

Startup ecosystem challenges in Western Balkans region and in Visegrad Group countries

Presented by MeOut Group & Startup Szeged



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Edited & Written by Sándor Nagy PhD

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Introduction

Innovative, technology-oriented startups and their supportive environment exist in close symbiosis with each other. This environment can be named as an innovation startup ecosystem. It is such a system whose participants are committed to digital transformation, innovation and to create positive social impacts. The development of startups is inconceivable without the success of the ecosystem that provides the platform for all of this. This success can be approached and interpreted from many angles, think here of the numerous appearing startups, the increase in their market value, the number of jobs created, the emergence of innovations, and sustainable, responsible value creation. These supporting backgrounds/systems, due to their variety, can be rarely examined according to exactly the same dimensions or scheme. In other words, it is very hard to find a common denominator.

This study does not intend to give a complete, crystal-clear picture of the ecosystems in our focus area, it only wants to shed light on them from a specific perspective. This factor is the challenges. Our organization seeks to explore, understand all the problems which occur in startup ecosystems covered by this research – and in the same time – to help develop and implement intelligent responses which are most conducive to progression. Understanding the challenges, revealing the shortages and obstacles are always the first and most important steps during the course of finding effective solutions. The aim of the study is to identify these challenges for some Western Balkans and for all V4 countries. On the basis of these results, further research can be conducted.

1. Please, visit us on the following homepages: <https://meout.org/> &
2. <https://startupszeged.org/>

1. Methodology

This paper relies on 56 literature sources, which contain the opinions and research results of experts, professional organizations, academic researchers and relevant ecosystem actors. Our current work basically seeks to synthesize secondary sources. The findings obtained are inputs to our subsequent, higher-level work, but can also be useful and informative to a wider range of stakeholders. Our research focuses on the following countries: Albania, Bosnia and Herzegovina, Kosovo*, North Macedonia, Montenegro, Serbia and V4 countries: Czech Republic, Hungary, Poland, Slovakia. After a general analysis of the situation in the EU and the CEE region, our study summarizes the challenges of startup ecosystems in the above-mentioned countries. Comparative analyzes highlight the differences between the Visegrad Group countries and the countries of the Western Balkans and identify possible areas for cooperation.

**This designation is without prejudice to positions on status and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.*

In order to present some aggregated results by using logical frameworks and to see the distribution of the opinions on startup ecosystem challenges, we use two different methods.

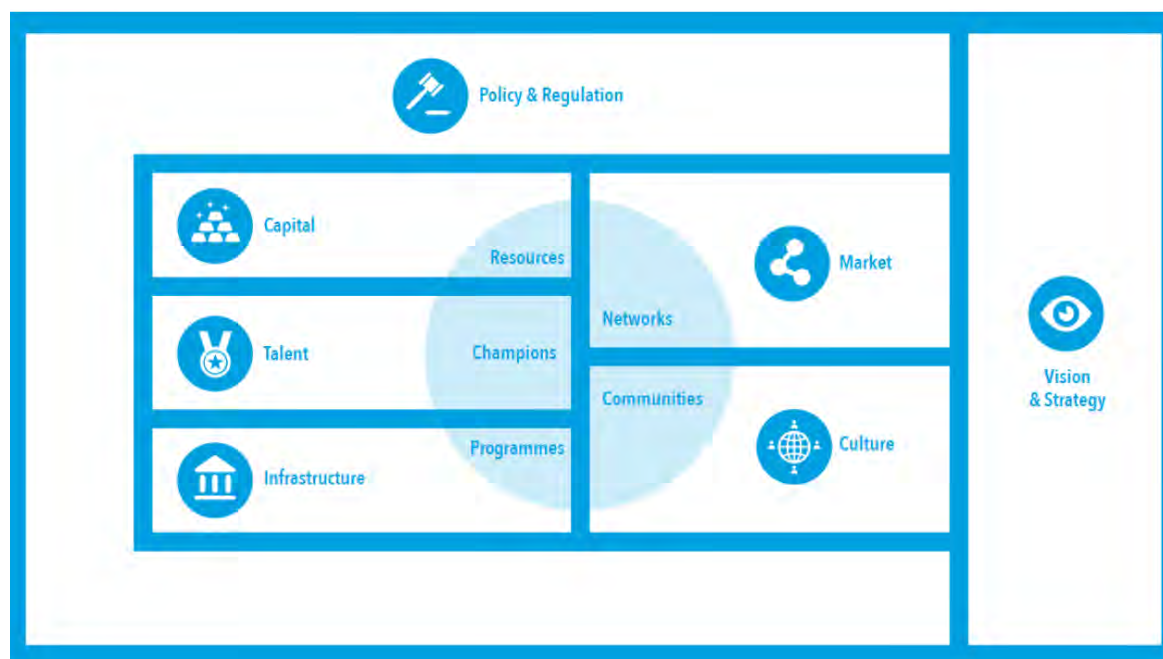
In case of startups (entities of ecosystems) we use the concept of *startup value creation process*. Here, we revealed the most important elements of value creation of a generalized startup. It contains the following components:

1. information, impulses, ideas and incoming feedbacks;
2. leadership & vision, entrepreneurial skills;
3. talents, knowledge & HR aspects;
4. supportive background/ecosystem;
5. financing;
6. market conditions, regulations;
7. execution (including hard infrastructure, equipments and communication, adaptive skills and competitiveness);
8. customer experience;
9. social impact.

In case of startup ecosystems we deploy the Ecosystem Assessment Canvas model. The following figure (see Figure 1.) depicts the pillars and the structure of this framework.

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Figure 1. The Startup Ecosystem Assessment model. *Source:* ITU Innovation (2018)



The contents of the pillars are listed below:

Vision & Strategy:

Need for one shared vision, Agreement on issues, Ecosystem working together, Support for shared vision;

Talent & Champions:

Technical skills, Soft skills, Skills moving to innovation, Champions leading & being recognized;

Infrastructure & Programs:

Hard infrastructure, Soft infrastructure (knowledge), Distribution, Competitiveness, Programs to support innovators;

Capital & Resources:

Availability of investment, Resources for research, Possibility for trade & foreign investment, Government & international funding, Resources to build ecosystem supports;

Market & Networks:

Domestic markets, Ability to export, Innovation networks, Formal associations, Ecosystem mapping & collaborations;

Culture & Communities:

Attitudes towards risk & entrepreneurship, Communities & events, Spread of entrepreneurial culture, Diversity & equality within ecosystem;

Policy & Regulation:

Public sector engagement with innovation, Public sector connections to ecosystem, Intellectual property and R&D, ICTs, SMEs, Trade, Finance;

Central Space:

Connections between: Resources, Networks, Champions, Programs & Communities. Collaborative & Community driven dedicated elements specifically for fostering innovation.

For a much better fit we supplemented with some additional notions: Capital & resources (including available information, flow of special knowledge/technology transfer and ecosystem support); Talents, ideas and champions (human resources); Infrastructure, education, universities, local/available knowledge and programmes.

In the next chapter, we point out the diversity of startups regarding their success, innovation performance and maturity. Obviously, we can detect different challenges, characteristics due to their development phase and context. Besides our focus countries, we present some performance indicators of the most developed ecosystems as well. In this regard, according to StartupBlink, the top 10 countries are: USA, United Kingdom, Israel, Canada, Germany, Netherlands, Australia, Switzerland, Spain, Sweden. China and Singapore serve as an additional reference point to our dataset (StartupBlink, 2020).

After discussing the most relevant challenges of ecosystems in the EU and the CEE region, we devote our attention to the situation of Western Balkans and V4 countries. For each country in this section, we want to give a general/aggregated view on the topic and then a detailed, more specific picture based on our literature review. Our research is basically focusing on problems and conditions of a very heterogeneous set of ecosystems. It is only an initial step towards further studies, so we consider the described methods as proper ones.



2. Some performance aspects of the analyzed ecosystems in global context

In this chapter we outline the most important differences focusing on innovation performance, the supporting environment and the human resource aspects (talents) regarding the digital transformation. Such indicators appear here which seem to be relevant to our subsequent analysis: Global Innovation Index, Global Talent Competitiveness Index (GTCI) main and sub-indicators, and StartupBlink's main ranking indicators. The GTCI sub-indicators are the following: Ease of doing business, R&D expenditure, ICT infrastructure, Technology utilisation, Investment in emerging technologies, Tertiary education expenditure, University ranking, Quality of management schools, Brain retention, Relevance of education system to the economy, Workforce with tertiary education, Availability of scientists and engineers, Innovation output, High-value exports, New business density. All listed indicators refer to 2020.

The next, *Table 1.* summarizes the main differences focusing on the innovation performance, the enabling background and the talents in connection with the digital transformation processes.

Table 1. Main differences between top performer and the analysed ecosystems focusing on the Global Innovation Index and the Global Talent Competitiveness Index. Scores and ranks are highlighted parallelly for the year 2020

Country	Global Innovation Index score (0-100) median 30,94	Global Innovation Index rank (from 131)	GTCI score (INSEAD) 2020	GTCI rank (INSEAD) 2020 (from 132 countries)
USA	60,56	3	79,09	2
United Kingdom (UK)	59,68	4	72,27	12
Israel	53,55	13	65,66	20
Canada	52,26	17	71,26	13
Germany	56,55	9	72,34	11
Netherlands	58,76	5	74,99	6
Australia	48,35	23	72,53	10
Switzerland	66,08	1	81,26	1
Spain	45,6	30	55,7	32
Sweden	62,47	2	75,82	4
China	53,28	14	49,64	42
Singapore	56,61	8	78,48	3
Czech Republic	48,34	24	60,91	25
Hungary	41,53	35	46,62	52
Poland	39,95	38	49,48	44
Slovakia	39,7	39	52,08	39
Albania	27,12	83	38,94	76
Bosnia and Herzegovina	28,99	74	32,77	101
Kosovo	n.a.	n.a.	n.a.	n.a.
North Macedonia	45,9	46	36,42	89
Montenegro	44,17	53	46,32	53
Serbia	43,41	58	43,8	58

Sources: Dutta et al. (2020) and Lanvin – Monteiro (2020)

In the Western Balkan region North Macedonia, Montenegro and Serbia performed above the median value (30,94) in the field of Global Innovation Index, overtaking Hungary, Poland and Slovakia from the V4 partnership. On the other hand, in case of Global Talent Competitiveness Index the Western Balkans countries' lag is more spectacular compared to V4 countries. The only exception is Montenegro, where the value of the index is approaching the value of Hungary.

The tables below (*Tables 2. 3. & 4.*) reflect on the sub-indicators in line with the talents and the characteristics of the enabling, supporting environment which could effectively generate high performance in digital innovation.

Table 2. Main differences between top performers and the analysed ecosystems focusing on the Global Talent Competitiveness Index sub-indicators: Ease of doing business, R&D expenditures, ICT infrastructure, Technology utilisation and Investment in emerging technologies. Score values are valid for the year 2020

Country	Ease of doing business score	R&D expenditure score	ICT infrastructure score	Technology utilisation score	Investment in emerging technologies score
USA	93,14	61,1	83,84	100	100
United Kingdom (UK)	92,96	36,37	95,04	84,12	82,43
Israel	76,13	100	82,57	95,65	96,21
Canada	86,91	34,43	79,52	76,74	68,25
Germany	86,26	66,22	92,24	86,41	86,85
Netherlands	81,15	43,56	88,68	92,4	87,95
Australia	88,46	41,84	80,41	75,91	65,76
Switzerland	80,53	73,65	91,22	96,15	89,43
Spain	84,08	26,15	80,15	62,27	43,01
Sweden	90,5	72,29	87,4	98,63	91,97
China	76,87	46,34	49,62	54,03	59,71
Singapore	97,59	48,45	88,17	85,04	78,6
Czech Republic	81,26	38,97	69,47	67,76	55,17
Hungary	74,44	29,38	77,61	48,83	28,34
Poland	82,78	22,44	75,06	53,14	37,21
Slovakia	79,6	19	70,48	65,97	49,41
Albania	69,49	3,06	39,69	44,87	21,88
Bosnia and Herzegovina	59,32	4,05	52,93	36,85	16,99
Kosovo	n.a.	n.a.	n.a.	n.a.	n.a.
North Macedonia	91	7,43	63,36	33,16	17,45
Montenegro	75,24	6,79	68,07	46,36	33,65
Serbia	76,6	20,07	70,23	39,74	31,34

Sources: Lanvin – Monteiro (2020)

In case of starting a new business North Macedonia's primacy stands out from our focus group. Serbia has its own advantage at R&D expenditures. Eye-catcher fact is that Albania's and Bosnia and Herzegovina's disadvantage is so significant at R&D expenditures. Investment activities in new, emerging technologies catching up is needed in Bosnia and Herzegovina and in North Macedonia.

Table 3. Main differences between top performers and the analysed ecosystems focusing on the Global Talent Competitiveness Index sub-indicators: Tertiary education expenditure, University ranking, Quality of management schools, Brain retention and Relevance of education system to the economy. Score values are valid for the year 2020

Country	Tertiary education expenditure score	University ranking score	Quality of management schools score	Brain retention score	Relevance of education system to the economy
USA	32,23	100	88,31	97,76	96,93
United Kingdom (UK)	31,37	97,03	89,46	84,95	68,53
Israel	21,42	42,83	77,19	71,8	64,76
Canada	38,84	79,99	85,39	77,29	78,62
Germany	29,02	71,1	72,09	82,68	81,05
Netherlands	38,76	68,32	89,66	84,98	83,99
Australia	36,41	80,93	75,39	72,3	70,24
Switzerland	31,17	84,21	100	100	100
Spain	21,46	46,55	79,79	38,14	40,25
Sweden	45,34	60,11	77,73	78,8	73,21
China	n.a.	85,02	54,44	62,71	63,76
Singapore	22,63	70,49	90,48	89,29	91,96
Czech Republic	16,69	30,36	49,69	49,12	43,21
Hungary	13,72	19,84	44,96	22,26	27,67
Poland	28,2	28,94	45,02	34,74	40,55
Slovakia	32,67	13,81	37,55	16,98	24,8
Albania	16,27	n.a.	45,05	22,29	61,66
Bosnia and Herzegovina	n.a.	n.a.	25,33	1,55	15,79
Kosovo	n.a.	n.a.	n.a.	n.a.	n.a.
North Macedonia	n.a.	n.a.	19,27	10,18	25,45
Montenegro	n.a.	n.a.	54,24	34,99	54,14
Serbia	25,59	11,71	45,79	13,57	39,42

Sources: Lanvin – Monteiro (2020)

Focusing on education, universities in connection with the digital transformation and the brain retention ability, the picture is also strongly diverse. While the quality of management schools in Albania, Montenegro and Serbia is quite good, we can observe some deficiency in Bosnia and Herzegovina and in North Macedonia. The contribution and the relevance of the education system to the (digital) economy in Albania and Montenegro are on a high level, in the same time, Bosnia and Herzegovina and North Macedonia are well below the average score of this region (39,29).

