern due to the number of the number of IT specialists and the size of the market will still be growing faster than in Croatia for some time. Europe is facing a half-million-person shortage in IT staffing, and so the number of computer studies graduates and specialists may be the crucial factor in the growth fluctuation. This being said, Poland, Bulgaria and Romania are the countries with the highest number of IT specialists in the region. On the other hand, Estonia, with its much lower number of IT specialists, is still one of the leaders. One of the reasons for its developed ecosystem is the ease of doing business, in addition to the high advancement of e-government. For the mentioned reasons it can be assumed, that Poland and Estonia will both continue growing quickly.

A given Startup community doesn't depend on the economic situation in its respective country as much as traditional business does. However, strong economic indicators do help.

The presented set of data shows that:

1. Different countries lead in different aspects. However, Poland leads in the majority of those aspects when it comes to the total numbers, while Estonia does so in terms of numbers per capita.
2. There are many similarities among Baltic countries (especially Latvia and Lithuania), among Visegrad Group countries (especially Czech Republic and Hungary), and between Romania and Bulgaria (and sometimes with Croatia, as well).
3. There's a very high growth rate in different aspects in Bulgaria as well as in Romania, even though they are still the least-developed countries in the region.
4. The region is less developed than in Western Europe and the US, and is perceived as such by the industry media.
5. Countries are developing at different rates, and didn't start growing in the same period. Only in the past few years have startup communities started developing in Croatia, Romania and Bulgaria.
6. Baltic countries are more differentiated than the Visegrad group countries.

Further research

As mentioned in the introduction, in order to fully understand the changes happening in the region, it's necessary to establish region-focused research in a format similar to the informative Startup Ecosystem Report. Their report is based on “data from more than 50,000 startups and over 50 interviews and case studies with entrepreneurs, investors and policy makers”², measuring available funding, acceleration, mentoring and business services, employment, growth rate and also the mindset, innovativeness and the levels of education and skills of the founders. Hopefully, a study like this can be conducted in the near future to help understand and make the best use of the startup movement so as to boost economies in the region.

² Startup Ecosystem Report

Sara Koślińska

Sara Koslinska deals with technology-entrepreneurship in Europe both in theoretical and practical aspects. She graduated from the Cultural Studies of Central and Eastern Europe at the University of Warsaw and, together with Anca Albu from Romania, she fosters cross-border startup collaboration in the region as part of the CEE Changers social enterprise. Additionally, she supports initiatives like [Startup Poland](#), Next Steps Mentoring programme of the [Prince's Trust](#) and [Młodzi Reformują Polskę](#) (Youth Reform Poland). She travels around Europe exploring local startup ecosystems and gathering data and publishes content covering startups (in particular technology) for a couple of magazines and websites including for instance Res Publica Nowa and Visegrad Insight.



Contact

Eliza Głowacka-Szprot
Managing Director
eliza.glowacka@ceedinstitute.org
CEED Institute
Krucza 24/26
00-526 Warsaw, Poland
phone (+48) 882 054 546
www.ceedinstitute.org