



STARTUP SCANNER

2019

How Are
Startups Doing
in Serbia?



Digital
Serbia
Initiative

How Are Startups Doing in Serbia? 4

About the Authors 6

Methodology 7

Summary 8

Summary 9

Ecosystem Overview 12

Economic Overview 13

Startup scene 16

Ecosystem Phase 22

Serbia compared to the region 25

Startups 29

Subsectors 29

Founders Persona 33

Funding Data 40

Strengths and Weaknesses 46

Global Connectedness 47

Affordable Engineering Talent 51

Local Connectedness 54

Previous Startup Experience 58

Early Stage Funding 60

Policy Overview 62

Startup Support Policies and Environment 63

Regulation relevant to startups 65

Recommendations 67

Recommendations for policymakers, ecosystem
builders and educators 68

How are startups doing in Serbia?

GET TO KNOW THEM BETTER





Get to know local startups

Our startup ecosystem has grown significantly in the last couple of years, but in order to understand it, and more importantly, support it in a quality manner, it is necessary to have it properly analyzed.

Because of this, we have decided to make all our data available to third parties, and in this way provide everyone with an equal baseline when talking about the startup ecosystem.

This report will help startup founders recognize all the opportunities they have before them – from funding opportunities to mentorship support. It will also help startup programme makers familiarize themselves with the greatest challenges as well as with the greatest strengths of the Serbian startup ecosystem. Finally, we hope that this report will help international institutions and the government in to better define the support they are willing to provide to this growing, but very vulnerable, sector.

The 2019 edition is the first edition of this report, and our plan is to release new information once a year. The complete report may be downloaded in PDF format, but it is also possible to read the segments you are interested in on this web page.

This report contains data regarding our startup ecosystem that have not been widely circulated so far, and which have been gathered through research conducted by the authors on one hand, and provided by partners and members of the Digital Serbia Initiative on the other.

The report also contains detailed data provided by the Startup Genome Analytical Team, as well as data gathered through the mapping of the startup ecosystem at the beginning of this year, which was supported by UNICEF and PwC. Large amount of publicly available information, provided by our members' analysts, PwC and EY, has also been included in the Report.

Authors

Zoja Kukić, Tanja Kuzman and Adam Kovač

Partners

Unicef, Startit, ICT Hub and Impact Hub

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About the Authors



Tanja Kuzman

Tanja is Senior Manager for Startups & Corporate Innovations at PwC Serbia and is part of a global PwC team dedicated to these topics. She has built her expertise in this area through her role as an investment director at a UK *venture capital* fund where she had the opportunity to lead startup investments. For over a year, she has been involved in numerous projects, launched and implemented by the Digital Serbia Initiative, dedicated to improving the startup ecosystem in Serbia.

Zoja Kukić

Zoja is the Startup Ecosystem Programme Director for the Digital Serbia Initiative and the co-founder of Startit. She is working together with entrepreneurs, investors, startup support organizations and corporations in order to create the right environment for Serbian startups to grow. She has been involved in the domestic startup ecosystem since its very beginning and has initiated the creation of this report so that all stakeholders can be equally informed and then, hopefully, work together to address major challenges and seize opportunities.



Adam Kovač

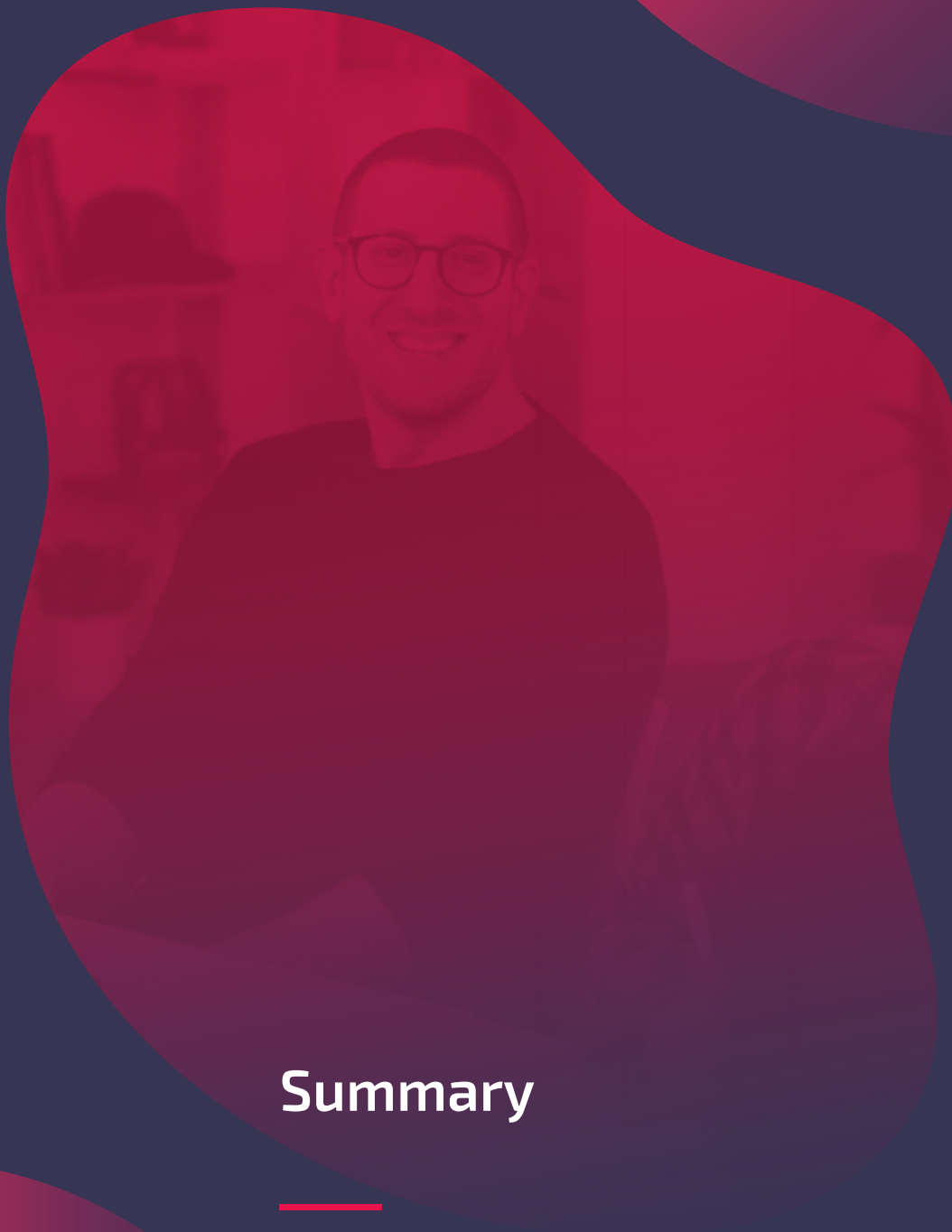
Adam has been working at EY in Serbia in the business consulting department for 5 years, with a focus in the area of mergers and acquisitions. He has worked with numerous industries on both the buyer and seller sides of companies, but his expertise is IT/Tech. Among other projects, he has worked on the sale of 3Lateral, one of Serbia's most innovative companies. In addition to working on this report, Adam is part of the Digital Serbia Initiative's working group for the Startup Ecosystem, and is also involved in other ongoing projects.

Methodology

For the purposes of this report, we used a startup definition that is consistent with the methodology of Startup Genome. By this definition, a startup is a team that develops a scalable product with the ambition of competing in the global marketplace, that does not have to be registered, but must have at least one person who fully develops the startup and/or has revenue from the sale of its product and/or received some external funding source (investment or grant). Accordingly, in order to determine the ecosystem to which a startup belongs, one does not look at where it is registered, but rather where the majority of its executives are located. This means that in this report, "domestic startups" refers to all startups where the most part of founders and managers work in Serbia, regardless of their official headquarters.