Table 4. Main differences between top performers and the analysed ecosystems focusing on the Global Talent Competitiveness Index sub-indicators: Workforce with tertiary education, Availability of scientists and engineers, Innovation output, High-value exports and New business density. Score values are valid for the year 2020

Country	Workforce with tertiary education score	Availability of scientists and engineers score	Innovation output score	High-value exports score	New business density score
USA	72,02	100	80,91	41,15	n.a.
United Kingdom (UK)	64,85	76,74	84,06	61,67	75,81
Israel	51,98	83,2	79,16	41,22	16,51
Canada	100	85,84	61,3	38,27	0,26
Germany	43,51	80,5	78,28	41,4	6,23
Netherlands	55,25	71,22	89,49	55,32	29,22
Australia	57,48	73,19	52,36	38,09	74,69
Switzerland	61,86	81,44	100	32,72	20,71
Spain	60,2	63,13	56,04	20,97	15,51
Sweden	61,91	75,38	88,44	37,16	38,95
China	n.a.	68,58	81,26	70,91	n.a.
Singapore	82,7	80,63	66,9	100	41,51
Czech Republic	36,94	48,81	64,8	39,73	19,15
Hungary	39,25	42,8	56,57	41,08	16,25
Poland	52,29	51,55	44,31	23,03	7,97
Slovakia	37,49	35,29	51,14	32,55	22,62
Albania	28,16	43,55	20,84	0,25	6,47
Bosnia and Herzegovina	18,63	30,85	24,52	8,71	5,41
Kosovo	n.a.	n.a.	n.a.	n.a.	n.a.
North Macedonia	36,43	25,42	32,4	10,98	18,64
Montenegro	41,43	50,61	41,33	7,55	32,25
Serbia	38,38	52,5	35,9	n.a.	8,44

Sources: Lanvin – Monteiro (2020)

The *Table 4.* highlights further inequalities. Bosnia and Herzegovina has a great challenge to raise the score from 18,63 to the next highest value 28,16 (Albania). When we talk about the availability of scientists and engineers affected by digital innovation the worst values belong to North Macedonia and Bosnia and Herzegovina, while the highest one belongs to Serbia (52,5). Surprisingly this value is higher than in any country of the V4 region. Comparing the V4 countries with Western Balkans countries a huge difference can be observed in the field of high-value exports. This kind of export contains mostly all of the realized innovations which were generated and transformed to market success by the previous factors. These goods and services have the largest value added. Albania (0,25), Montenegro (7,55), Bosnia and Herzegovina (8,71), while on the opposite site of the scale in our focus area is Hungary (41,08).

In case of new business density, Bosnia and Herzegovina (5,41), Albania (6,47), Poland (7,97) and Serbia (8,44) show inactivity. According to the score values Montenegro (32,25), Slovakia (22,62) and Czech Republic (19,15) have the most vibrant business life in this respect. The following table (*Table 5.*) gives us a detailed picture about the

success of different innovation startup ecosystems worldwide. As we mentioned earlier this table contains the top 10 ecosystems (USA → Sweden), 2 additional ecosystems as reference points due to their relevance (China and Singapore) and our focus regions (V4 and Western Balkans countries). The yearly special report of StartupBlink also covers the local ecosystems as well not only the aggregated, nation-wide results.

Table 5. Main differences between top performers and the analysed ecosystems focusing on the StartupBlink national scores and the global rank and score of the largest ecosystem in the given country. Values are valid for the year 2020

Country and largest ecosystem	StartupBlink total score (2020) national (highest score 123,167)	StartupBlink largest ecosystem (2020) global rank (from 1000 cities)	StartupBlink total score (2020) largest ecosystem
USA San Francisco	123,167	1	225,31
United Kingdom London	24,406	3	48,39
Israel Tel-Aviv	19,408	7	23,789
Canada Toronto	17,72	24	12,082
Germany Berlin	13,77	8	22,345
Netherlands Amsterdam	13,053	20	14,223
Australia Sydney	11,98	31	10,84
Switzerland Zurich	11,323	65	5,349
Spain Barcelona	10,822	27	11,752
Sweden Stockholm	10,77	29	11,338
China Beijing	8,972	6	25,519
Singapore	8,569	26	11,966
Czech Republic Prague	5,46	81	4,805
Hungary Budapest	4,104	87	4,356
Poland Warsaw	5,169	73	5,14
Slovakia Bratislava	2,945	148	1,918
Albania Tirana	0,51	435	0,325
Bosnia and Herzegovina Sarajevo	0,5	449	0,308
Kosovo Pristina	n.a.	n.a.	n.a.
North Macedonia Skopje	1,296	318	0,543
Montenegro Podgorica	n.a.	n.a.	n.a.
Serbia Belgrade	3,614	119	3,097

Sources: StartupBlink (2020)

In this regard Bosnia and Herzegovina (0,5) and Albania (0,51) must improve strongly to catch up. Serbia and its Capital (Belgrade) are in a quite good position, even in the context of the Visegrad Group countries.

The next chapter discusses the challenges of startups in the EU and Central and Eastern Europe (CEE) countries. Most of them originated from the pre-COVID era. The pandemic probably has been increased the uncertainty and unpredictability in this sector. These new circumstances are partly analyzed in this survey because of the lacking information.

3. Startup challenges in the EU, CEE countries and in other reference countries

The previous chapter pointed out the differences and diversity of startup ecosystems. Of course there are lots of factors, attributes and decisive backgrounds inducing this heterogeneity. A deeper understanding requires however unique, holistic and ecosystem-tailored analyzes. This chapter presents some aggregated results on tech-startups regarding their challenges.

The top 3 most cited challenges that founders must face in 2020 are the following (Atomico, 2020):

- access to capital (46%)
- pivoting the product (32%)
- new sales declining (30%).

Taking a closer look, startups have already faced business and market problems to be solved before COVID-2019 era.

Respondents concerned about profitability (86.2%) and cash flow/liquidity (72.3%). Anyway, these two factors were their biggest challenges. Due to revenue pressure startups have to increase market share, penetrate international markets, foster scale-up startup. These also imply new and new challenges. Sales/customer acquisition (55,9%), Growth of revenue (50,8%), Product development (39,7%), Raising capital (37,8%), Recruiting (23,4%), Internationalisation (23,2%), Team development (23%) and Processes/internal organisation (15%) (Steigertahl – Mauer, 2018).

The subsequent figures depict some new aspects of startup challenges (PwC – FH Münster, 2019).

The survey was directed to 18 leading startup hubs in the EU and in other additional countries: Norway, Switzerland, Israel. A total number of 540 interviews – 30 interviews per country – were conducted. *Figure 2. 3. & 4.* focus on development-, human resource skills- and financing challenges.

Figure 2. The 3 biggest challenges for the future development regarding the respondents' startups. Source: PwC – FH Münster (2019)



Figure 3. The importance of human resource skills regarding the respondents' startups. Source: PwC – FH Münster (2019)

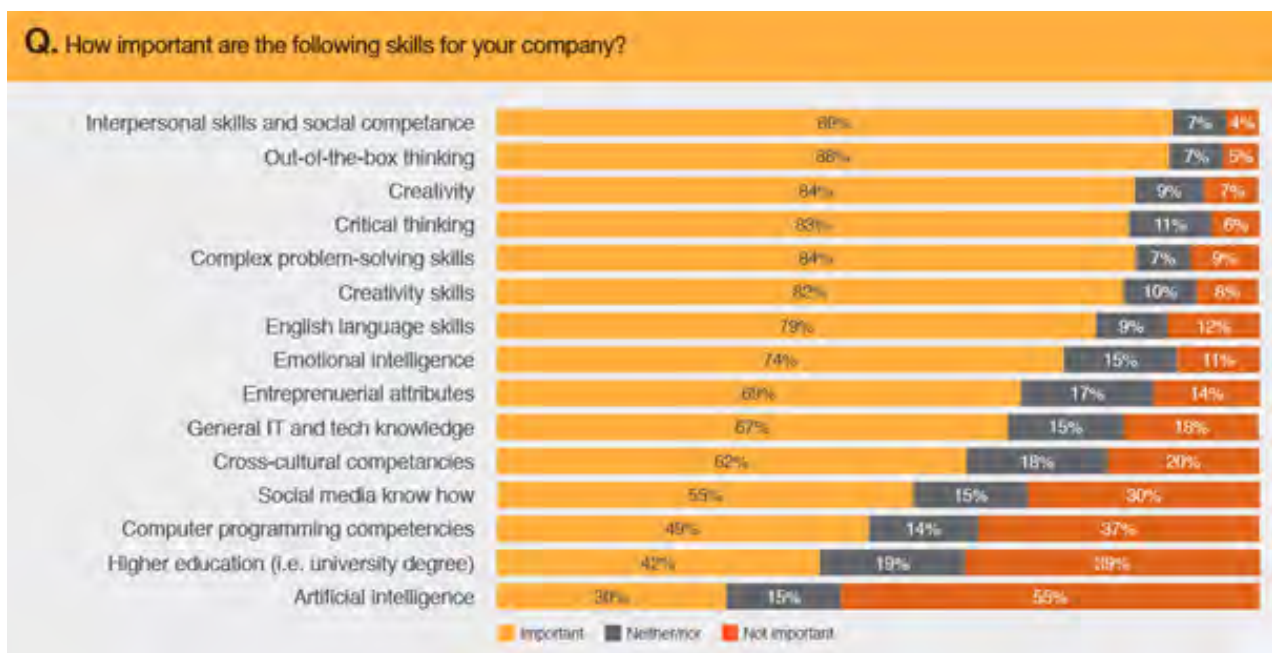
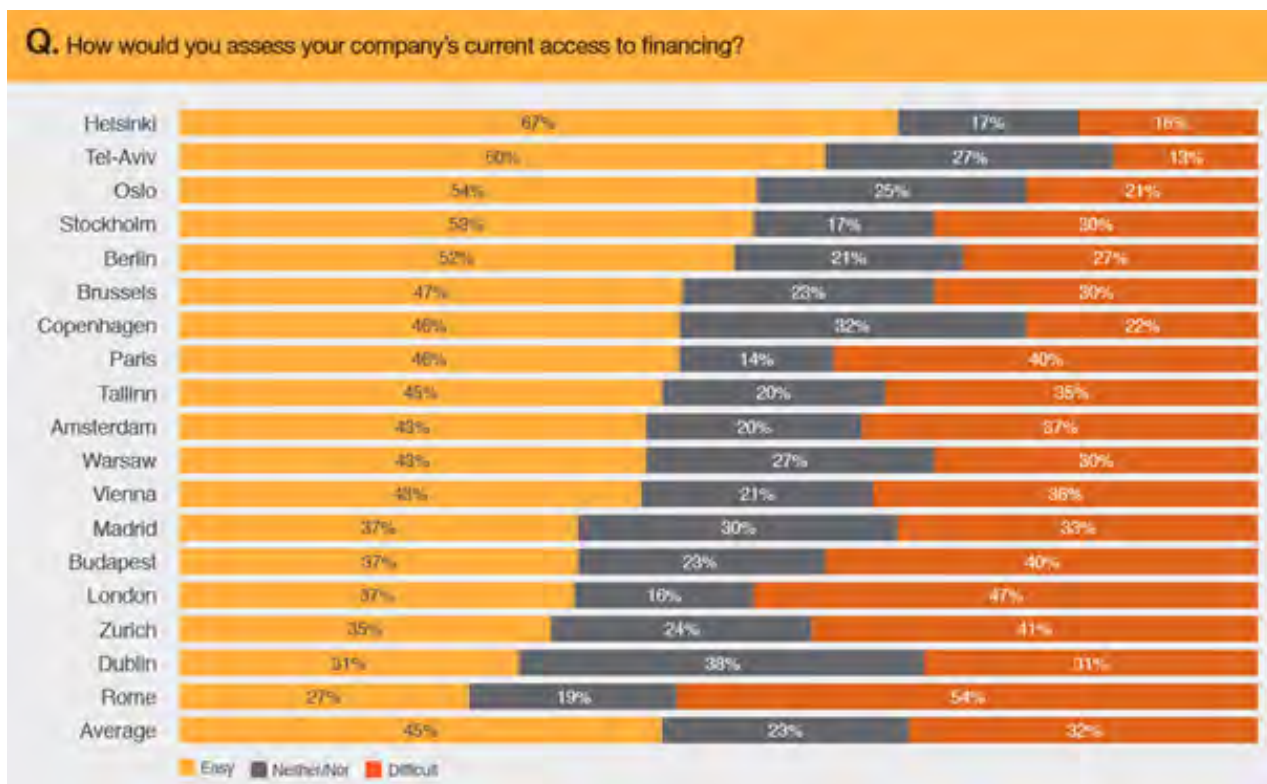


Figure 4. The evaluation of the availability of financial sources regarding the respondents' answers. Source: PwC – FH Münster (2019)



The challenges, the innovation potential and the vibrancy are strongly influenced by the structural characteristics of a given ecosystem. Startup density is one of the mostly reported indicators in connection with this structural feature. Other indicators can also be adapted from the network theory but their popularity and visibility in the literature is not typical, presumably due to difficulties in obtaining specific, reliable and accurate data. On a population-adjusted basis, Estonia is the clear European capital of startups; adjusted for its population of just 1,3 million, Estonia has 4,6 times more startups per capita as the European average. To get the whole picture in this regard, we should take a look at the following figures (Figure 5. & 6.)(Atomico, 2020):

Figure 5. Startup density in different European countries in descending order for the year 2020. Source: Atomico (2020)

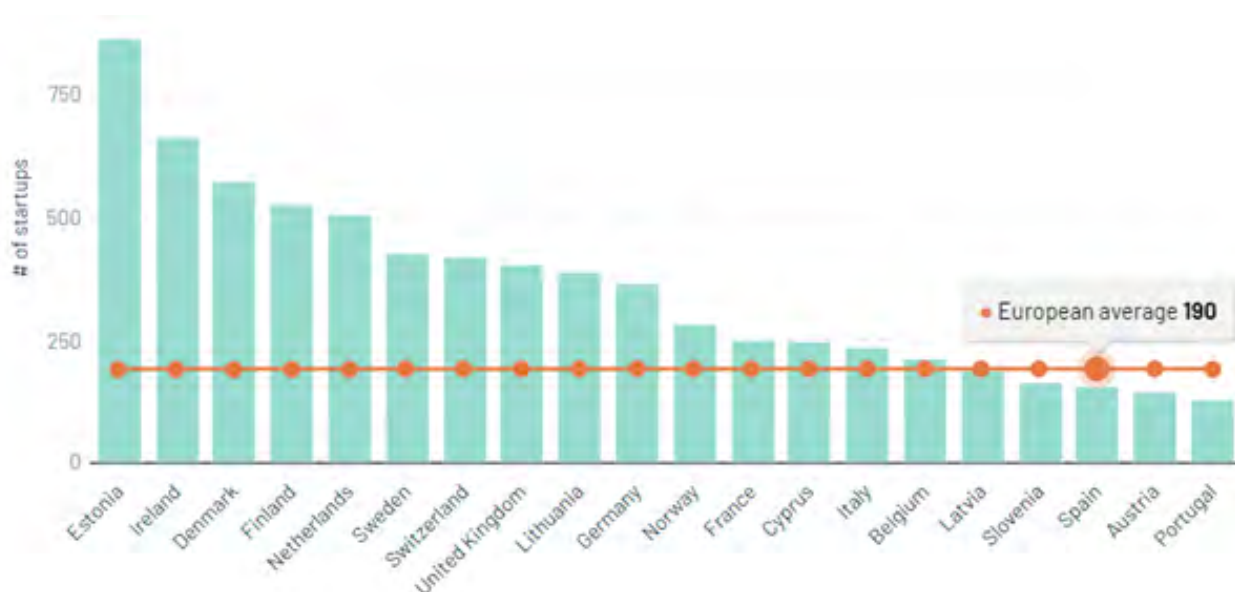
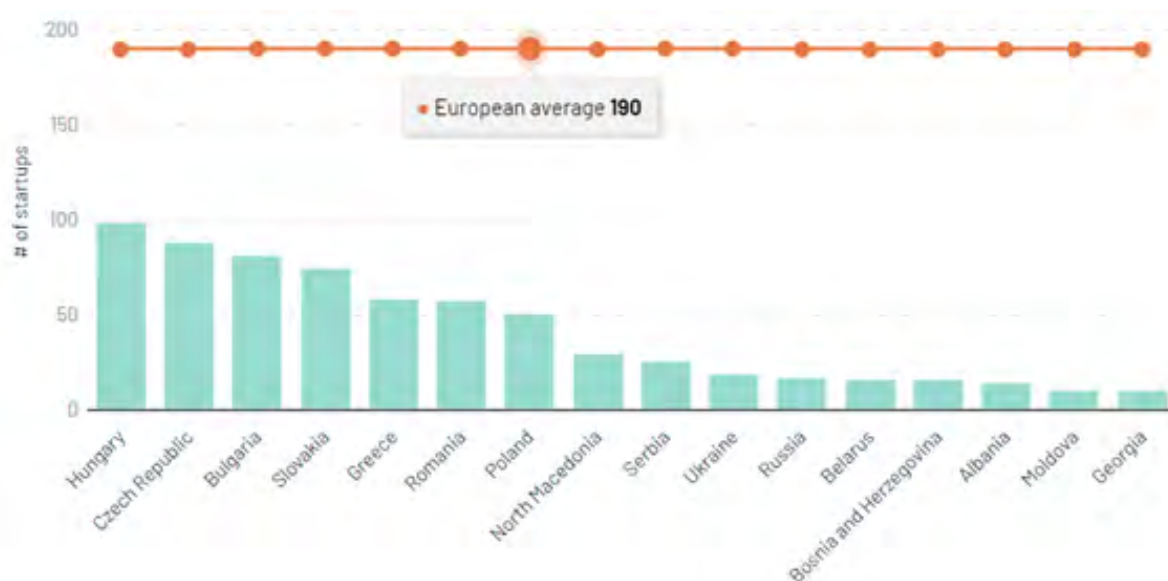


Figure 6. Startup density in different countries in descending order for the year 2020. Source: Atomico (2020)



The following chapter contains the country specific challenges of startups and their ecosystems. In most cases literatures highlight the ecosystem issues and neglect the individual startups.

4. Country specific startup ecosystem challenges

In this chapter we synthesize the challenges by collecting opinions, results, recommendations and other references. In the case of each country – firstly we present the relevance of the challenge according to its ranking order or its frequency of mentions. The distribution of these results will give us an aggregated summary on the most important literatures. Secondly, after this review a more detailed description of challenges will be demonstrated.



ALBANIA

ALBANIA

The startup ecosystem is still nascent in Albania with a low startup density value: 14 startups/1 million inhabitants (avg. value of EU is 190). The most advanced ecosystem can be found in Tirana. At the same time, there is a potential for Albania to develop as an ICT startup hub, due to a young, multilingual population that is looking for self-employment and low capital requirements to set-up ICT businesses (Hach – Trenkmann, 2019).

According to our extensive literature review the top 3 challenges of the ecosystem are the following:

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)
2. Policy and regulations & Infrastructure, education, universities, local/available knowledge and programmes
3. Talents, ideas and champions (human resources)

The following table (*Table 6.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 6. Relevance and distribution of startup ecosystem challenges in Albania

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	3	4th
Policy and regulation	7	2nd
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	19	1st
Talents, ideas and champions (human resources)	5	3rd
Infrastructure, education, universities, local/available knowledge and programmes	7	2nd
Market and networks	3	4th
Culture and communities	3	4th

Source: Hach – Trenkmann (2019); Ligaci (2018); Kruja – Kadiasi (2020); Yovchev (2021a)

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)

Some notable detailed challenges mentioned by experts:

- *Lack of business angels and venture capitalists funds;*
- *There is little support for startups post ideation guiding them in a continuous incubation process and almost no support for aspiring entrepreneurs in the regions;*
- *Most of the startups feel that access to early-stage finance (e.g. equity, convertible debt, crowdfunding, etc.) is one of the biggest challenges;*
- *There are several elements missing from the ecosystem – there are currently no local VCs or developed business angel activity, media coverage for business and tech topics is scarce. Entrepreneurial education is also limited.*

2. Policy and regulations & Infrastructure, education, universities, local/available knowledge and programmes

Some notable detailed challenges mentioned by experts:

- *No real integrated and focused approach from the government;*
- *Outdated educational system regarding entrepreneurship and innovation; lack of enough university incubators or research centers, which can be a source of spin-off business ideas and initiatives;*
- *There is little budget for and focus on entrepreneurship and innovation promotion by the government and little trust in the government capacities to support the ecosystem.*
- *A few municipalities and regional governments have started to shift their focus from infrastructure development to innovation and knowledge-based economic development, however, these initiatives mostly lack strategies, funds and sector diversification, in proportionally focusing on the tourism sector.*
- *Entrepreneurship promotion is gaining traction in universities in Tirana, however, it remains an alien concept to most universities located in regional cities due to lacking funds and knowledge and if at all, is only pursued as part of European funded projects.*
- *Furthermore, there is plenty of work to be done in educational institutions when it comes to training students to start their own innovative companies.*

- *Almost all of the developers found no financial support from the government, and only a few of them found incubation support. Government view of Startups is still weak in Albania.*

3. Talents, ideas and champions (human resources)

Some notable detailed challenges mentioned by experts:

- *Only a few success cases to be promoted;*
- *Brain drain situations, where good professional individuals choose to move abroad their ideas and possible startup initiatives;*
- *One of the problems with this young population is that the job market still doesn't offer enough opportunities for realization for them, so many smart professionals leave the country and go to work abroad.*

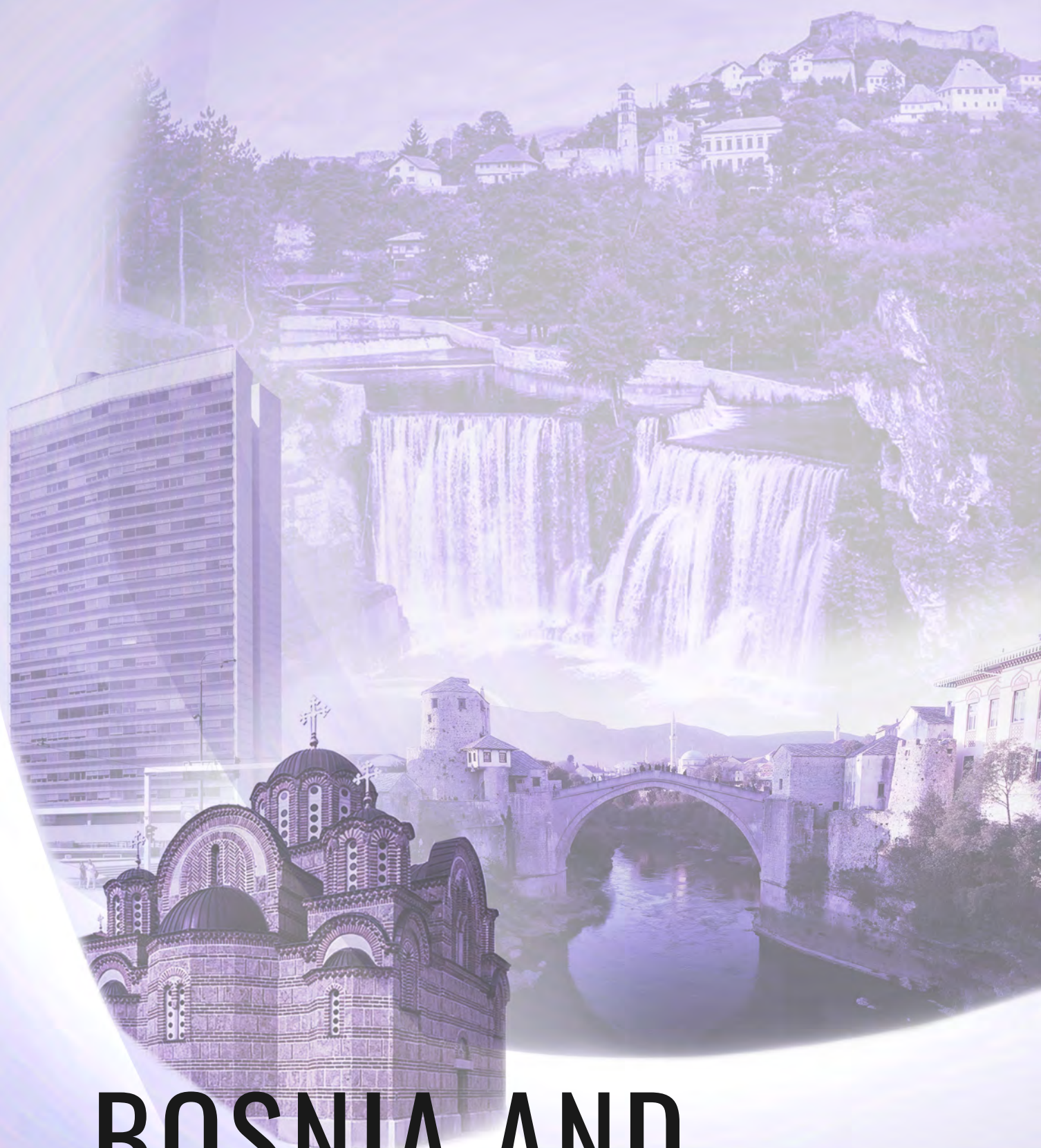
Other relevant challenges:

- *Low level of mature enough ideas to make a real impact in the economy;*
- *Lack of involvement from established business representatives in the ecosystem;*
- *The need to become part of bigger regional and international initiatives that can bring a part of their business and expertise in the country (Ligaci, 2018);*
- *There is no evidence-based and coordinated strategy of donor organizations and the government in the area of entrepreneurship promotion, however, recent efforts by the government are directed towards developing a "Start-up Law" in a joint collaborative approach;*
- *There is little cooperation among actors of the triple helix and capacities of the actors of the triple helix are weak. Especially in the regions, universities, businesses, and the government operate in silos;*
- *There is little entrepreneurship activity happening in the regions, with most efforts focusing on livelihood creation and small-scale traditional entrepreneurship in sectors such as tourism, agriculture, handicraft, etc. Furthermore, most businesses in the regions operating under the "startup label" cannot be classified as startups, given their limited growth perspectives;*

- *Lack of systematic and frequent update of current and future trends of youth skills towards market needs.*

Sources of the above listed challenges and opinions: Hach – Trenkmann (2019); Ligaci (2018); Kruja – Kadiasi (2020); Yovchev (2021a).





BOSNIA AND HERZEGOVINA

BOSNIA AND HERZEGOVINA

We should agree with Yovchev (2021b) who described the ecosystem as follows: *It's still very early days for the startup ecosystem in Bosnia and Herzegovina and local ventures are still looking for the formula to scale internationally. (...) While a population of 3,3 million people presents a small local market, this state of affairs has also motivated the entrepreneurial community in the country to engage and collaborate with other ecosystems in the Western Balkans region.*

Bosnia and Herzegovina has a low startup density value: 16 startups/1 million inhabitants. The most advanced ecosystem can be found in Sarajevo.

According to our extensive literature review the top 3 challenges of the ecosystem are the following:

1. Talents, ideas and champions (human resources)
2. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)
3. Market and networks

The following table (*Table 7.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 7. Relevance and distribution of startup ecosystem challenges in Bosnia and Herzegovina

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	1	6th
Policy and regulation	4	5th
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	9	2nd
Talents, ideas and champions (human resources)	10	1st
Infrastructure, education, universities, local/available knowledge and programmes	4	5th
Market and networks	8	3rd
Culture and communities	7	4th

Source: Feldsott (2018); GIZ (2019); ITU Innovation (2018); Messenger (2020); Yovchev (2021b)

1. Talents, ideas and champions (human resources)

Some notable detailed challenges mentioned by experts:

- *The other big missing elements – success stories and startup culture.*
- *Before a startup ecosystem can achieve international attention, it needs success stories of its own to help spread the money around to other potential startups.*
- *Graduates with technical skills often lack on-the-job, hands-on experience.*
- *Further loss of value to the ecosystem is its inability to retain the pool of skilled ICT talent that exists. At the same time, higher education is focusing on skills and competences that are obsolete when set against the changing skill sets needed by fast-evolving technology and industry needs – the result is further under-utilization of human capital.*
- *Like other countries in the region, the country's tech firms are focused almost exclusively on outsourcing, with steady demand from international clients. This demand has in turn led to significant demand for a digitally skilled labour force: a demand that cannot be met. Recent figures estimate a need for an additional 6,000 people – a huge ask in such a small country.*
- *When you want to create an innovation ecosystem, you need entrepreneurs – leaders with a fresh mindset to bring the community to the next level. We still don't have a culture where failure is acceptable. Very often, you'd be judged for trying to build something new or for failing; it's somewhat legacy from the old system.*

2. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)

Some notable detailed challenges mentioned by experts:

- *Capital is still mostly missing, though – beyond a few angels and the €40M regional South Central Ventures fund, there are not that many funding opportunities for innovators in Bosnia and Herzegovina;*
- *Startups outside of North America and Western Europe are usually ignored by Silicon*

Valley and most investors. This is one of the reasons it is incredibly difficult to build a new tech startup ecosystem from scratch, with limited resources, education, and talent;

- There are limited efforts to build those skill sets necessary to apply successfully for EU funds to support R&D projects in education and training;*
- Major challenges include adequate provision of seed capital and availability of low-interest commercial financial resources.*

3. Market and networks

Some notable detailed challenges mentioned by experts:

- The final piece needed for any budding tech startup ecosystem is the cooperation and involvement of larger, more established companies;*
- Large companies – both state-owned and private – are not encouraged to invest in research and development and are not incentivized to collaborate with young innovators;*
- Due to the relatively small local market and a lack of national demand for products and services, there is also little scope to develop and test digital products and services locally.*

Other relevant challenges:

- While there is a trend for students increasingly to opt for STEM (science, technology, engineering and math) subjects and ICT-related studies, numbers currently exceed universities' ability to offer them places;*
- Innovation capacity is very weak in the country – with few research specialists and innovators – and there is a clear need to build innovation capacity;*
- While the government is aware of the importance of innovation capacity and its direct link to improved economic performance, major investments have not been undertaken;*
- Government procurement does not include advanced technical products, and the private sector is not encouraged to invest in R&D;*

- *Entrepreneurs are not thriving and contributing as they could to the health of the ecosystem. A variety of factors contribute to this situation: an underdeveloped entrepreneurial culture; the lack of a state-level strategy for innovation; a scarcity of financial instruments designed to support innovation among SMEs. Significantly more public sector support is needed if entrepreneurs' creative and positive influence on the ecosystem is to meet its potential;*
- *The major challenge of the public sector remains the lack of a coordination mechanism across its various ministries and agencies and the lack of cross-cutting mandates clearly focusing on innovation;*
- *At the level of higher education, universities struggle to keep up with the fast-moving tech sector – a problem that is not unique to the Western Balkans. Poor collaboration between universities and the private sector means that computer science and related degrees are not meeting the needs of IT companies that are having to invest time and money into training staff before they are job-ready;*
- *A combination of the low interest in technology and risk aversion to entrepreneurship, and the business operating environment means that BiH has only a small number of startups. Those that exist are still in early stages and need mentoring to build their business skills, market knowledge, and commercial awareness.*

Sources of the above listed challenges and opinions: Feldsott (2018); GIZ (2019); ITU Innovation (2018); Messenger (2020); Yovchev (2021b).