Much of the information in this report comes from research conducted by the Digital Serbia Initiative on a sample of 108 startups, as well as research by the Startup Genome organization. In addition, it contains information and data from other sources, which are cited in the report.

Startups represent the core of innovation and the creation of new products and services; however, they would not be able to survive without certain key components found in their environment. Startups are created and developed in an environment called the startup ecosystem, which brings together people, startups in various stages of development, and different types of organizations (physical or virtual) that interact with each other and create new startup companies.



Summary

The Serbian startup ecosystem is in its first development stage, known as the “activation phase”. There are 200-400 startups in Belgrade and Novi Sad...

The Serbian startup ecosystem is in its first development stage, known as the "activation phase". There are 200-400 startups in Belgrade and Novi Sad, which is consistent with the average for this phase and comparable to other cities in the region such as Warsaw and Bucharest, while it is twice as large as the number of startups in Budapest. It is clear that the ecosystem in Belgrade and Novi Sad is pulling above its weight — Serbia by far has the lowest GDP and the lowest number of IT professionals per 1,000 people, and yet it is keeping up with investments, startup quantity and exits.

Most Serbian startups are operating in the following fields:

- Enterprise solutions
- AI, Big Data & Analysis
- Gaming
- Smart City
- Blockchain & Crypto

Startup Genome has recognized Blockchain and Gaming as the highest potential subsectors in the country. The Serbian startup ecosystem is still small in size, resources, and startup experience, but is one of the fastest growing compared to other ecosystems in the same stage.

The primary customers of Serbian startups are most commonly businesses (57%), while 41% of them sell directly to consumers. Among B2B startups, 33% of total startups are oriented towards SMEs and 24% towards large businesses. Only 2% of Serbian startups are building products for governments and NGOs.

Compared to the average in the activation phase, our ecosystem targets the global market more often. Only 22% of Serbian startups are oriented towards the markets of Serbia (11%) and the former Yugoslavia (11%), whereas total of 69% of startups are focused on Western markets (US (37%), Europe (26%), UK (5%) and Canada (1%)) and 6% of startups define their market as "global". The UAE and Asia are in focus for only 1% of startups, each. It's interesting that Asia, being more and more attractive for global startups generally, is not in focus for Serbian startups, despite the fact that states such as China, Russia, and Turkey all have good economic and political relations with Serbia.

Serbian startup founders are more globally connected than the average founder around the world, however, there is room for improvement in terms of 'importing founders' into our ecosystem. The international outlook of startup founders from Belgrade and Novi Sad is driven by connections to their peers in London and Silicon Valley. Part of the reason for these strong connections might be due to the large Serbian diaspora across Western markets, which is also becoming more and more active in the local startup ecosystem.

Serbian startups have, in the last 10 years, raised more than €143 million of investment for their businesses, but more than 80% of this amount was raised by just two companies.

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.

Belgrade and Novi Sad have a seed round size that is almost 90% lower than the average for global ecosystems that are in the same phase – the average seed round size is €20,000. This is still way too low even if we account for lower salaries in our ecosystem – the seed round size in Belgrade and Novi Sad covers the salaries of 2.4 engineers, while the average seed round within ecosystems in the activation phase covers the cost of almost 12 engineers.

When it comes to personal and third-party financing it seems that most startup founders have personal financial support at formation, while the majority of them are not aware of the possibility of third-party financial support. This further confirms the fact that early stage financing is quite limited and rather absent within the Belgrade and Novi Sad startup ecosystem.

The average age of Serbian startup founders is 33, and 67% of them are over thirty years old. It's interesting to note that founders in Belgrade and Novi Sad are relatively young compared to the global

average of 37. A mere 12% of startup founders in Belgrade and Novi Sad are women, which is similar to the global average. The percentage of all-female teams is also similar to the global average and stands at only 2%.

The majority of startups from Belgrade and Novi Sad (58%) has the optimal number of founding team members, consisting of 2 or 3 people. Most Serbian startup founders are first-time entrepreneurs, which means that it is even more important for them to have access to a supportive and knowledge-based environment. Experience is also lacking within other groups in the ecosystem, namely among investors and employees.

The proportion of founders in Belgrade and Novi Sad with high ambitions is way below the global average of 19%, and is as low as 6%. Especially noticeable is their hesitance to target \$30B+ markets; only 15% of them report such ambitions, compared to 30% of startup founders globally.

Belgrade and Novi Sad lag behind the global average when it comes to local connectedness. The analysis reveals that the way in which founders and investors help each other (sense of community) and the number of quality relationships between founders, as well as investors and experts (local relationships), is below global levels.

Most startups in Serbia are founded in Belgrade (71%), then Novi Sad (15%) and Niš (4%). Due to the fact that Belgrade and Novi Sad are less than a 1-hour-drive from each other, Startup Genome's assessment has recognized the two cities as one ecosystem. Belgrade has more startup support organizations and more corporations headquartered in the city, which might be the driver of the higher number of startups despite the fact that the number of tech professionals in both cities is the same.

The most important government support activity



is the Innovation Fund, operational since 2011 with the goal of increasing the capacity of startups and the resources available for their growth through support in funding, connections and mentorship. Since its inception, a total of 15.8M€ has been approved for 352 projects, which were implemented by 288 enterprises and 59 R&D organizations.

The government has recently introduced several tax incentives which are oriented towards the knowledge and digital economy, such as IP box and R&D deductions, as well as deductions on taxes and social contributions for founders, first, and foreign employees. The most important incentive for the startup ecosystem is a 30% tax credit for investments in startups by companies.

Although several regulatory improvements have been made, some of the large impediments to startup growth still remain. Practically the only source of funding available in the Serbian economy is from the banks, with equity crowdfunding not being regulated and VC having been introduced only recently. Another big obstacle for local startups lies in the fact that the possibilities for the digitalization of financial transactions in Serbia are quite limited, primarily due to the Foreign Exchange Act (ZDP).

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.

It is clear that the Serbian ecosystem has showcased great potential, but in order for it to continue to grow, it has to receive systemic support as soon as possible. The main actors who can drive this change are policymakers, startup support organizations, and educational institutions, and the recommendations in this report are divided based on these three groups. All relevant stakeholders need to coordinate and push in the same direction; hopefully, this report will facilitate that by providing relevant information. Some of the priorities that everyone should pay attention to are increasing early-stage funding; building pay-it-forward culture; the systematization of global connectedness; and building support for further development in the identified subsectors.

Ecosystem Overview



Economic Overview

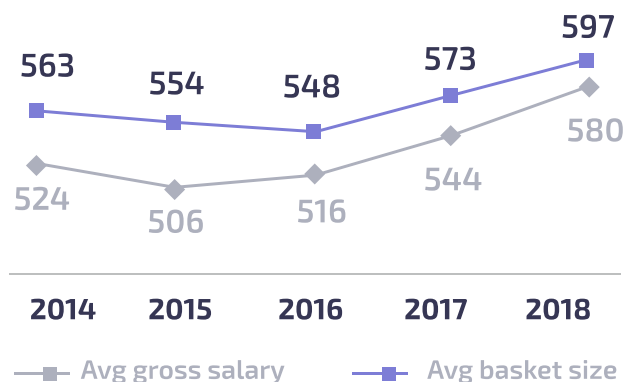
After a decade of high GDP growth, the IMF has concluded that Serbia's economic program is broadly on track. Aside from growth in the private sector, in 2018 the government increased public sector wages and the minimum wage, and also reversed previous pension cuts.