KOSOVO*

KOSOVO*

*This designation is without prejudice to positions on status and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Kosovo has the smallest and maybe the most fragile ecosystem in the region. Almost all of the emerging challenges can be derived from this situation. Nevertheless, there are some promising signs to be optimistic, as Shaipi (2014) noted: *While all ingredients for a startup ecosystem exist in Kosovo, and all relevant actors in the ecosystem are present, lack of linkages between actors into a one synchronized system has been the main shortfall to boosting the sector's performance in stimulating startups. (...) An important characteristic of the startups in Kosovo is also that the average startup entrepreneurs' age is much lower than the average age in other countries. While this has been largely due to the population demographics, which rank Kosovo as the country with the youngest population in Europe, it has also had an impact on the success rate of startups* (Shaipi, 2014: 6-7).

Also promising fact that specialized organizations were founded to enhance innovation activities in Kosovo (European Commission, 2020):

- Ministry of Innovation and Entrepreneurship;
- Kosovo Investment and Enterprise Promotion Agency (KIESA) under the Ministry of Trade and Industry;
- Ministry of Economic Development;
- Office of Copyright and Related Rights (OCRR);
- Innovation Centre Kosovo (ICK);
- Kosovo Association of Information and Communication Technology (STIKK);
- VentureUP is University of Pristina incubator that gives students the possibility to establish and implement their start-up ideas;
- Jakova Innovation Center (JIC);
- Gjirafa Lab is a private run angel investor scheme.

According to our literature review on Kosovo the top 3 challenges of the ecosystem are the following:

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)
2. Talents, ideas and champions (human resources) & Market and networks & Culture and communities
3. Policy and regulation

The following table (*Table 8.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 8. Relevance and distribution of startup ecosystem challenges in Kosovo

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	1	6th
Policy and regulation	2	5th
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	17	1st
Talents, ideas and champions (human resources)	6	2nd
Infrastructure, education, universities, local/available knowledge and programmes	n.a.	n.a.
Market and networks	5	3rd
Culture and communities	4	4th

Source: Lajqi et al. (2019); Nuño (2019); Shaipi (2014); Sopjani (2019)

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)

Some notable detailed challenges mentioned by experts:

- *In addition, lack of permanent funding for research and innovation has also been identified to be a serious drawback to an enabling ecosystem;*
- *While there are incubators (both physical and virtual), training providers, professional support services that available to startups, the 'seasonality' of funding dependent from donor programs, has been a major drawback in the functioning of the ecosystem;*

- *Steady inflow of core funding for key stakeholders is also one of the biggest challenges to stable and sustainable startup ecosystem in Kosovo;*
- *Lack of funding also represents one of the biggest challenges for startups in Kosovo as there are no commercial or public channels through which they can access finance to invest in their business ideas. While donor-funding programs and projects have provided seed funding for startups periodically, lack of standing/permanent sources of funding for startups is a major challenge that needs to be resolved;*
- *Lack of funding programs also represents a major challenge for the development of research activities, which represent one of the biggest drivers of innovation and new product/service development. Lack of programs funding both academic and applicative research has been identified as a key missing ingredient for fostering emergence of startups. While there are companies and organizations that carry out extensive research in Kosovo, they generally carry out on-demand research that is usually dedicated to a restricted audience. Reliable research, and particularly, academically relevant research is very scarce in Kosovo and startups have virtually no access to it;*
- *Challenges remain in the area of provision of alternative forms of financing, incubation space and services and moreover, in the area of support for growth-oriented startups;*
- *One important issue emerging from the mapping and the interviews with organizations and other relevant stakeholders offering business support services is that the support is in most cases donor driven, posing a concern about the future sustainability of start-up support programs. There are also some local initiatives based solely on government funding, but to a limited extent;*
- *The ongoing concern remains that without donor or government funding, only a few start-ups will be able to use the external advice and business support services.*

2. Talents, ideas and champions (human resources)

Some notable detailed challenges mentioned by experts:

- *The reality today on the ground in Kosovo (mostly Pristina), is that there is a fair size ecosystem of functioning companies with skilled developers doing service contracts and trying to figure out how to become a product company without being able to reach investors, on a small local market without public support or awareness towards entrepreneurship (Nuño, 2019);*

- *Talented young entrepreneurs dismiss their business ideas for salary-based employment in existing companies. In the absence of financing for the development phase, they turn to full-time employment for satisfying their income needs;*
- *In Kosovo, startups appear to achieve a certain point of early development and then stagnate in the later 'phases' and thus stagnate in growth. As a result they are not generating more sales and employing more workers. The reasons behind such phenomena include the limited business knowledge and experience, management style conducive to micro operations only, underdeveloped human resource development, the unfavorable disposition to learning, and the overall "me-too" business model etc. Furthermore, a small and limited market negatively impacts the overall demand (Sopjani, 2019).*

3. Market and networks

Some notable detailed challenges mentioned by experts:

- *There should be opportunities for networking and capacity building for entrepreneurs, private sector investors, and the donor community through events (annual forums, events for entrepreneurs and start-ups), through business plan competitions and start-up fairs, and through social networks (Lajqi et al., 2019);*
- *While the necessary ingredients for a start-up ecosystem do exist in Kosovo, a systemic approach to connecting them to properly function as an ecosystem in support of innovation and entrepreneurship has been missing.*

Other remarkable challenges:

- *Nearly every business support organization (BSO) established in Kosovo is a result of donor funded projects. Only a few startups and new businesses have survived beyond the duration of various projects. The reasons behind a high rate of failure lie on unsustainable exit strategies, limited local authority ownership, limited scope and inadequate business models. Only through transforming into "for-profit" or "cost-recovery" organizations and focusing on clients who have the ability to pay for particular services, a few number of such organizations have managed to survive (Sopjani, 2019).*

Sources of the above mentioned challenges: Lajqi et al. (2019); Nuño (2019); Shaipi (2014); Sopjani (2019).

Thanks to the high-quality research work of the Innovation Centre Kosovo (ICK) we can summarize the challenges specifically from the point of view of startups as well (ICK, 2020).

The survey – among many other things – focused on the causes of startup failures, stagnation and obstacles of growth, support and services from the ecosystem. The next table (Table 9.) gives an instructive extract of the listed factors.

Table 9. The pattern and relevance of startup challenges in Kosovo according to the elements of value creation processes model

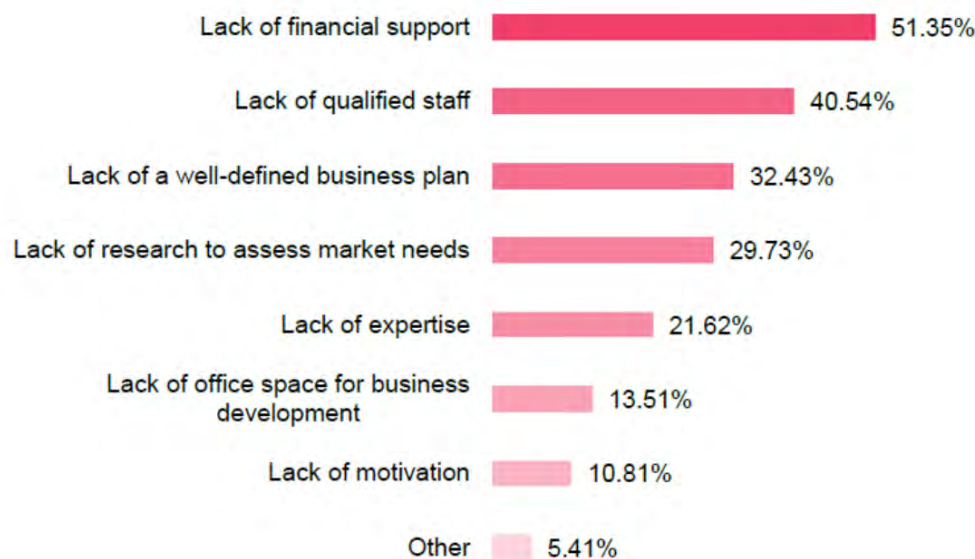
Startup value creation process	Ranking values	Average ranking values	Relevance of the challenge according to rankings
information, impulses, ideas and incoming feedbacks	4, 13	8,5	7th
leadership & vision, entrepreneurial skills	3, 7, 5, 9	6	4th
talents, knowledge & HR aspects	2, 5, 5, 6, 12, 14, 15	8,42	6th
supportive background/ecosystem	4	4	2nd
financing	1, 2, 1, 3	1,75	1st
market conditions, regulations	1, 5, 2, 4, 7, 11	5	3rd
execution (including hard infrastructure, equipments and communication, adaptive skills and competitiveness)	6, 3, 5, 8, 10	6,4	5th
customer experience	16, 17	16,5	8th
social impact	n.a.	n.a.	9th

Source: ICK (2020)

According to ranking lists *financing* was the most relevant factor for startups (the lowest average ranking value). The supportive background/ecosystem was mentioned in the second most important place, and market conditions, regulations were in the third place.

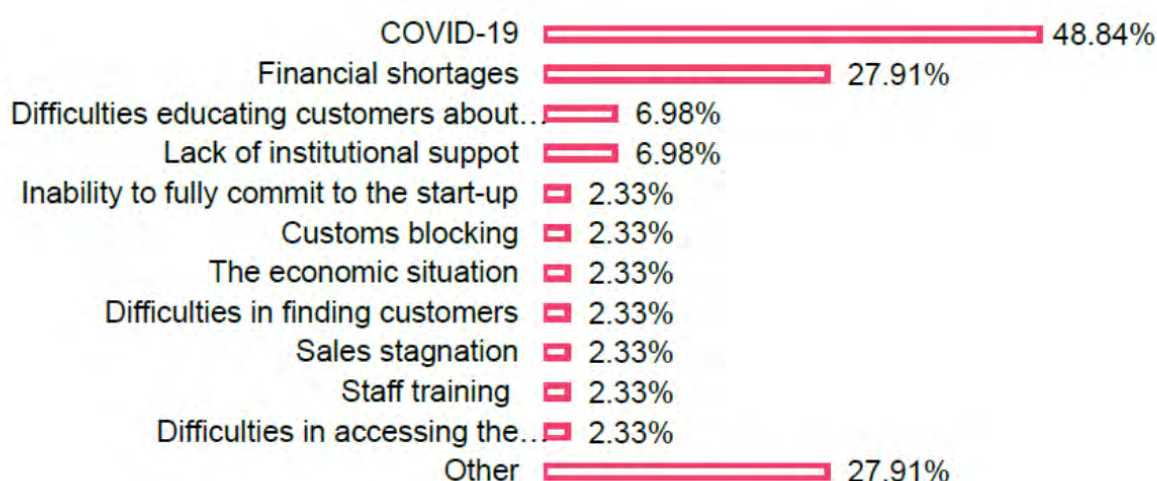
The following figures (Figure 7. 8.& 9.) show us much clearer pictures.

Figure 7. Reasons for startup failure in Kosovo. Source: ICK (2020)



The economic slowdown and the above mentioned triggering factors of startup failures could induce stagnation. According to ICK (2020) 44.76% of startups suffer from stagnation due to the listed obstacles. In order to get a deeper insight, let's take a look at the next figure (Figure 8.)

Figure 8. The causes of stagnation from the perspective of startup owners. Source: ICK (2020)



Hopefully we will win against the COVID-19 pandemic and the societies, economies will recover as soon as possible. This will also be beneficial for the growth of startups. But, remaining realistic and objective, let's see the possible challenges for growth in line with the respondents' opinion (Figure 9.).

Figure 9. The main challenges for developing startups in Kosovo. Source: ICK (2020)



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MONTENEGRO

MONTENEGRO

Montenegro is a young state in the Western Balkans with a population of appr. 622.000. According to the National Statistics Office, the ICT sector in Montenegro accounts for 4,2 % of GDP. Nevertheless, Montenegro still has a long and challenging way to go to fully tap its ICT potential. Due to efforts of the Government in the previous years strong and sustainable preconditions for the accelerated development of the digital society and economy were created (see for example: The Smart Specialization Strategy (2019-2024), the Program for Encouraging Innovative Startups in Montenegro (2019-2021), as well as the Center for Excellence Encouragement Program).

Montenegro has recognized the potential of entrepreneurship and innovation, especially in the ICT sector, as providing strong potential for smart growth. One of the most important tools for this is the development of startup ecosystems (ITU Innovation, 2020a, b).

According to our extensive literature review the top 3 challenges of the ecosystem are the following:

1. Policy and regulation
2. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)
3. Talents, ideas and champions (human resources) & Culture and communities

The following table (*Table 10.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 10. Relevance and distribution of startup ecosystem challenges in Montenegro

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	2	6th
Policy and regulation	16	1st
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	15	2nd
Talents, ideas and champions (human resources)	13	3rd
Infrastructure, education, universities, local/available knowledge and programmes	6	5th
Market and networks	11	4th
Culture and communities	13	3rd

Source: ITU Innovation (2020a, b); Montenegro Ministry of Science (2019); Tataj et al. (2019)

1. Policy and regulation

Some notable detailed challenges mentioned by experts:

- *Montenegro remains governed in silos with no current programmes stimulating collaboration, integration. Furthermore, the country would benefit from better integration of the existing agents of the Montenegro ecosystem with other ecosystems in the neighbouring countries and Europe;*
- *Digital transformation of public sector and a strategic focus on the e-government strategy could help create a more transparent business environment, shorten and simplify administrative procedures and possibly create a demand for IT services in the private sector and thus helping growth entrepreneurial innovation ecosystem;*
- *Lack of inter-ministerial and vertical coordination;*
- *Disintegration from the Balkans, Europe and global markets;*
- *ICT companies work mainly for the government – but government procurement is not conducive to innovation;*
- *There is no clear responsibility within government for some aspects of the ecosystem;*

- *Policy and regulation related to innovation needs to be improved in several areas;*
- *There is a need to embed the innovation principle in policy-making;*
- *Public-private consultation and statistics are necessary to better design policy and regulation;*
- *Only a handful of high-tech companies – mainly suppliers to telecommunications and banking industry – are present on the market. Businesses are not taking full advantage of advanced technologies (cloud, big data, blockchain, AI, IoT, 3D printing, machine learning, robots/drones and so on), while government is slow in designing policies;*
- *Regulation lacks consistency, dynamism, and flexibility, which creates a barrier for entrepreneurs and investors.*

2. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)

Some notable detailed challenges mentioned by experts:

- *Poor access to capital is chasing startup innovation out of Montenegro, impeding scale-ups and digital transformation for SMEs;*
- *Lack of serial entrepreneurs and business angels;*
- *Low credit ratings and high transaction fees (financing);*
- *Poor access to capital and resources is not encouraging innovation in Montenegro, especially startups and entrepreneurs are looking elsewhere for support;*
- *Despite the importance of low-level and seed funding, risk capital is difficult to secure – venture capital, equity, and mezzanine and business angels are scarce;*
- *Non-financial resources are limited in size and scope;*
- *Generally insufficient transfer of knowledge and technology from European knowledge centres.*

3. Talents, ideas and champions (human resources) & Culture and communities

Some notable detailed challenges mentioned by experts:

- *Innovation policy is necessary to fully integrate the entrepreneurial policies, introduce mechanisms that will slow down the outflow of talent in the field of innovation and entrepreneurship and accelerate the pace of creating innovation ecosystems;*
- *The main threat for the Montenegro innovation ecosystem is brain drain. The Ministry for Science has reached out to the scientific diaspora inviting researchers of Montenegrin origin to build ties with the country;*
- *Lack of entrepreneurial culture and role models to startup;*
- *Lack of initiative in companies for digital transformation process;*
- *Lack of critical mass of talent, knowledge and funding;*
- *Dialogue, collaboration, and consensus among stakeholder groups is absent;*
- *Stakeholder groups are unable to form a big picture of the overall innovation ecosystem;*
- *There is a significant level of frustration among innovation actors both in the private and public sectors, and dissatisfaction that not much can be changed, that procedures are not transparent;*
- *Businesses simply do not recognize the potential of digital transformation to improve competitiveness;*
- *Lack of strategic management in companies with regard to ICT (a reactive approach);*
- *Businesses tend to stay in their 'comfort zones' even if struggling financially;*
- *The ICT industry is not well represented in business associations;*
- *Private sector needs to invest more in the soft infrastructure;*
- *The absorption of human potential by the ICT industry is low;*
- *The education system should be revised to develop future talent;*
- *Low investment in education and R&D encourages a brain drain and deters home-grown innovation;*

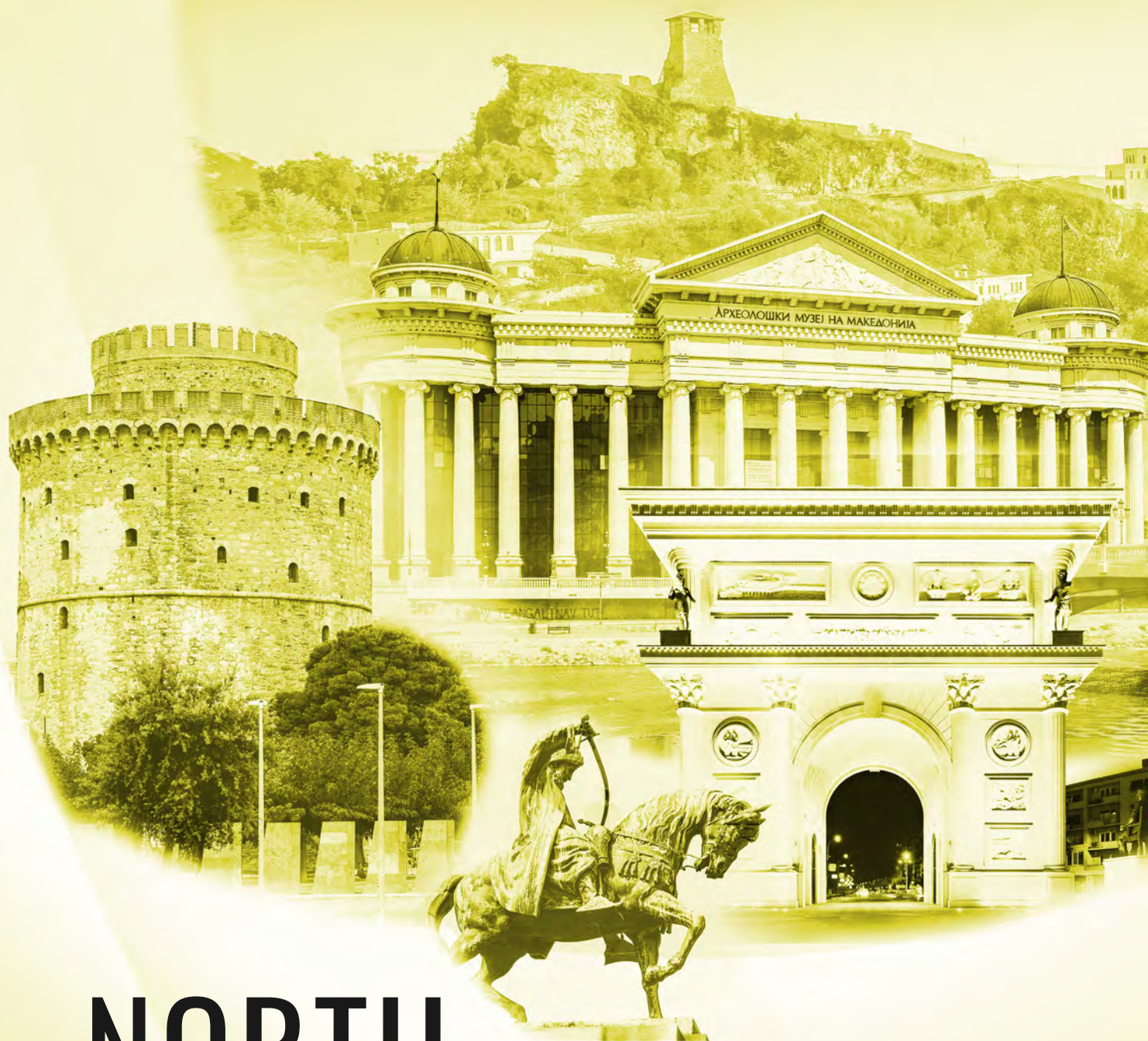
Some notable detailed challenges mentioned by experts:

- *Champions, role models, and success stories need to be better promoted to inspire innovation;*
- *Risk aversion is impacting innovation and entrepreneurship;*
- *The entrepreneurial community is small – but open and inclusive;*
- *There is a lack of skills necessary to exploit digital technology, compounded by a failure on the part of public and private sectors to recognize digital technology as an opportunity for growth;*
- *Outflow of highly qualified research and innovative human resources.*

Other remarkable challenges:

- *In particular, the lack of IP framework in practice prevents academia-industry collaboration;*
- *Lack of collaboration between universities and businesses;*
- *The limited size of the domestic market and industry affects innovation negatively;*
- *Universities need to be strengthened in specialized industry relevant skills and in holistic entrepreneurial skills;*
- *There is a lack of leadership and a lack of ownership within the ecosystem;*
- *Lack of statistical data on innovation and development that are aligned with those of the European Union;*
- *Weak connections between R&D institutions and the business sector;*
- *A large number of startups register companies' headquarters abroad.*

The sources of the above listed opinions and challenges: ITU Innovation (2020a, b); Montenegro Ministry of Science (2019); Tataj et al. (2019).



NORTH MACEDONIA

NORTH MACEDONIA

The Macedonian ecosystem is in the learning phase. The current focus of the ecosystem is placed on knowledge acquisition and access to capital. Of course, there are lots of challenges to be solved but the synergistic vibration of the ecosystem can be felt by now. The startup ecosystem in North Macedonia needs to improve as a whole before it can catch up and compete with EU ecosystems.

North Macedonia has the highest startup density value in Western Balkan regarding our focus area: 30 startups/1 million inhabitants (Startup Macedonia, 2018).

According to our extensive literature review the top 3 challenges of the ecosystem are the following:

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)
2. Culture and communities
3. Policy and regulation & Talents, ideas and champions (human resources) & Market and networks

The following table (*Table 11.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 11. Relevance and distribution of startup ecosystem challenges in North Macedonia

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	n.a.	n.a.
Policy and regulation	2	3rd
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	6	1st
Talents, ideas and champions (human resources)	2	3rd
Infrastructure, education, universities, local/available knowledge and programmes	1	4th
Market and networks	2	3rd
Culture and communities	3	2nd

Source: Larda (2020); PwC North Macedonia (2019); Startup Macedonia (2018); Stojkovski (2020)

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)

Some notable detailed challenges mentioned by experts:

- *One of the Innovation Fund's initiatives is co-financing for projects that are in the phase of proof-of-concept, up to the close-to market phase. Yet, besides regionally active South Central Ventures, there are still no dedicated venture capital funds in the country;*
- *Startups need capital; Lack of suitable business concepts which could convince investors;*
- *Investors think startups are not investment-ready;*
- *Startups say they need more support and education in sales;*
- *There is a mismatch in the demand vs need, as startups are being offered services that they don't need;*
- *Most of the investment opportunities present in North Macedonia are focused in the Pre-Seed and Seed phases. These two rounds of funding can be essential for a startup and may allow you to grow to a point where you can begin to raise additional funding through the more common forms of Series A, B, and C funding. Very limited number of opportunities in North Macedonia for such fundings.*

2. Culture and communities

Some notable detailed challenges mentioned by experts:

- *Lack of dynamic entrepreneurs and startups esp. women entrepreneurship;*
- *Due to limited opportunities at home, startups at this stage look mostly for financing abroad.*

3. Policy and regulation & Talents, ideas and champions (human resources) & Market and networks

Some notable detailed challenges mentioned by experts:

- *Yet, the ecosystem is rather new and weak, and needs its success stories and accumulated know how to make the next leap;*
- *While most startups in the county have started to create a product, they are still not able to properly sell it. At the moment, this is one of the biggest challenges that Macedonian companies have to deal with, if they want to achieve rapid growth;*
- *There are successful startup companies that are already working in these industries*, and if we are smart, we would do some sort of clustering and put all available resources in this direction. (*software industries like video streaming, monetization, software and mobile applications) (Stojkovski, 2020 quotes Igor Izotov);*
- *I would mention the Innovation Fund — but that money is not “smart”. It is not opening new markets, it is not opening doors for new businesses or bringing advice from people who have crossed that road. The money will get you to create such a product, but won’t sell it to you.” Izotov adds. (Stojkovski, 2020 quotes Igor Izotov);*
- *Startups need to find their first customers as soon as possible;*
- *Lack of connections between universities and startups (Larda, 2020).*

Sources of the above mentioned challenges: Larda (2020); PwC North Macedonia (2019); Startup Macedonia (2018); Stojkovski (2020).





SERBIA

SERBIA

The Serbian startup ecosystem is in its first development stage, however it shows promising signs. Values of different indicators are among the best in the Western Balkan region: R&D expenditures, ICT infrastructure, Availability of scientists and engineers, StartupBlink ecosystem total score. The startup density is 26 startups/1 million inhabitants.

Most Serbian startups are operating in the following fields: Enterprise solutions, AI, Big Data & Analysis, Gaming, Smart City, Blockchain & Crypto. The Digital Serbia Initiative estimates the total value of the Serbian ecosystem at 502 m USD and it encompasses around 300 startups. Four-thirds of the companies are export-oriented, and nearly 60% are in the B2B sector (Kozbunarova, 2020; Kukić et al., 2019).

According to our extensive literature review the top 3 challenges of the ecosystem are the following:

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)
2. Culture and communities
3. Market and networks

The following table (*Table 12.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 12. Relevance and distribution of startup ecosystem challenges in Serbia

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	n.a.	n.a.
Policy and regulation	1	5th
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	11	1st
Talents, ideas and champions (human resources)	3	4th
Infrastructure, education, universities, local/available knowledge and programmes	1	5th
Market and networks	4	3rd
Culture and communities	7	2nd

Source: Berndt (2019); Kozbunarova (2020); Kukić et al. (2019)

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)

Some notable detailed challenges mentioned by experts:

- *The challenge of raising funds for startups to fund their growth becomes even more apparent when considering the fact that more than 50% of startups in the country haven't received any investments and are entirely self-funded;*
- *Seed Funding;*
- *Another obstacle for startups is of course financing and the limited sources of financing in the local market;*
- *Imbalances and high concentration of funds received: 3,45% of startups received 85% of total external financing, 96,55% of the startups received only 21 m EUR (Kukić et al., 2019);*
- *There is a limited number of investors active in the market, and startups seek for financing abroad, instead of investors providing funds directly into the local ecosystem;*
- *Also, some forms of financing, such as crowdfunding (lending based or equity), are simply not yet allowed and therefore present in Serbia.*
- *Serbia has, so far, had one of the lowest institutional support towards the funding of startups;*
- *Support and assistance between local founders is not at the required level for a healthy ecosystem;*
- *Clear absence of a wider community understanding that startup founders need broader support;*

2. Culture and communities

Some notable detailed challenges mentioned by experts:

- Entrepreneurial spirit, English proficiency, Entrepreneurial Education and Culture;

- *Local Connectedness and Community;*
- *Particularly alarming is the low sense of community, which implies the relative absence of a 'people helping people' mentality;*
- *Low level of shared experiences and informal help;*
- *Another problem relates to dealing with failure, which is probably more prevalent for startups. To stigmatize failure is embedded in the local culture. Instead of encouragement to pursue an idea, an entrepreneur would encounter more often arguments and comments as to why it cannot succeed. Failing is not regarded as a valuable experience, neither locally, nor in Western Europe (Berndt, 2019).*

3. Market and networks

Some notable detailed challenges mentioned by experts:

- *Companies registered in Serbia, primarily due to the ZDP, cannot access most world-renowned online payment and trading platforms, which reduces the competitiveness of domestic companies, especially those seeking to sell their products and services abroad;*
- *Serbian startup ecosystem is still small both in size, resources, and startup experience;*
- *Data regarding local relationships imply that the number and quality of interactions between founders and other participants in the Belgrade and Novi Sad startup ecosystem require additional attention;*
- *Local entrepreneurs experience huge problems in developing a product out of an idea (or even a minimum viable product, MVP) and starting to market that product later on.*

Other relevant challenges:

- *Ease of Doing Business, Lack of adapted Tax Laws.*

Sources of the above listed challenges: Berndt (2019); Kozbunarova (2020); Kukić et al. (2019).