Key macroeconomic indicators



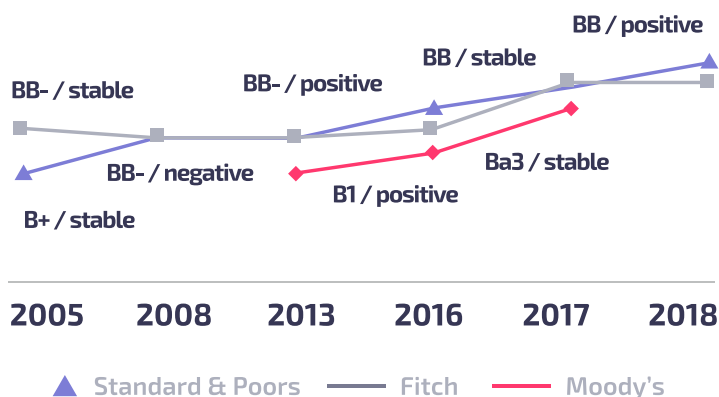
- Following a decade of high Real GDP growth in 2018, growth is expected to moderate in 2019, and stabilize between 3.1 and 3.5% per year up to 2022
- Consumer Price Index has remained stable for the past 5 years, well within the Central bank target of 3+/- 1.5%, and is expected to stay within the lower limit of the target range during the forecast period

- Average basket size increased 6% between 2014 and 2018
- While average gross salary remained below the level of average consumer basket in the past period, it increased by 10%, showing a trend towards reducing the gap
- Food and drink and utility expenses represent the largest share in the average consumer basket (37% and 20% respectively)



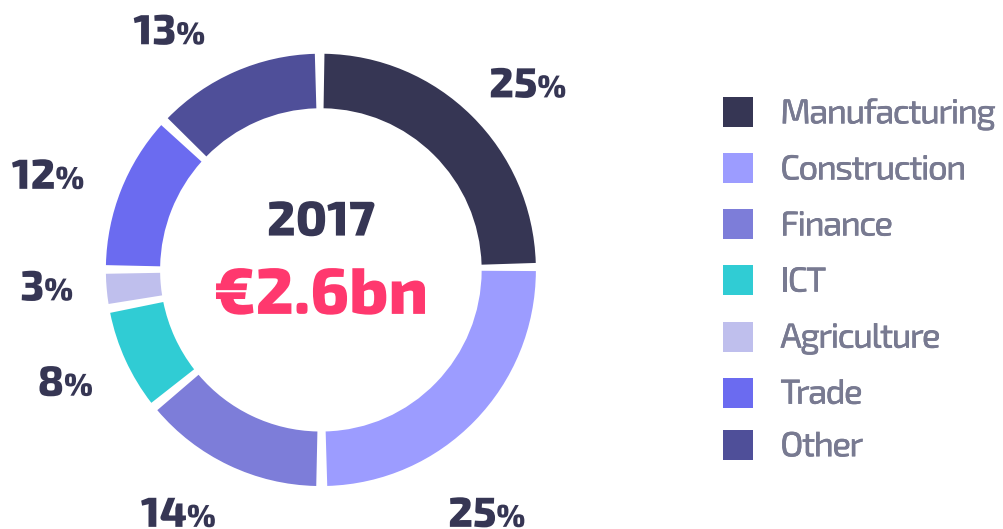
Long-term sovereign credit ratings

- The Serbian Government's credit rating has steadily improved since its first rating by S&P in 2004, with latest ratings confirming a positive outlook
- Upgrade to investment grade rating (BBB) is in reach in the near future if growth is sustained (and is not negatively affected by macroeconomic developments in the Euro zone), public debt is further reduced and the economy is not otherwise affected by external imbalances



“EU countries represent the most important investor with over 70% of FDIs”

Foreign direct investments (FDI)



- Foreign direct investments have averaged €1.9bn in the period from 2007 to 2017 with an uptick in the past few years
- EU countries represent the most important investor with over 70% of FDIs
- Investments are still mostly directed towards traditional industries in Serbia, with construction & real estate activities together with manufacturing receiving approximately half of all investments

Startup scene

The Serbian startup¹ ecosystem is growing every year, with some of the region's largest startups coming from our country — from Nordeus' mobile game with 200 million players around the world, to Seven Bridges' bioinformatics platform, which is a key software tool in curing cancer and other genetic diseases. With these and similar success stories, it's clear that there is potential for further growth.

In this section, we will go over the basic elements of the Serbian startup ecosystem.

Startup support organizations & programs

Based on research done by the Digital Serbia Initiative, most startups in Serbia come from Belgrade (71%), then from Novi Sad (15%) and Niš (4%). The difference in percentage between Novi Sad and Belgrade is especially interesting – although Belgrade's population is six times the size of Novi Sad's, the number of tech professionals working in these two cities is almost the same. Some of the reasons for Belgrade's much more developed startup scene might be the greater development of other industries in general; the higher internationalization of the city; and the fact that most startup-related programs and investment funds are situated in Belgrade.

But other cities are catching up, through both public and private sector actions. Belgrade has had a Science Technology Park since 2015, while locations in Niš and Novi Sad are under construction. While a number of cities across the country have their own business incubators, only those in Novi Sad and Belgrade are focused mostly on tech businesses. Belgrade is also host to three startup hubs, whereas Novi Sad has only one, and a dozen other cities in Serbia have their own tech hubs working on startup-related programs.

¹ Startup is a product-oriented company or a team with a scalable business model, usually coming from the tech sector.

A list of the most prominent startup support organizations and programs:

Startit runs a network of seven startup hubs across the country, an annual pre-acceleration programme supported by Google Launchpad, and a local tech news outlet - startit.rs.

ICT Hub runs two startup hubs, in Belgrade and Gornji Milanovac, and is responsible for several programmes connecting startups with corporates.

Impact Hub Belgrade, part of the global network and located in the centre of Belgrade, it provides various programmes for startups, as well as digital media and entrepreneurship initiatives.

Science Technology Park Belgrade is a complex for both startups and scaleups, putting them under one big roof and providing them with various mentorship programmes.

Business Incubator Novi Sad is one of the support organizations that focuses on supporting projects and teams in the field of ICT as well as creative industries.

StartIn is the first startup program launched by InCentar, one of the first coworking spaces in Belgrade.

Nordeus Hub is focused on the gaming industry and delivers engaging and practical programs, including the Booster program, which offers free coworking space and mentoring support to chosen gaming startups.

Serbia Startup is focused on providing startup support across the region of Vojvodina, with central activities taking place in Novi Sad.

Funding opportunities

According to numerous sources, one of the key elements of a successful startup ecosystem is a high level of available funding. Currently in Serbia there are only a few options for startups to get external funding, and these are mostly aimed towards early stage startups.

Innovation Fund represents the key state institution for supporting innovative activities and managing funding for stimulating innovation. It has several programmes within its portfolio that targets different groups. They run the following programmes:

- Mini Grants Programme, providing starting capital up to €80k;
- Matching Grants Programme, providing later-stage, development capital up to €300k'
- Proof of Concept, which is aimed at researchers with startup ideas who need support in testing the market demand for the product;
- Collaborative Grant Scheme Programme, which supports joint projects by the private sector and R&D institutions;
- Innovations Vouchers, providing financial support for businesses to hire research institutions,
- Technology Transfer Facility Program, focused on building technology-transfer capabilities.

SC Ventures is an investment fund that has operated in the region for several years with €40 million available for investment (1.5 million allocated for seed investment and up to 3 million target investment per company). Most of the startups in the fund's portfolio are from Serbia, including Tradecore, Content Insights, Hunch, Agremo and Alchemy.

ICT Hub Ventures is the first private investment fund in Serbia for early-stage startups. Their cheque size is up to €50,000 in exchange for 5 to 15% ownership of the company. Additionally, they offer help with finding next investors and provide mentorship support.

Startlabs is the first seed fund and accelerator in Serbia, originally coming from San Francisco. Startups exploring this fund receive \$50,000 in equity for a 10 to 15% stake in the company.

Startup success stories

In the last decade there have been numerous startups that have proven that global success is possible from Serbia. Here is a list of startups that have had major success, and that are continuously contributing to the ecosystem.