CZECH REPUBLIC

CZECH REPUBLIC

The innovation performance of the Czech Republic is excellent. According to the Global Innovation Index, the Global Talent Competitiveness Index, the scores of R&D expenditure, Technology utilisation, Investment in emerging technologies, University ranking, Quality of management schools, Brain retention, Relevance of education system to the economy, Innovation output and based on StartupBlink ecosystem total score Czechia is in first place among our analyzed countries. However, several areas remain where the country has to make improvements in order to fully tap its digital potential.

The startup density is: 89 startups/1 million inhabitants. Most relevant ecosystems are Prague, Brno, and Ostrava.

According to our extensive literature review the top 3 challenges of the ecosystem are the following:

1. Talents, ideas and champions (human resources)
2. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)
3. Culture and communities

The following table (*Table 13.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 13. Relevance and distribution of startup ecosystem challenges in Czech Republic

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	2	7th
Policy and regulation	7	5th
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	12	2nd
Talents, ideas and champions (human resources)	13	1st
Infrastructure, education, universities, local/available knowledge and programmes	4	6th
Market and networks	10	4th
Culture and communities	11	3rd

Source: Government of Czech Republic (2019); Keiretsu Forum (2020); Novak et al. (2018b)

1. Talents, ideas and champions (human resources)

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *Czech projects are not registering large international success;*
- *Lack of experienced management;*
- *Low ability to expand and compete in global markets;*
- *Low self-presentation ability;*
- *Not a lot of startups reaches beyond the borders;*
- *Lack of high quality employees, but that is a general issue (Keiretsu Forum, 2020).*

2. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *Lack of risk capital;*
- *Lack of real angel investors;*
- *Still lacking interest of investors in early startup stages;*
- *The sector is suffering of insufficient data;*
- *Lack of synergized information about the startup market (Keiretsu Forum, 2020).*

3. Culture and communities

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *Everyone is focusing on themselves;*
- *Unwillingness to undertake large risks;*

- *Conservatism of the corporate environment towards startups;*
- *Lack of mutual startup cooperation, too much individualism;*
- *Fast self satisfaction of startupists, relatively low self confidence and ferocity;*
- *Most of the events are still happening only in Prague;*
- *Startupists are quite reclusive when it comes to sharing their business goals;*
- *Startups are very careful about sharing ideas and know-how;*
- *From the point of view of business practice, there is insufficient motivation to use academic outputs, and in the Czech Republic the approach of corporations and small and medium-sized firms to cooperation with startups is inflexible.*

Other remarkable challenges:

Sources of the above listed opinions: Government of Czech Republic (2019); Keiretsu Forum (2020); Novak et al. (2018b).





HUNGARY

HUNGARY

Good news for Hungary that the Global Startup Ecosystem Report comparing 250 attractive startup locations worldwide included the Hungarian capital in its ranking for the first time in 2020. The survey placed Budapest in the international leading group of emerging cities and highlighted the country's achievement in the field of artificial intelligence (Ministry of Innovation and Technology, 2021). According to Startup Hungary's research – based on responses from 232 startups–, most startups focus on B2B SaaS. A little over 60% reported they are using some sort of “deep tech.” The top verticals were AI, Big Data, Fintech, Analytics/BI, IoT and Medtech. This data strengthens the stereotype that we have better resources for building tech-heavy, B2B startups compared to consumer products in the CEE region (Startup Hungary, 2021). Hungary, anyway, faces the same challenges as many other CEE markets. The country has three important ecosystems: Budapest, Debrecen and Szeged. The value of the startup density is 99 startups/1 million inhabitants.

According to our extensive literature review the top 3 challenges of the ecosystem are the following:

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support) & Talents, ideas and champions (human resources)
2. Infrastructure, education, universities, local/available knowledge and programmes
3. Culture and communities

The following table (*Table 14.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 14. Relevance and distribution of startup ecosystem challenges in Hungary

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	n.a.	n.a.
Policy and regulation	5	4th
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	9	1st
Talents, ideas and champions (human resources)	9	1st
Infrastructure, education, universities, local/available knowledge and programmes	7	2nd
Market and networks	4	5th
Culture and communities	6	3rd

Source: Government of Hungary (2016); Jáki et al. (2019); Novak et al. (2018); Startup Hungary (2021); Szerb et al. (2018)

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support) & Talents, ideas and champions (human resources)

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *The greatest challenges of a scaling strategy were considered the following: financing, penetrating new markets and the lack of distribution channels;*
- *Low quality of financial culture;*
- *Private and public VCs don't work together;*
- *In Hungary, there is not enough funding available from informal investors (family, friends and colleagues) who are private individuals (other than founders) for new technology firms;*
- *In Hungary, there is no sufficient funding available through initial public offerings (IPOs) for new technology firms;*
- *In Hungary, there is no sufficient funding available through private lenders' funding (crowdfunding) for new technology firms;*
- *The biggest challenges are finding talent, getting traction, and a lack of marketing &*

sales skills.

2. Infrastructure, education, universities, local/available knowledge and programmes

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *Access to entrepreneurial education;*
- *Few teachers have entrepreneurial competences;*
- *The educational system has been unable to catch up with the challenges of the 21st century; there is an increasing shortage of skilled experts;*
- *The educational curriculum still lacks training for the entrepreneurial spirit, which widens the gap and curbs entrepreneurship;*
- *Non-public-education solutions are too Budapest-centred and too expensive;*
- *The domestic education system not effectively prepares students for future workplaces dominated and lead by technologies;*
- *In Hungary, local and countrywide chambers do not provide effective support for new technology firms.*

3. Culture and communities

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *Advanced entrepreneurial culture (opportunity to start again after failing a startup);*
- *Low awareness of innovation;*
- *The fear of failure is high whereas the willingness to take risks is low;*
- *A weak entrepreneurial spirit resulting from cultural traditions has not changed while the perception of the ecosystem has not improved;*
- *The educational system fails to encourage people to start a business.*

Other remarkable challenges:

- *Young persons' competences lag behind the EU average;*
- *Low level of linguistic competences;*
- *Going global is challenging;*
- *Low level protection of intellectual property;*
- *There are few young entrepreneurs;*
- *Successful entrepreneurs are still underrepresented in mass media;*
- *The social perception of entrepreneurs has not improved due to the excessive tax and social security burdens;*
- *Domestic firms less adopt the newest technology in large numbers;*
- *There are only few domestic firms use globally new technologies;*
- *The Hungarian economically active population not possesses the necessary skills and competences to establish and effectively run a new technology firm;*
- *In Hungary, the brain drain, the leave of those that are the best and have the highest expertise to foreign countries, is significant;*
- *In Hungary, it is hard to reach and hire experts having special technological knowledges and skills;*
- *Experts do not believe that lagging Hungarian regions have adequate economic and social environment to attract new technology firms;*
- *„Brain drain” and need to reskill the workforce in the long-term;*
- *The protection of intellectual property also is deemed weaker in Hungary than in Digital Frontrunner countries;*
- *Regulatory and fundraising barriers push startups to set up entities abroad.*

Sources of the above mentioned opinions: (Government of Hungary, 2016; Jáki et al., 2019; Novak et al., 2018; Startup Hungary, 2021; Szerb et al., 2018).

To see a more sophisticated categorization, we should examine the two tables below (Table 15. & 16.)

- *Young persons' competences lag behind the EU average;*
- *Low level of linguistic competences;*
- *Going global is challenging;*
- *Low level protection of intellectual property;*
- *There are few young entrepreneurs;*
- *Successful entrepreneurs are still underrepresented in mass media;*
- *The social perception of entrepreneurs has not improved due to the excessive tax and social security burdens;*
- *Domestic firms less adopt the newest technology in large numbers;*
- *There are only few domestic firms use globally new technologies;*
- *The Hungarian economically active population not possesses the necessary skills and competences to establish and effectively run a new technology firm;*
- *In Hungary, the brain drain, the leave of those that are the best and have the highest expertise to foreign countries, is significant;*
- *In Hungary, it is hard to reach and hire experts having special technological knowledges and skills;*
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Sources of the above mentioned opinions: (Government of Hungary, 2016; Jáki et al., 2019; Novak et al., 2018; Startup Hungary, 2021; Szerb et al., 2018).

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- *The social perception of entrepreneurs has not improved due to the excessive tax and social security burdens;*
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- *The Hungarian economically active population not possesses the necessary skills and competences to establish and effectively run a new technology firm;*
- *In Hungary, the brain drain, the leave of those that are the best and have the highest expertise to foreign countries, is significant;*
- *In Hungary, it is hard to reach and hire experts having special technological knowledges and skills;*
- *Experts do not believe that lagging Hungarian regions have adequate economic and social environment to attract new technology firms;*
- *„Brain drain” and need to reskill the workforce in the long-term;*
- *The protection of intellectual property also is deemed weaker in Hungary than in Digital Frontrunner countries;*
- *Regulatory and fundraising barriers push startups to set up entities abroad.*

Sources of the above mentioned opinions: (Government of Hungary, 2016; Jáki et al., 2019; Novak et al., 2018; Startup Hungary, 2021; Szerb et al., 2018).

To see a more sophisticated categorization, we should examine the two tables below (Table 15. & 16.)

Table 15. Importance of the startup ecosystem characteristics

	Mean	Median	Mode	Std. Deviation	95% confidence interval of mean		Very important (4) and absolutely essential (5) frequency
					Lower	Upper	
Inclination for cooperation among members of the ecosystem	4,42	5	5	0,855	4,250	4,590	87
International relations	4,39	5	5	0,852	4,221	4,559	82
Advanced entrepreneurial culture	4,29	5	5	0,957	4,100	4,480	83
Access to funding	4,25	4,5	5	0,892	4,073	4,427	79
Access to sufficiently educated workforce	4,25	4,5	5	0,947	4,062	4,438	83
Presence of successful startups in the community as mentors, or angel investors	4,22	5	5	0,970	4,028	4,412	76
Number of high-quality ideas or projects	4,19	4	5	0,907	4,010	4,370	79
Favorable tax environment for entrepreneurs	4,18	4	5	0,968	3,988	4,372	80
Favorable level of required administration for entrepreneurs	4,14	4	5	0,975	3,947	4,333	74
Access to mentors, advisers, coaches	3,93	4	4	1,066	3,718	4,142	73
Access to entrepreneurial education	3,88	4	5	1,225	3,637	4,123	67
Social events (meetups, networking)	3,72	4	3	0,944	3,533	3,907	56
Technology transfer	3,59	4	4	1,065	3,379	3,801	55
Presence of co-working spaces	2,97	3	3	1,087	2,754	3,186	29
Startup competitions	2,96	3	3	1,205	2,721	3,199	35

Source: Jáki et al. (2019: 10)

Table 16. Evaluation of the startup ecosystem characteristics

	Mean	Median	Mode	Std. Deviation	95% confidence interval of mean		Good (4) and very good (5) frequency
					Lower	Upper	
Social events (meetups, networking)	3,71	4	4	0,820	3,547	3,873	61
Presence of co-working spaces	3,33	3	3	0,995	3,132	3,528	38
Startup competitions	3,24	3	3	0,911	3,059	3,421	40
Number of high-quality ideas or projects	3,08	3	3	1,079	2,866	3,294	32
Access to mentors, advisers, coaches	3,03	3	3	0,893	2,853	3,207	27
Presence of successful startups in the community as mentors, or angel investors	2,88	3	3	0,967	2,688	3,072	29
Access to funding	2,87	3	3	1,116	2,649	3,091	30
Inclination for cooperation among members of the ecosystem	2,81	3	3	0,982	2,615	3,005	22
Technology transfer	2,68	3	3	0,898	2,502	2,858	11
Access to sufficiently educated workforce	2,67	3	3	1,035	2,465	2,875	19
International relations	2,61	2	2	0,973	2,417	2,803	18
Access to entrepreneurial education	2,22	2	2	1,021	2,017	2,423	11
Favorable tax environment for entrepreneurs	2,11	2	1	1,024	1,907	2,313	11
Advanced entrepreneurial culture	2,09	2	1	1,083	1,875	2,305	11
Favorable level of required administration for entrepreneurs	1,96	2	1	0,994	1,763	2,157	8
Evaluate the domestic startup ecosystem	2,91	3	3	0,900	2,731	3,089	22

Source: Jáki et al. (2019: 10)



POLAND

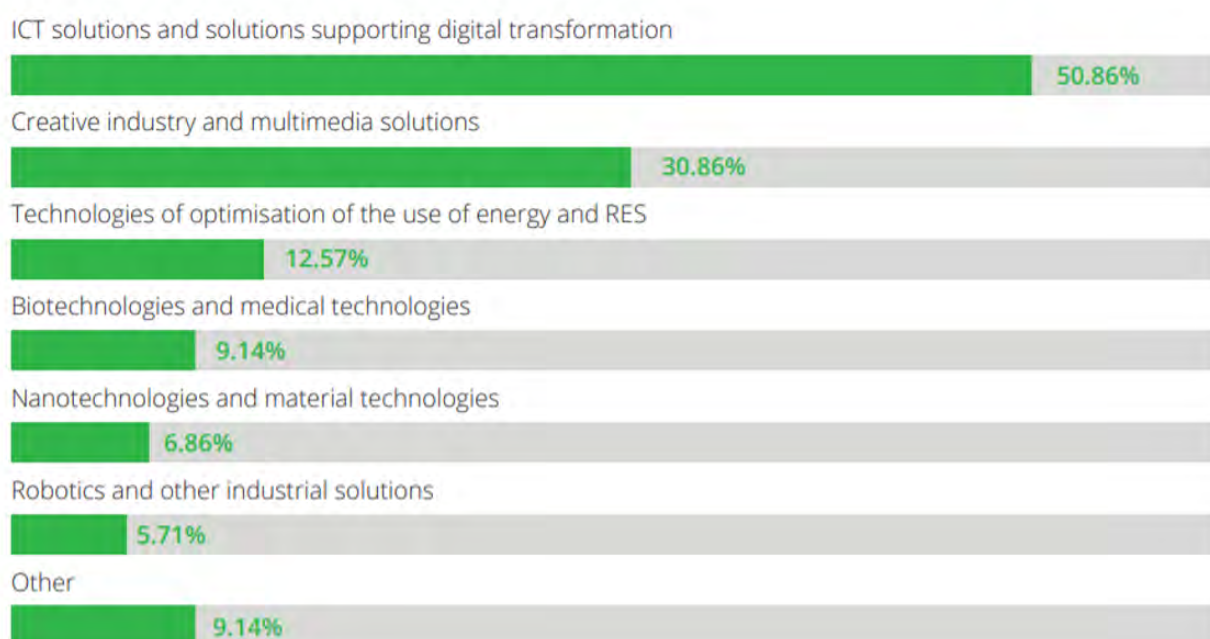
POLAND

In our comparison, Poland has the largest, most extensive ecosystem, but lags behind the other V4 countries in terms of startup density: 51 startups/1 million inhabitants. The Polish startup ecosystem consists of 3000+ startups, 300+ coworking spaces, 130+ VC's, plenty of acceleration programs and tech conferences.