Nordeus is one of the best-known gaming startups in Serbia, which was founded in 2010. Their global success originates from their first game – **Top Eleven**, an online football manager simulation. *Top Eleven* has surpassed 200 million registered users, and is the world's most successful mobile sports game. Their newest game is Heroic, launched in the summer 2019.

Seven Bridges is a leading biomedical data company specializing in software and data analytics to drive public and private healthcare research. They deliver bioinformatic solutions that speed up the path from raw experimental data to new treatments and diagnostics. Seven Bridges has received \$100 million in funding and has worked with notable clinics and medical research institutions across the world.

FishingBooker is the biggest online travel company specializing in organizing fishing trips. They operate on 6 continents, with thousands of charters available for booking every day. FishingBooker started in 2013 and has grown to a team of 90 people in Belgrade without any external funding.

activeCollab is yet another bootstrapped success story, that started in 2007 in Novi Sad. It is a complete task and project management solution that can be customized for workflows of varying degrees of complexity. Some of ActiveCollab's users are companies like NASA, Apple, Samsung, Nike, IKEA, Adobe, Cisco, BBC, Universal, as well as institutions such as Stanford, UC Berkeley, and Princeton University.

Tradecore is a fintech startup based in London and Belgrade that builds innovative tools for the retail trading and broader financial services industries. It was co-founded by Stefan Pajkovic, a serial entrepreneur who already had an exit with his previous fintech startup. Their most recent investment of 3 million EUR was by regional fund SC Ventures.

OriginTrail is a Serbian-Slovenian startup that was founded in 2013 with the mission of bringing transparency to international supply chains. Their protocol brings trusted data sharing to global supply chains by utilizing blockchain technology. OriginTrail is used across industries – from food and fast-moving consumer goods to forensic laboratories. They had a successful IPO in January 2018, raising \$22.5 million.

TwoDesperados is a gaming studio in Belgrade founded in 2010. After switching from HOPA to free-to-play games, they built two marble-shooter games which are the most successful in this niche and have attracted more than 30 million users.

Mad Head Games is a gaming studio which quickly grew to become a true powerhouse of the HOPA scene, with 48 games released. Since 2018 they have switched their focus on building their first AAA game in partnership with Wargaming, one of the biggest gaming companies in the world. Mad Head Games is located in Belgrade and Novi Sad.

Visaris is one of the first Serbian success stories. It was founded in 2003 and operates in the field of digital X-ray imaging and diagnostic workflow. They offer a range of digital X-ray systems including digital radiography (DR) consoles and complete DR rooms, as well as fully integrated process and diagnostic workflow solutions. They have installed over five hundred products across medical centres in twenty-two countries over six continents.

Mikroe, founded in 1997, is another early global success from Serbia. They produce entire development toolchains for all major microcontroller architectures and even created a standard for boards, mikroBUS, which was later endorsed by NXP Semiconductors and Microchip Technology, among others.

Relevant startup exits:

One of the key indicators of the quality of the products and services that are being created are startup exits that have happened in the last few years. Serbian startups were acquired by several big global companies, which resulted in most of them continuing the development in Serbia.

Frame acquired by Nutanix: The Serbian-American startup Frame was purchased by US publicly traded company Nutanix for \$ 165 million, the largest publicly known acquisition of a Serbian startup. Frame is a leader in the field of cloud software, and with its products enables many organizations worldwide to migrate desktop applications and software tools to the cloud. The acquisition happened in 2018.

3Lateral acquired by Epic Games: At the beginning of 2019, one of the largest acquisitions in Serbia was finalized. 3Lateral was a self-funded company from Novi Sad that had built the world-leading technology of digital doubles. The US company Epic Games, widely known for its game *Fortnite* and *Unreal Engine* had been working with 3Lateral for years on several different projects. The company will increase its presence in Novi Sad, focusing on the further development of the technology, and will even build a campus. The founder of 3Lateral, Vladimir Mastilovic, will lead Epic's endeavours in creating digital doubles globally.

ManageWP acquired by GoDaddy: In 2016, the largest domain registry in the world, GoDaddy, purchased ManageWP, the most successful product from Devana Technologies and one of the most successful domestic technology products in recent years. ManageWP is a tool for web developers which enables managing several WordPress websites at the same time. It was the first of its kind and up until its acquisition was the market leader. The product is now integrated in the GoDaddy platform. It is interesting to note that this acquisition was the first for the US company in Europe. GoDaddy has maintained the team in Belgrade.

DMS acquired by Schneider Electric: DMS was founded in 2002 and works on Smart GRID solutions. It is specially devoted to the development and delivery of its main product, Advanced Distribution Management System (ADMS), which is the most advanced software system in the world for performing all technical tasks in distribution utilities. Prior to 2019, only 50% of the ownership was acquired by Schneider Electric, but now the entire ownership has been transferred.

AskGamblers acquired by Catena Media: Belgrade-based Ask Gamblers.com was sold for €15 million to Catena Media in 2016. Ask Gamblers was the most visited online portal for player ratings and casino rankings, and was named the world's best gambling site for three consecutive years. Catena Media, an online lead generation company within iGaming and Financial Services, has continued to maintain the website, but has engaged the team in Serbia on its other projects. They have more than doubled the number of employees in Belgrade since the acquisition.

Eipix acquired by Playrix: Eipix, headquartered in Novi Sad and founded in 2005, was one of the biggest gaming studios in Serbia. With Big Fish Games as its exclusive publisher, Eipix went on to become the most productive developer of HOPA games in the world and peaked at 400 employees. Simultaneously, the company has taken steps towards expanding into other fields of the gaming industry, such as VR and free-to-play games, with less success. Playrix, as one of the leading mobile game developers in the world, acquired Eipix in late 2019 with a team of 150 people. It is expected that the Russian game studio will continue to grow the Serbian team and focus exclusively on Playrix owned free-to-play IP.

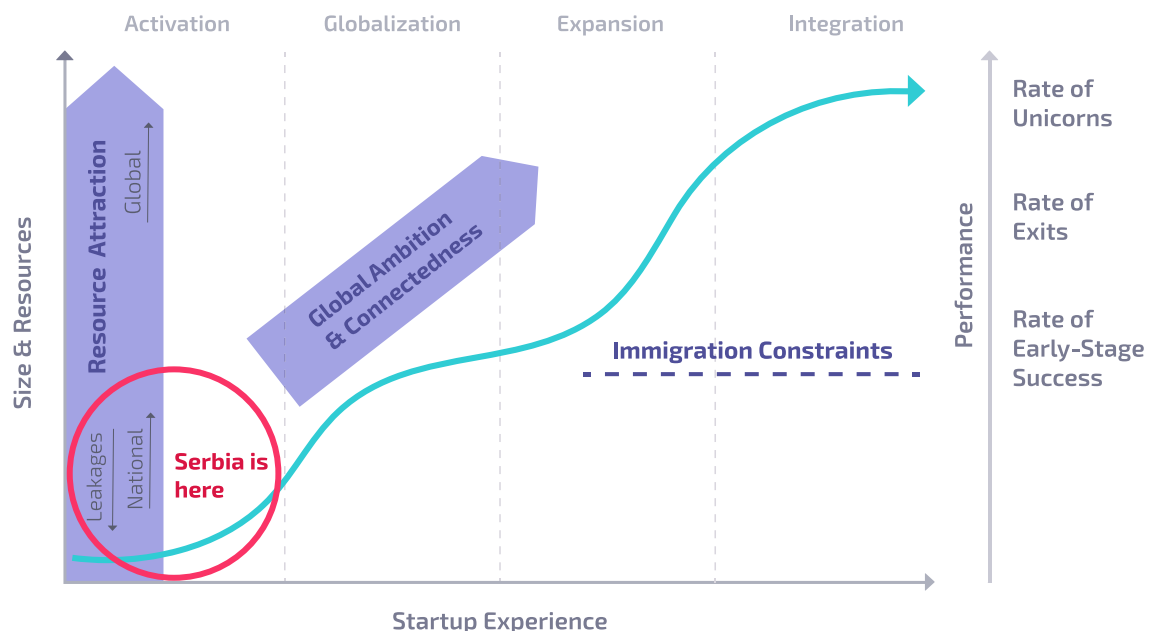
Ecosystem Phase

It is difficult to compare the startup ecosystem in Serbia to those in San Francisco, London or Tel Aviv. The problems startups and investors are facing are different; the opportunities and challenges vary and depend not only on the maturity of the ecosystem, but on its specialization. Most startup ecosystems across the world are not equally fit for all startups – for example, if you are a fintech startup, you are more likely to succeed in Frankfurt than in Berlin, even though Berlin is a greater ecosystem in general.

Key data about Serbian startups

When we talk about the maturity of the ecosystem, according to the assessment of Startup Genome, the Serbian startup ecosystem is in its first development stage, known as the "activation phase". Startup Genome has constructed an Ecosystem Lifecycle Model, which showcases how startup ecosystems evolve through various phases, with each phase having specific features, resources and needs.

Ecosystem Lifecycle Model



Serbian startups, due to small investment opportunities in the ecosystem, have mostly been bootstrapped

As we can see from the graph, the Serbian startup ecosystem is still small both in size, resources, and startup experience. According to this methodology, the key challenges of startup ecosystems in this stage are:

- Entrepreneurial spirit, English proficiency, Entrepreneurial Education and Culture;
- Ease of Doing Business, Adapted Tax Laws;
- Local Connectedness and Community; and
- Seed Funding.

The value of the Belgrade and Novi Sad ecosystem, which is recognized as the centre of the Serbian startup ecosystem, is estimated at \$303 million. This is 16 times lower than the global average¹. In calculating the value, Startup Genome focuses on externally verified information, such as investments with announced valuation, publicly shared acquisitions, etc. Serbian startups, due to small investment opportunities in the ecosystem, have mostly been bootstrapped and therefore cannot be included in this methodology; the real value might be almost 3 times the one stated. For example, Nordeus, with more than 200 million players worldwide and more than 500 million lifetime revenue is a private, self-funded company and therefore is not visible in this calculated value. The same is true for the bootstrapped 3Lateral, which was acquired in 2019 by Epic Games, also under undisclosed valuation.

Another important thing to note is that according to Startup Genome, the growth of the Belgrade and Novi Sad ecosystem is higher than its peer average.

On the one hand, this means that the ecosystem development is heading in a good direction; on the other hand, we need to note that it is easier to have significant growth rates when output levels are low.



**Exit Growth
Index**

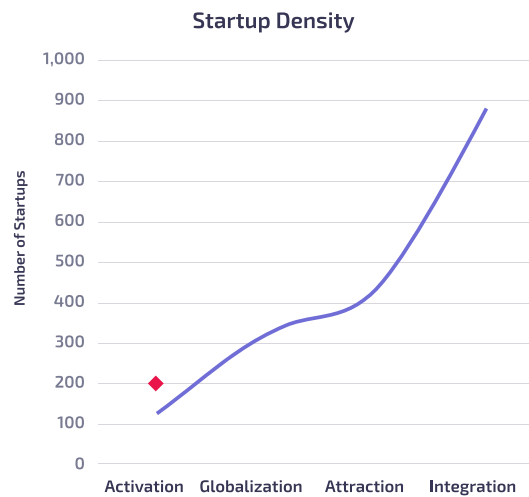
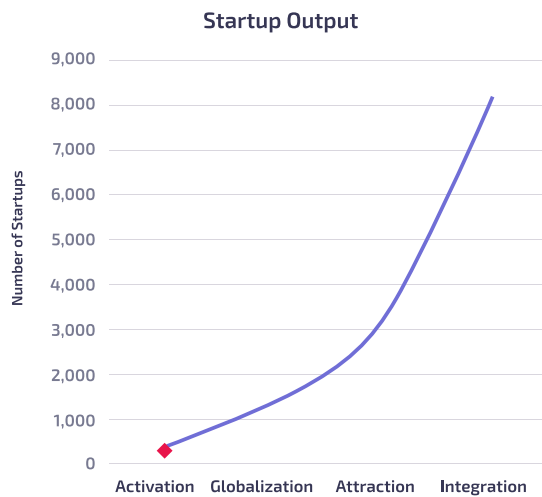


**Output Growth
Index**



**Funding Growth
Index**

Startup Genome estimates that there are 200-400 startups in Belgrade and Novi Sad, which is consistent with the estimates in "SEE Startup Report" and the research conducted by the Digital Serbia Initiative, with both estimating around 200 startups in the ecosystem.



Size: Belgrade & Novi Sad's Startup Output is below Activation average while Startup Density is above the average

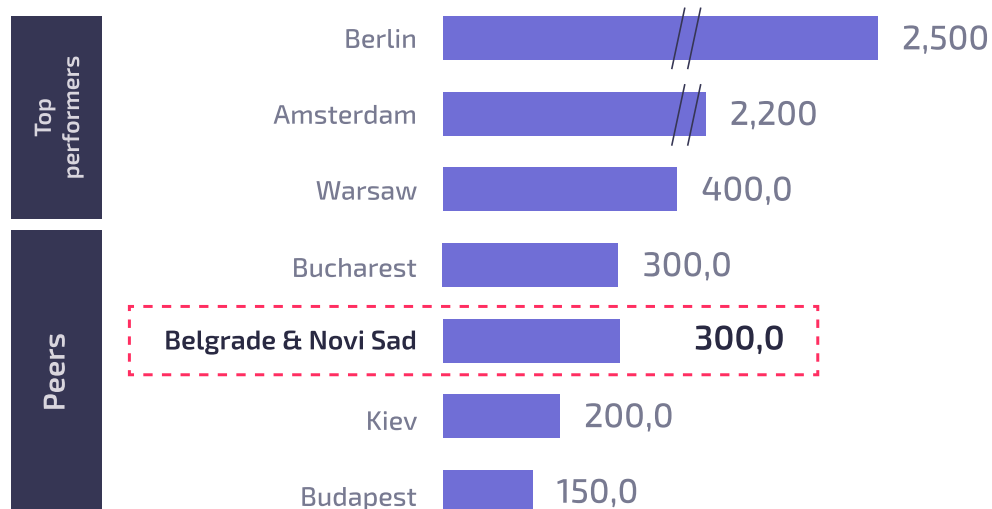
Serbia compared to the CEE

Serbia has an above-average number of startups relative to its size and population and compared to its activation phase peers, while recent major tech exits have shown the ecosystem's potential.


The number of startups in Belgrade and Novi Sad is in line with the activation phase average, which shows that we need to increase the number of startups in order for our ecosystem to grow. Apart from being recognized as leaders in the region, Bucharest, Warsaw, and Budapest have similar populations to Belgrade and Novi Sad combined, which is why we decided to include them in this comparison.

It's interesting that for each of these cities, startup density (startups per capita) is above average compared to activation phase peers. This means that they are already pulling above their weight, and would need to do more so to grow to the next phase.

Kiev, known as a very popular outsourcing destination, lags far behind in its number of startups, especially if we take into account that it is almost double the size of other ecosystems that we measured.