The most relevant local ecosystems are the following: Warsaw, Poznan, Wrocław, Krakow, Gdańsk, Gdynia, Katowice, Szczecin, Lodz, Rzeszow, Zielona Gora.

The Polish startup ecosystem is evolving dynamically in both quantity and quality. The distribution of startups' fields of activity supports the latter statement (*see Figure 10.*).

Figure 10. Startups' fields of activity in Poland (2016). Source: Deloitte (2016)



The potential of further development of startups in Poland is significant. Added value generated by such entities in 2023 may even reach approximately 480 m EUR, with more than 50 thousand jobs created (Deloitte, 2016). Also promising that in 2019, the investment in the country's startups had grown eight times year-on-year to reach some 294 million EUR – more than in the nine years before that, combined (Degeler, 2020). In order to see the ecosystem's challenges more precisely we collected them in a structured way.

According to our extensive literature review the top 3 challenges of the ecosystem are the following:

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)
2. Market and networks
3. Talents, ideas and champions (human resources)

The following table (*Table 17.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 17. Relevance and distribution of startup ecosystem challenges in Poland

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	n.a.	n.a.
Policy and regulation	3	4th
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	9	1st
Talents, ideas and champions (human resources)	5	3rd
Infrastructure, education, universities, local/available knowledge and programmes	1	5th
Market and networks	7	2nd
Culture and communities	1	5th

Source: Dealroom.com (2020); Konsek-Ciechońska (2019); Morawska (2019); Sitko-Lutek – Marzec (2017); Snażyk (2020); Spysz (2017)

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *The lack of capital is one of the biggest challenges Polish startups face;*
- *Small amount of investors with Series A and later round tickets;*
- *Financing for startups is underdeveloped;*
- *Limited number of venture capital funds and business angels;*

- *Challenge is that startups are still afraid of VC funds;*
- *One of the key challenges is a clear equity financing gap for later and growth stage companies who are raising B or C rounds, especially as compared to many funding options available at the seed and early-stage stage.*

2. Market and networks

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *The main problem with Polish startups is that most entrepreneurs think in a very local way. They have a network in Poland, they think about the Polish market, they launch products here, and so on;*
- *Poland should become much more networked and interrelated with other markets, with the U.S. as well as with European communities;*
- *Middle market trap – European startups prefer to scale in their local market before expanding to Poland;*
- *Business-science cooperation was evaluated as low due to unclear rules of cooperation and lack of incentives.*

3. Talents, ideas and champions (human resources)

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *Lack of international co-founder teams;*
- *Human capital in Poland is untapped (despite a considerable number of engineers and students of technical fields of studies) due to low applicability of higher education. In addition, low productivity also poses barriers;*
- *Many great ideas lie dormant in the universities' drawers and laboratories;*
- *Startups need to improve their managerial capabilities in the area of international business development to scale and build value.*

Other remarkable challenges:

- *Relatively small international recognition of the Polish ecosystem;*

- *Lack of fiscal incentives for investments in startups;*
- *Social capital constitutes the weakest link of Polish startups due to low trust, incapacity for cooperation, negative attitude towards failure, risk aversion, reluctance for knowledge sharing;*
- *Average friendliness of legal regulations due to unclear tax collection system, and the establishment of businesses being troublesome. Even though public support for R&D is significant, these resources are inefficiently allocated;*
- *Average friendliness of the institutional environment, which is developed unevenly. Government administration's activity supporting the development of startups is visible. However, such assistance is usually short-term and insufficiently coordinated.*

Sources of the opinions: Dealroom.com (2020); Morawska (2019); Sitko-Lutek – Marzec (2017); Snażyk (2020); Spysz (2017).





SLOVAKIA

SLOVAKIA

The status of Slovakia's ecosystem has reached a significant turning point: specialization. This is the next step towards an endogenous development and a more quality-based competitiveness. According to a report on innovation communities, there are five key promising sectors in this regard: healthcare, climate resilience, fintech, digital & creative industries and mobility.

By now, compared to ten years ago, Slovakia is better positioned to direct more attention, support and funding towards sector-specific innovators. Managing this transition period is particularly important, in particular in the light of the fact that the ecosystem is quite young. In order to be as successful as possible an in-depth exploration of the situation and understanding of the challenges are required (CIVITTA Slovakia, 2021).

In Slovakia there are two important ecosystems: Bratislava and Kosice. The startup density reaches the value of 75 startups/1million inhabitants.

According to our literature review the top 3 challenges of the ecosystem are the following:

1. Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support) & Talents, ideas and champions (human resources)
2. Market and networks
3. Policy and regulation

The following table (*Table 18.*) summarizes the frequencies of mentions on challenges and the relevance of these challenges according to their appearance regarding the pillars of ecosystem assessment canvas.

Table 18. Relevance and distribution of startup ecosystem challenges in Slovakia

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	n.a.	n.a.
Policy and regulation	5	3rd
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	13	1st
Talents, ideas and champions (human resources)	13	1st
Infrastructure, education, universities, local/available knowledge and programmes	1	5th
Market and networks	8	2nd
Culture and communities	4	4th

Source: Andrež et al. (2017); KPMG (2016)

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *The main challenges related to developing acceleration services in Slovakia are insufficient deal-flow, access to competent international-level mentors, potential corporate customers, and experienced early-stage investors;*
- *While some private incubators and co-working spaces in Slovakia offer some services typically offered by accelerators, there are no dedicated accelerators in Slovakia;*
- *Finance relates to startups' own operations;*
- *Organisations are largely dependent on private funding;*
- *The resources to invest into the startup and innovation system – mostly supplied by European Structural Funds – have to be invested in a coordinated and complementary way to achieve the desired outcomes.*

2. Market and networks

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *Investors see Slovak Startups' ability to scale as a challenge: access to finance, accessing new markets, lack of distribution channels, shortage of staff;*

- *Lack of product traction;*
- *Low level of cooperations between different actors.*

3. Policy and regulation

Some notable detailed challenges mentioned by experts and relevant stakeholders:

- *The management of the startup ecosystem is a particular challenge;*
- *Problems with non-transparent public procurement, tedious administrative procedures and e-government structures;*
- *Many of the legal, governance, competence and networking barriers, as well as challenges related to appropriateness of incentives or existing university practices and culture, have already been recognised in earlier studies and strategies, some with specific planned actions to address them. However, very little progress has been made (Andrez et al., 2017);*
- *Apart from the startup ecosystem, the government will have its greatest impact on the future course of action by bringing the education and research system, as well as the business environment, up to par with the challenges of this change process (Andrez et al., 2017).*

Other remarkable challenges:

- *Increasing crowding out effect due to mismanagement of the startup ecosystem;*
- *Shortcomings in management team capabilities;*
- *Lack of leadership or management skills among Startups;*
- *Approximately two thirds of Corporate respondents are not engaged in the Slovak Startup Ecosystem. When asked why they weren't engaged, 65% responded that it wasn't an internal priority for their business. Interestingly, 79% of Corporates that are involved quoted this reason as their biggest challenge. It is also noteworthy that the larger corporates (500+ employees) were more likely to be not engaged.*

Sources of the above mentioned opinions and thoughts: Andrez et al., (2017); KPMG (2016).

The first figure (*Figure 11.*) focuses on the investors's opinion, while the other (*Figure 12.*) points out the public sector entities' aspects.

Figure 11. Distribution of startup challenges from investors' aspects. Source: KPMG (2016)

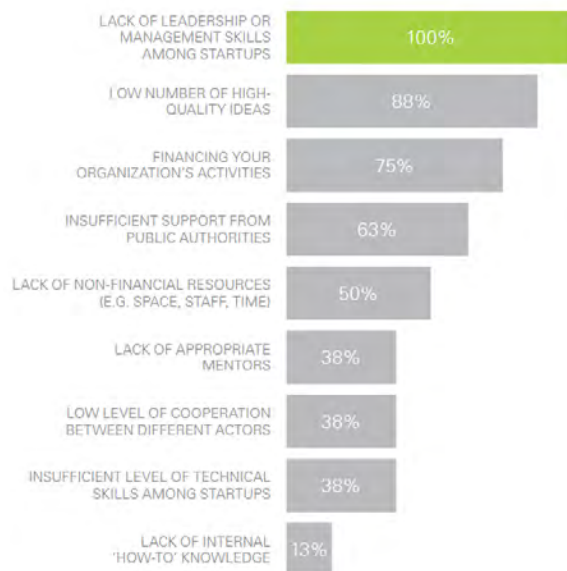
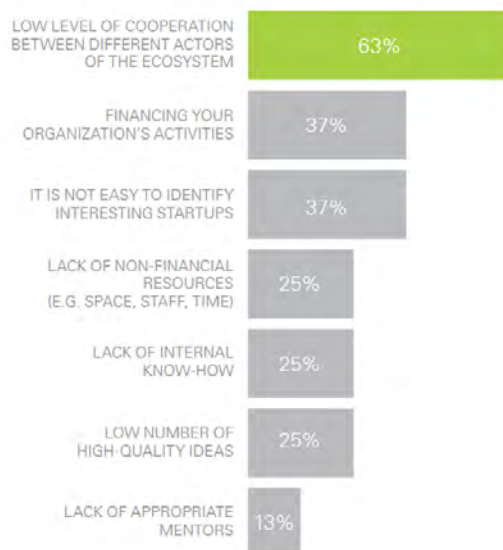


Figure 12. Distribution of startup and startup ecosystem challenges from public sector entities' aspects. Source: KPMG (2016)



Looking back at our results so far, the picture about patterns of challenges is becoming sharper and clearer. The next chapter summarizes the most important outputs of the survey.

5. Conclusions and Recommendations

Taking the data together, we can conclude that both in the Western Balkans and in the Visegrad Group countries, and even in terms of the entire focus area, the „*capital and resources*” challenges have become the most important.

The same can be said for the second most relevant factor: *talents, ideas and champions*. Regarding the third most important challenge, the situation is already different. The *market and networks* & the *culture and communities* factors are in this place alternately.

For the whole picture see the tables below (Table 19. 20. & 21.)

Figure 19. Relevance and distribution of startup ecosystem challenges in the analyzed Western Balkan region (cumulative data)

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	7	7th
Policy and regulation	32	5th
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	77	1st
Talents, ideas and champions (human resources)	39	2nd
Infrastructure, education, universities, local/available knowledge and programmes	19	6th
Market and networks	33	4th
Culture and communities	37	3rd

Source: quoted literatures

Figure 20. Relevance and distribution of startup ecosystem challenges in Western Balkan & Visegrad Group countries (cumulative data)

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	9	7th
Policy and regulation	52	5th
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	120	1st
Talents, ideas and champions (human resources)	79	2nd
Infrastructure, education, universities, local/available knowledge and programmes	32	6th
Market and networks	62	3rd
Culture and communities	59	4th

Source: quoted literatures

Figure 21. Relevance and distribution of startup ecosystem challenges in Visegrad Group countries (cumulative data)

Startup ecosystem assessment canvas	Frequency of mentions	Relevance of the challenge according to frequencies
Vision and strategy	2	7th
Policy and regulation	20	5th
Capital and resources (including available information, flow of special knowledge/technology transfer and ecosystem support)	43	1st
Talents, ideas and champions (human resources)	40	2nd
Infrastructure, education, universities, local/available knowledge and programmes	13	6th
Market and networks	29	3rd
Culture and communities	22	4th

Source: quoted literatures

We consider the identification of problems to be an essential, pivotal precondition for the development of ecosystems and the boost of innovation. Our study performed this exploration. The methods used only served the purpose of presenting the data in a structured, more transparent and holistic view. Further, more precise research and

dynamic updates are needed to formulate intelligent responses to these challenges.

Knowing the most important and credible ecosystem indicators (status indicators, listed in our survey) and the most significant challenges, different forms of cooperation can be developed even internationally to achieve success.

Based on the previous train of thought a *Strategy Formulation Matrix* can be elaborated (see Table 22.).

Table 22. Strategy Formulation Matrix and three possible strategy for cooperation

Field of cooperation & possible strategies - Ecosystem(s) in X country↓	Ecosystem(s) in Y country		
	Relatively Strong Attributes (RSA)	Average characteristics	Relatively Weak Attributes (RWA)
Relatively Strong Attributes (RSA)	Strategy ①		Strategy ②
Average characteristics			
Relatively Weak Attributes (RWA)			Strategy ③

Source: own elaboration

In order to launch the most effective and efficient collaborations we should take into consideration the characteristics of the ecosystems, the shortcomings (challenges), the strong, unique attributes as well, placed and interpreted them in a wider context.

Strategy ①: RSA-RSA situation.

Useful development tools and techniques include for instance:

- Higher attention to maturity of startup ecosystems, to the needs of developed startups (international funding for Series A, B, C etc.; sharing special knowledge, technology transfer; building high level, up-to-date managerial skills - joint coaching, mentoring activities focusing on networking, digital and soft skills, understanding complexity and nonlinearity; modern analytical skills);
- Building synergies, rise competitiveness intensively to catch up top ecosystems;
- Special focus on multiplicative actions during cooperation.

Strategy ②: RSA-RWA situation.

Useful development tools and techniques include for example:

- Mentoring, incubating, acceleration;
- Training with case studies and examples from more developed ecosystems;
- Sharing best/good practices;
- Mobility and networking, flow of knowledge focusing on the early stages of startup life-cycles;
- Building proactive, innovation communities embracing different actors from different ecosystems.

Strategy ③: RWA-RWA situation.

Some example for useful tools and techniques:

- Joint actions to raise funds;
- Building up basic entrepreneurial skills;
- Discourse on startup failures;
- Finding jointly elaborated, creative solutions to transform weaknesses into advantages;
- Increasing visibility;
- Networking to reach the critical mass.



6. References

Aliu, L. (2021): “Everything started from a university dorm”: How Kosovo startup Gjirafa became the Western Balkan’s Amazon. Trending Topics – Channel Ecosystem, Balkan Entrepreneurship.

Link:

<https://www.trendingtopics.eu/everything-started-from-a-university-dorm-how-kosovo-startup-gjirafa-became-the-western-balkans-amazon/>

Andrez, P. – Leo, H. – Johannisse, S. – Romanainen, J. (2017): Specific Support to Slovakia – Specific Support to Slovakia Boosting the Slovak startup ecosystem. European Commission - Horizon 2020 Policy Support Facility.