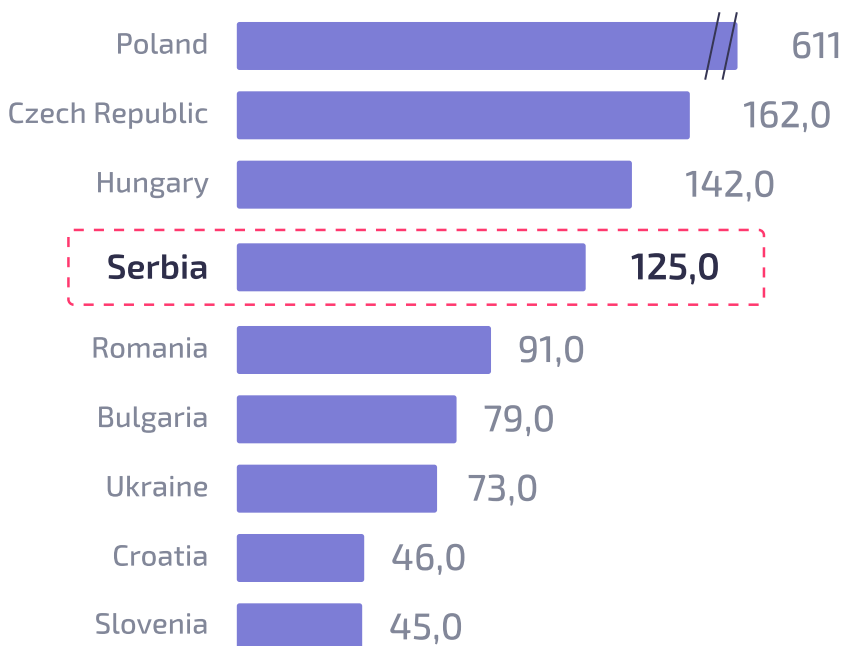
Source: Nexten.io - Software developers in Europe & the world; averaged

An aerial night view of a city, likely Beijing, with numerous illuminated skyscrapers and a prominent curved highway interchange. The image is overlaid with a semi-transparent red filter. Two large, white, wavy-edged shapes are positioned on the left and bottom right, framing the text.

“ Serbia has, so far, had one of the lowest institutional support towards the funding of startups.

When it comes to investments in startups in our region, we have compared different countries. Poland stands out from the rest with almost 4 times more investment than the second strongest country in the region, Czechia. The population is similarly larger, while GDP is more than double.

Amount (€M) raised since 2013 by Serbian startups vs CEE*



Source: Dealroom.co - Central & Eastern Europe: Startup & Investment Landscape

Serbia has the lowest population of the top 5 countries on the above graph, as well as the lowest GDP out of all the countries listed, being 5 and 3 times lower than the GDPs of Czechia and Hungary, respectively. This is especially notable if we take into account the fact that Serbia has so far had some of the weakest institutional support towards the funding of startups. For example, Croatia, with the support of the European Investment Fund (EIF), this year launched an investment fund that will deploy more than €40 million to Croatian startups. Apart from Ukraine, all the other countries listed above have had similar EU support for building investment funds and accelerators, and boosting investments in the region.

If Serbia does not design similar institutional support for startup funding soon, its obvious high potential and leading-edge will be lost.

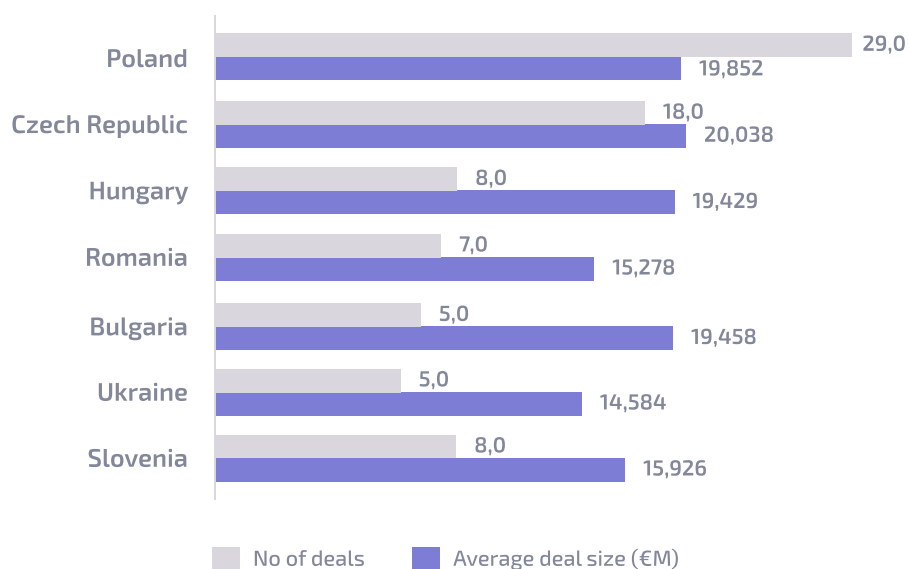
Tech company exits in Serbia vs CEE

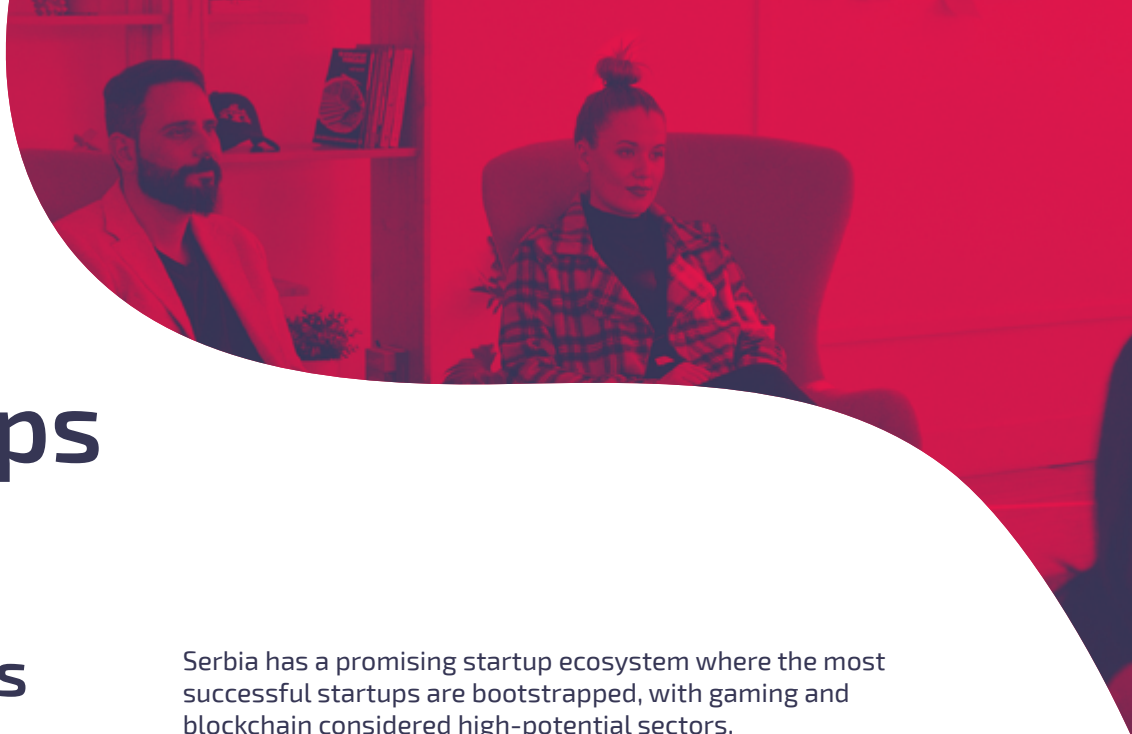
When it comes to tech exits of Serbian companies, the most important ones are explained in detail in the section on **Startup Scene**. Considered more generally, if we take a look at exits which have taken place in the last 3 years, those with disclosed deal values add up to around €150 million. However, since there are several major deals that have remained undisclosed, it is estimated that the total value of all acquisitions could be higher than €400 million.

Recent Serbia IT / Tech Exits

Buyer	Target	Closing Date	Deal Value (€M)
Epic Games	3Lateral	Jan 2019	n.a.
Nutanix	Frame	Aug 2018	143
Ask Gamblers	Catena Media	Apr 2016	15
Endava	PSTech	Jun 2015	n.a.
TTTech	RT-RK	May 2015	n.a.
GoDaddy	ManageWP	Jun 2016	n.a.
CallBlacker	CIAMedia	Sep 2016	n.a.

CEE tech exits last 3 years





Startups

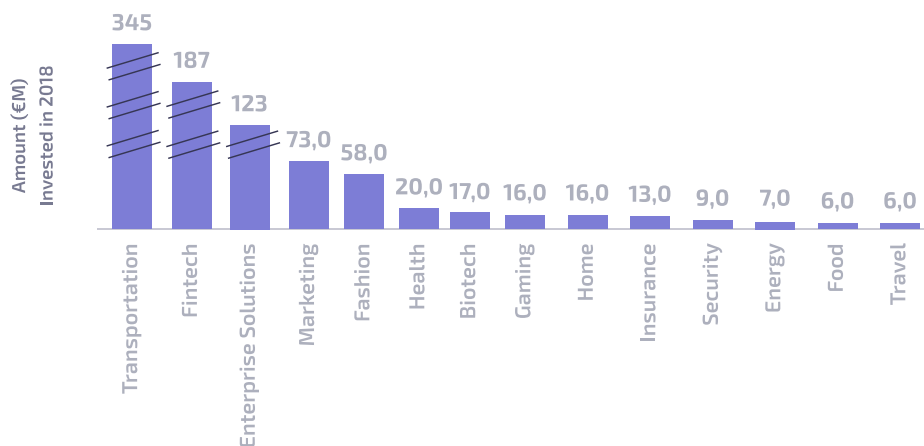
Subsectors

Serbia has a promising startup ecosystem where the most successful startups are bootstrapped, with gaming and blockchain considered high-potential sectors.

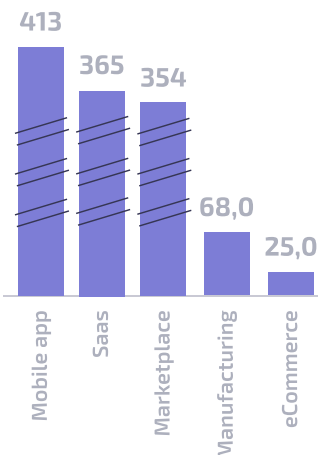
In the CEE* region, most investment has gone to startups working on transportation, fintech and enterprise solutions.



By industry vertical



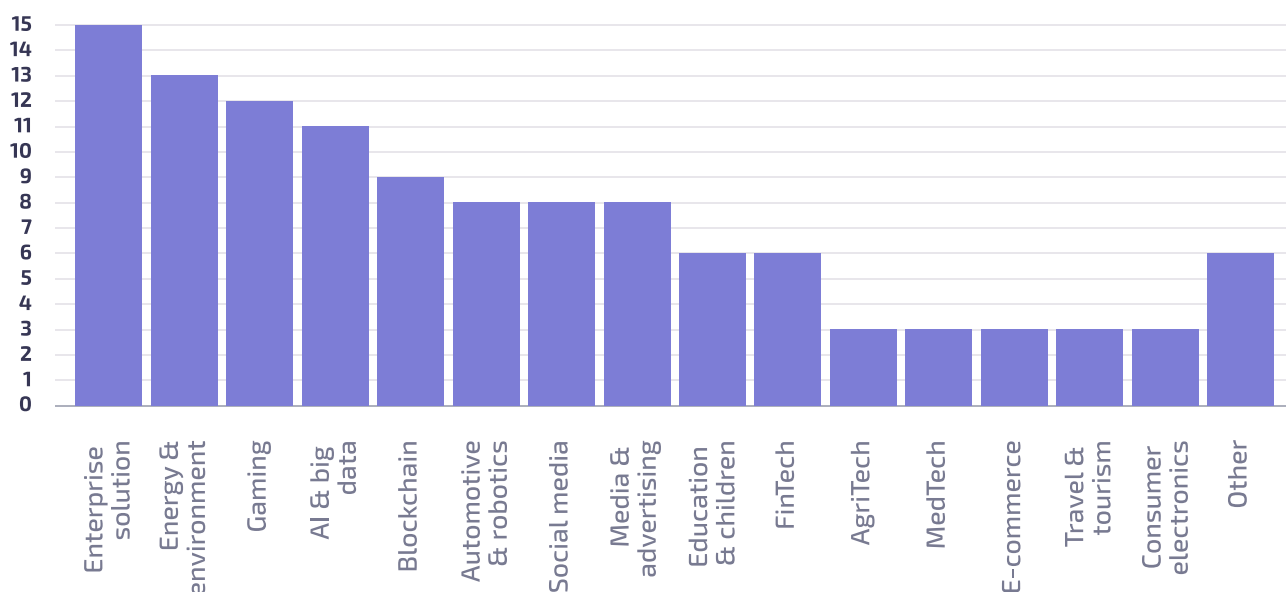
Per business model



In Serbia, the situation is a bit different – most startups work on enterprise solutions, and these are the companies which have received the most funding. Still, the number of startups in gaming, AI and blockchain is very high as well.

Industry and Sector Overview (%)

Source: Digital Serbia Initiative



Out of these **leading subsectors**, Startup Genome has recognized **Gaming and Blockchain as the strongest** in Belgrade and Novi Sad ecosystem.

GAMING

From this diagram, we can see that gaming has disproportionately low funding compared to the number of startups active in the area. Data from the Serbian Games Association say that the largest single investment in a Serbian gaming startup is €650,000. Gaming companies have received funding mainly through angel capital, while the next biggest funding source for them was reward-based crowdfunding.

Some of the most promising startups in the gaming sector are:

- **Nordeus**, a bootstrapped startup with 200m users world-wide;
- **Mad Head Games**, which is building its first AAA game in partnership with Wargaming after already publishing 48 titles;
- **TwoDesperados**, with two free-to-play games and more than 30 million users;
- **Eipix Entertainment**, responsible for 50+ projects of their own as well as in cooperation with major international game publishers; and
- **3Lateral**, a creator of digital doubles and recently acquired by EPIC Games.

BLOCKCHAIN

There are about 20 local startups working on blockchain products and 30 international companies with significant development done in Serbia¹. Serbia has been one of the early adopters of blockchain technology, which largely explains the country's strong potential in developing startups in this field. Still,

¹ Berndt, C. 2019. Startups in Serbia. Retrieved from: https://strategy-map.net/wp-content/uploads/2019/07/Startup_Study.pdf

this beginner's advantage can be lost if this sector doesn't receive institutional support, which is already strong in many countries across the world.

Serbian blockchain startups have predominantly been funded through ICO, while more and more of them are raising VC capital. Early-stage support is now available for them through BlockIS, a blockchain accelerator supported by the European Commission, which offers up to €60,000 of equity-free funding and is based in Novi Sad, but open for startups across Europe.

Some of the most promising blockchain startups are:

- **Origin Trail**, a protocol, an alliance, and a core development company working together to improve supply chains;
- **Blinking**, which is developing multi-factor identity management tools;
- **Real Market**, a crowdfunding platform and PE secondary market; and
- **Tenderly**, a solution for real-time monitoring, alerting and troubleshooting for Smart Contracts.

57%

B2B oriented*

MARKET-FOCUS

When speaking about subsectors of Serbian startups, it is good to note that most of them are creating products for businesses – enterprises and SMEs. And they are doing it successfully, since users of Serbian products are some of the largest companies in the world, such as Adobe, Apple, Cisco, Dell, DHL, IBM, IKEA, Microsoft, Novartis, Nike, and more.