Link: <https://rio.jrc.ec.europa.eu/sites/default/files/report/KI-AX-17-001-EN-N%20SK.pdf>

Atomico (2020): The State of European Tech – The most comprehensive data-driven analysis of European technology.

Link:

<https://2020.stateofeuropeantech.com/chapter/state-european-tech-2020/?downloadReport>

Berndt, C. (2019): Startups in Serbia – A glance at the startup ecosystem in Serbia. The study conducted for and on behalf of the German-Serbian Chamber of Commerce.

Link: https://strategy-map.net/wp-content/uploads/2019/07/Startup_Study.pdf

CIVITTA Slovakia (2021): A new report highlights the importance of regional innovation ecosystems in transforming the economy of Slovakia. CIVITTA Slovakia – EIT Digital.

Link:

<https://civitta.com/articles/new-report-highlights-the-importance-of-regional-innovation-ecosystems-in-transforming-the-economy-of-slovakia>

Dealroom.com (2020): Polish and CEE tech ecosystem outlook. Dealroom.com – Polish Development Fund – PFR Ventures.

Link: <https://dealroom.co/reports/the-polish-and-cee-tech-ecosystem-outlook>

Dealroom.com (2020): Polish and CEE tech ecosystem outlook. Dealroom.com – Polish Development Fund – PFR Ventures.

Link: <https://dealroom.co/reports/the-polish-and-cee-tech-ecosystem-outlook>

Deloitte (2016): Diagnosis of the start-up ecosystem in Poland. English summary of the full version in Polish.

Link:

https://www2.deloitte.com/content/dam/Deloitte/pl/Documents/Reports/pl_Deloitte_Startups_report_summary_2016.pdf

Degeler, A. (2020): The maturing ecosystem: VC funding for Polish startups up more than 800 percent in 2019. Tech.eu.

Link:

<https://tech.eu/features/30754/the-maturing-ecosystem-vc-funding-for-polish-startups-up-more-than-800-percent-in-2019/>

Dimoska, E. (2020): North Macedonia: Skopje's startup ecosystem at a glance. EU-startups.com

Link:

https://www.eu-startups.com/2020/04/north_macedonia_skopje_ecosystem_at_a_glance/

Dutta, S. – Lanvin, B. – Wunsch-Vincent, S. (2020): Global Innovation Index 2020 – Who will finance innovation? 13th Edition. Cornell University, INSEAD, World Intellectual Property Organization (WIPO). ISBN 978-2-38192-000-9

Link: <https://www.globalinnovationindex.org/Home>

European Commission (2020): EU Support to Start-ups – Kosovo. European Commission, Instrument for Pre-Accession Assistance (IPA II) 2014-2020.

Link:

https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/annexes/ipa_2018_041246.07_eu_support_to_start-ups.pdf

Feldsott, D. (2018): Bosnia's startup scene is rising & reaching critical mass. StartUS Magazine.

Link: <https://magazine.startus.cc/bosnia-startup-scene-reaching-critical-mass/>

GIZ (2019): How policy-makers can support the startup ecosystem – Policy recommendations for the Western Balkans. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

Link:

https://www.slideshare.net/ArminKonjalic/how-policymakers-can-support-the-startup-ecosystem-in-western-balkans?from_action=save

Government of Czech Republic (2019): Innovation Strategy of the Czech Republic 2019-2030. Council for Research, Development and Innovation.

Link:

<https://www.businessinfo.cz/app/content/files/engdocs/innovation-strategy-czech-republic-h-the-country-for-the-future-2019-2030.pdf>

Government of Hungary (2016): Digital startup strategy of Hungary. Digital Success Programme.

Link: <https://digitalisjoletprogram.hu/files/89/ea/89eac5ce5f74178f3f527945f7edd08f.pdf>

Hach, K. – Trenkmann, E. (2019): Entrepreneurial & Innovation Ecosystem in Albania – 12 Findings on the Albanian Startup Ecosystem. Invest-in-albania.org

Link: <https://invest-in-albania.org/12-findings-on-the-albanian-startup-ecosystem/>

ICK (2020): Startup Ecosystem Kosovo – Needs Evaluation Report. Innovation Centre Kosovo.

Link:

https://ickosovo.com/images/uploads/files/1._Startup_Ecosystem_Kosovo_-_Needs_Evaluation_Narrative_Report_-_Final_.pdf

ITU Innovation (2018): Ecosystem Assessment Canvas - Enabling a conducive environment.

Link:

<https://www.itu.int/en/ITU-D/Innovation/Documents/Ecosystem%20assessment%20Canvas%20FACTSHEETv2.pdf>

ITU Innovation (2018): Digital Innovation Profile – Bosnia and Herzegovina. ICT centric innovation ecosystem snapshot, National Expert Assessment.

Link:

https://www.itu.int/en/ITU-D/Innovation/Documents/Publications/eBAT_Brochure%E2%80%93DIP%20BosniaH_431106_.pdf

ITU Innovation (2020a): Digital Innovation Profile – Country profiles, Montenegro. ITU Publications. ISBN 978-92-61-30261-0

Link:

https://www.itu.int/dms_pub/itu-d/opb/inno/D-INNO-PROFILE.MONTENEGRO-2020-PDF-E.pdf

ITU Innovation (2020b): How Montenegro is boosting digital innovation. ITU News.

Link:

<https://www.itu.int/en/myitu/News/2020/07/14/09/46/How-Montenegro-is-boosting-digital-innovation>

Jáki E. – Molnár E. M. – Kádár B. (2019): Characteristics and challenges of the Hungarian startup ecosystem. Vezetéstudomány/Budapest Management Review, Vol. 50, No. 5, 2019.

Link: <https://journals.lib.uni-corvinus.hu/index.php/vezetestudomany/article/view/301>

Keiretsu Forum (2020): Startup Report 2019_2020.

Link: <https://www.startupreport.cz/eng>

Konsek-Ciechońska, J. (2019): Startup companies, challenges in Poland. Knowledge – International Journal, Vol. 30, No. 6, pp. 1621-626. <https://doi.org/10.35120/kij30061621K>

Link: <https://ikm.mk/ojs/index.php/KIJ/article/view/977>

Kozbunarova, A. (2020): Startup Ecosystem Serbia: Who is Who and What Are the Trends. Trending Topics – Channel Ecosystem.

Link: <https://www.trendingtopics.eu/ecosystem-serbia/>

KPMG (2016): Startup Ecosystem Survey – Slovakia. KPMG, The Startup Studio.

Link:

<https://assets.kpmg/content/dam/kpmg/pdf/2016/06/startup-ecosystem-survey-slovakia-2016.pdf>

Kruja, A. – Kadiasi, A. (2020): Entrepreneurial skills and start-up challenges in the albanian ecosystem. In: Tasev, H. R. (ed.)(2020): Book of proceedings - Education and Social Sciences Conference Business and Economics Conference. Barcelona, Spain.

Link:

https://www.researchgate.net/publication/339146680_Entrepreneurial_Skills_and_Start-up_Challenges_in_the_Albanian_Ecosystem

Kukić, Z. – Kuzman, T. – Kovač, A. (2019): How are startups doing in Serbia? Startup Scanner.

Link: https://www.dsi.rs/wp-content/uploads/2020/01/Startup-skener_2019_ENG.pdf

Lajqi, S. – Krasniqi, B. A. – Peci, F. (2019): Mapping Business Start-up Ecosystem in Kosovo. Ekonomski Vjesnik/Econviews, Vol. 32, No. 2, pp. 477-486.

Link:

https://www.researchgate.net/publication/338233576_Mapping_Business_Start-up_Ecosystem_in_Kosovo

Lanvin, B. – Monteiro, F. (2020): The Global Talent Competitiveness Index - Global Talent in the Age of Artificial Intelligence. INSEAD, the Adecco Group, and Google Inc. ISBN: 979-10-95870-19-7

Link:

<https://www.insead.edu/sites/default/files/assets/dept/globalindices/docs/GTCI-2020-report.pdf>

Larda, B. (2020): Startups entrepreneurship & innovation in North Macedonia. Embassy of Greece in Skopje.

Link:

http://www2.mfa.gr/infofiles/Presentation_Startups%20Entrepreneurship%20Ecosystem%20in%20North%20Macedonia%20mk.pdf

Ligaci, B. (2018): Albanian Startup Ecosystem. A Quick Overview...Medium.com

Link:

<https://medium.com/entrepreneurship-albania/albanian-startup-ecosystem-a-quick-overview-fee161a5c6db>

Messenger, C. (2020): Digital Development in the Western Balkans: Bosnia and Herzegovina. Digital @ DAI.

Link:

<https://dai-global-digital.com/digital-development-in-the-western-balkans-bosnia-and-herzegovina.html>

Ministry of Innovation and Technology (2021): Hungary is now on the startup world map. Government of Hungary, Ministry of Innovation and Technology, Budapest.

Link: <https://nkfih.gov.hu/english/online/hungary-is-now-on-the-startup-world-map>

Montenegro Ministry of Science (2019): Smart specialisation strategy of Montenegro 2019-2024.

Link: <https://mna.gov.me/ResourceManager/FileDownload.aspx?rId=395955&rType=2>

Morawska, K. (2019): The Startup Ecosystem in Poland - A comprehensive introduction to the Polish startup scene. Pilot.co

Link:

<http://www.startupbridge.eu/wp-content/uploads/2019/02/startup-ecosystem-in-poland.pdf>

Novak, J. – Jánoskúti L. – Havas A. – Purta, M. – Marciniak, T. – Ignatowitz, K. – Rozenbaum, K. – Yearwood, K. (2018a): The rise of Digital Challengers - How digitization can become the next growth engine for Central and Eastern Europe - Perspective on Hungary. Digital/McKinsey.

Link:

https://digitalchallengers.mckinsey.com/files/Rise_of_Digital_Challengers_Perspective%20on%20Hungary.pdf

Novak, J. – Purta, M. – Marciniak, T. – Ignatowitz, K. – Rozenbaum, K. – Yearwood, K. – Svoboda, D. – Karakolev, T. – Skalsky, M. (2018b): The rise of Digital Challengers - How digitization can become the next growth engine for Central and Eastern Europe - Perspective on Czech Republic. Digital/McKinsey.

Link:

https://digitalchallengers.mckinsey.com/files/The-rise-of-Digital-Challengers_Perspective-on-CZ.pdf

Nuño, B. S-A. (2019): Kosovo, the best tech startup ecosystem you didn't know about. Medium.com

Link:

<https://medium.com/@brunosan/kosovo-the-best-tech-startup-ecosystem-you-didnt-know-about-19d165457f38>

PwC North Macedonia (2019): Pitch, Match, Grow.

Link: <https://www.pwc.com/mk/en/news/assets/Pitch.Match.Grow.Brochure.pdf>

PwC – FH Münster (2019): A research study of 18 start-up hubs in Europe - PwC European Start-up Survey. PwC – FH Münster University of Applied Sciences.

Link: <https://www.pwc.com/gx/en/services/assets/pwc-european-start-up-survey.pdf>

Shaipi, K. (2014): Enabling Startup Ecosystem – The Support that Matters for New Entries in the ICT Sector. STIKK Position paper (Kosovo Association for Information and Communication Technology).

Link:

https://stikk.org/wp-content/uploads/2018/11/Policy-Documents_2014_-_Enabling_Startup_Ecosystem_EN.pdf

Sitko-Lutek, A. – Marzec, P. (2017): A Diagnosis of Polish Start-ups. Annales Universitatis Mariae Curie-Skłodowska, Vol. 51, No. 3, 2017. Lublin – Polonia.

DOI:10.17951/h.2017.51.3.127

Sopjani, X. (2019): Challenges and Opportunities for StartupInnovation and Entrepreneurship as tools towards a knowledge-based economy: The Case of Kosovo. Thesis. Rochester Institute of Technology.

Link: <https://scholarworks.rit.edu/cgi/viewcontent.cgi?article=11380&context=theses>

Snażyk, T. (2020): Country guide – Poland. Startup Universal.

Link: <https://startupuniversal.com/country/poland/>

Spysz, A. (2017): More than good vodka: the Polish startup scene. Startup Xplore.

Link:

https://startupxplore.com/en/blog/polish-startup-scene-bitinspiration-interview/?utm_source=pilot&utm_medium=guide&utm_campaign=startup-ecosystem-in-poland

StartupBlink (2020): Startup Ecosystem Rankings 2020.

Link: <https://report.startupblink.com/>

Startup Hungary (2021): Hungarian Startup Report 2020 – Exploring what makes Hungarian startups succeed. Startup Hungary, Budapest.

Link: <https://www.startuphungary.io/#startup-report>

Startup Macedonia (2018): Connecting the Macedonian Startup Ecosystem – Ecosystem Performance Research. Startup Macedonia – USAID.

Link:

https://blog.startupmacedonia.mk/wp-content/uploads/2018/06/SM_Ecosystem_Research_2018.pdf

Steigertahl, L. – Mauer, R. (2018): EU startup monitor – 2018 Report. ESCP Europe Jean-Baptiste Say Institute for Entrepreneurship.

Link: <http://startupmonitor.eu/EU-Startup-Monitor-2018-Report-WEB.pdf>

Stojkovski, B. (2020): North Macedonia: Startup Ecosystem in the Making And The First Steps. Trending Topics – Channel Ecosystem, Overview.

Link:

<https://www.trendingtopics.eu/north-macedonia-startup-ecosystem-in-the-making-and-the-first-steps/>

Szerb L. – Vörös Zs. – Páger B. – Ács Z. J. – Komlósi É. (2018): Case Study on the Hungarian new tech entrepreneurial ecosystem. PTE – University of Pécs & FIRES, D5.8 Case Study.

Link:

<https://ec.europa.eu/research/participants/documents/downloadPublic?documentIds=080166e5b828ae9c&appId=PPGMS>

Tataj, D. – Könnölä, T. – Bole, D. – Dalle, J-M. (2019): Specific Support for Montenegro – Towards Entrepreneurial Innovation Ecosystem. Horizon 2020 Policy Support Facility, European Commission. doi: 10.2777/647276

Link:

https://rio.jrc.ec.europa.eu/sites/default/files/report/SS%20Montenegro_Final%20Report.pdf

Tirana.al (2019): Startup's Ecosystem in Tirana – Informative Guide.

Link: <https://www.tirana.al/en/page/engjejt-e-biznesit>

Yovchev, E. (2021a): Inside the startup ecosystem of Albania: trends, main actors and next steps. The Recursive – Ecosystem.

Link:

<https://therecursive.com/inside-the-startup-ecosystem-of-albania-trends-main-actors-and-next-steps/>

Yovchev, E. (2021b): Inside the startup ecosystem of Bosnia and Herzegovina: trends, main actors and next steps. The Recursive – Ecosystem.

Link:

<https://therecursive.com/inside-the-startup-ecosystem-of-bosnia-and-herzegovina-trends-main-actors-and-next-steps/>