78%

List their target market as outside the Former YU*

Most Serbian startups are targeting customers outside of Serbia and the former Yugoslavia, which is a higher proportion than is typical. This can be explained by the fact that the Serbian market is not only small, but also has weak purchasing power. This is what drives local startups to go global from the start, which is part of the explanation for the growth of the startup ecosystem in the country.

*Out of 100 surveyed Serbian startups

Founders Persona

In a vibrant environment such as the world of startups, the biggest responsibility falls to the founders. Founders are considered to be one of the most important factors that determine startup survival. Moreover, investors' decisions on whether to invest or not depend highly on their evaluation of founders' experience, readiness to embrace failures/wins, ability to make hard decisions, and an attitude that reads 'I am dreaming big, but staying on the ground'.

What is the profile of a startup founder?

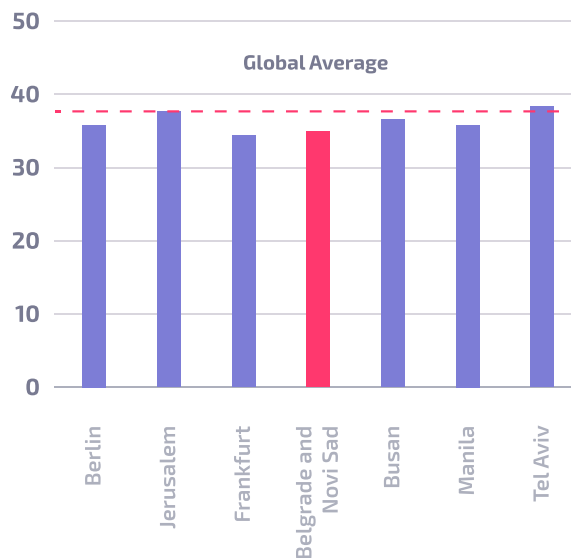
Newspaper headlines and general public perception easily lead to the conclusion that the average startup founder is a 20-year-old university dropout. Unlike two decades ago, when the likes of Steve Jobs, Bill Gates or Mark Zuckerberg were making headlines, a typical startup founder today is no longer a youngster working in the back of their parents' garage.

Startup Genome's data about Belgrade & Novi Sad imply exactly that. The average age of a startup founder is 33, and 67% of them are over thirty years old. It's interesting to note that

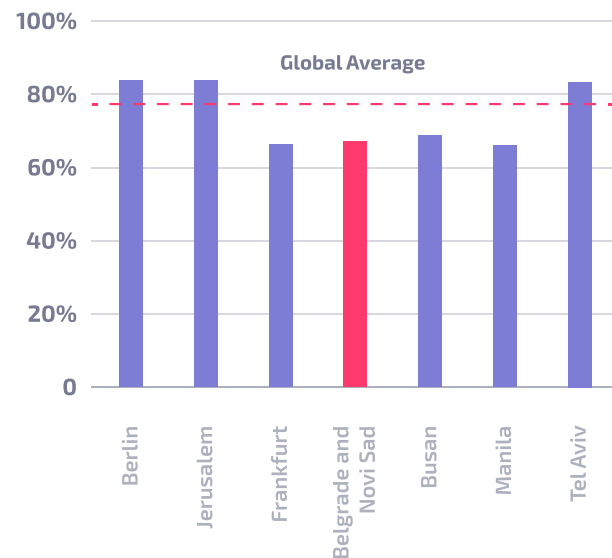
founders in Belgrade and Novi Sad are relatively younger when compared to the global average of 37.

This is probably due to the fact that more than 75% of startup founders globally are born before 1989.

Founder Age



Founder Age 30+



Putting this data in a broader perspective shows that the average European founder is currently 38 years old, was 35 at the moment of founding the startup, and has a university degree.¹ In addition, research of software startups in the US revealed that the average founder is 40 years old, while the average age of individuals that founded the highest growing startups is 45.² Furthermore, startups with founders that had at least 3 years of prior work experience in the same narrow industry as their startup are 85% more likely to launch a successful startup.³

However, this does not mean that younger startup founders with limited work experience will not be able to build successful startups. The trends described simply illustrate that startup ecosystems are becoming more and more sophisticated, requiring greater levels of competencies and leadership skills. Hence, we can probably conclude that startup founders in Belgrade & Novi Sad are on average younger due to the fact that this ecosystem is still in the early stage of development and lacking a high level of sophistication.

When it comes to gender structure, according to Startup Genome a mere 12% of startup founders in Belgrade and Novi Sad are women, which is in line with the results of research done by the Digital Serbia Initiative. This might seem staggeringly low if observed in isolation. However, if we take the global average of 14%, and 17.2%⁴ when it comes to European startups, this perception might change to a certain extent.

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

2 <https://hbr.org/2018/07/research-the-average-age-of-a-successful-startup-founder-is-45>

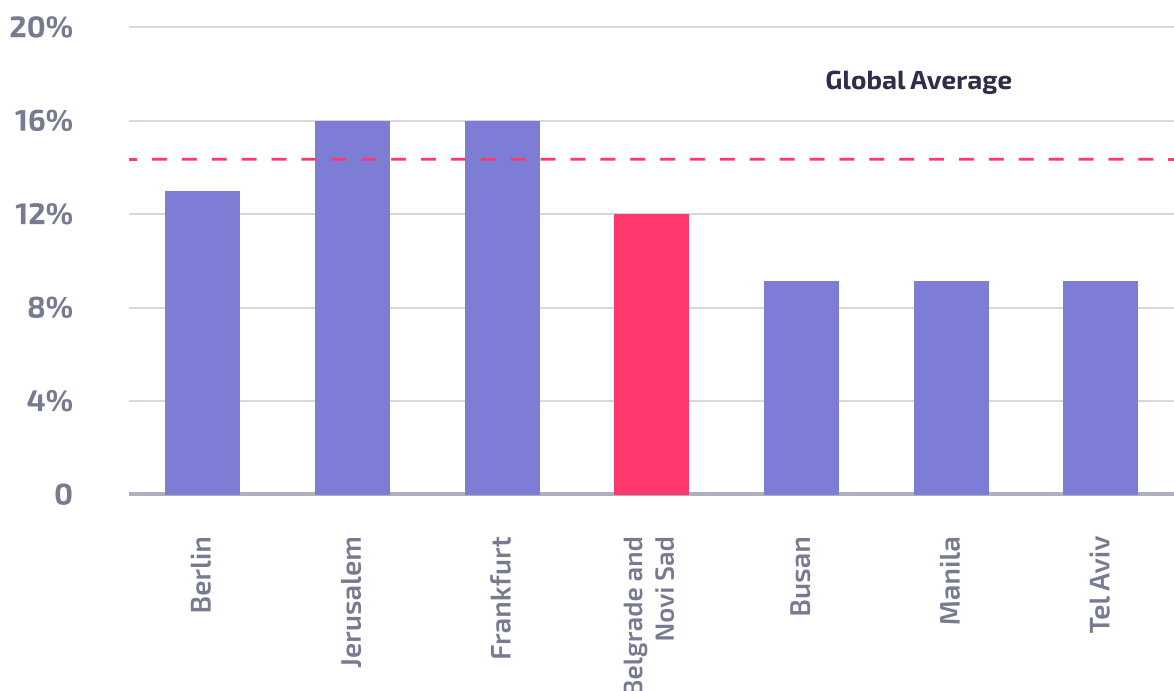
3 <https://hbr.org/2018/07/research-the-average-age-of-a-successful-startup-founder-is-45>

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

The percentage of all-female teams is also similar to the global average and stands at only 2%.

This gender imbalance extends beyond the world of startups. Craft research found that only 1 individual out of 175 CTOs at European tech companies that raised a Series A or Series B in the past year is a woman. Nevertheless, while female representation among startup founders in Belgrade & Novi Sad is close to the global average, this does not diminish the fact that the startup world needs to become more gender inclusive, and the need for everyone to support activities that will contribute to greater equality.

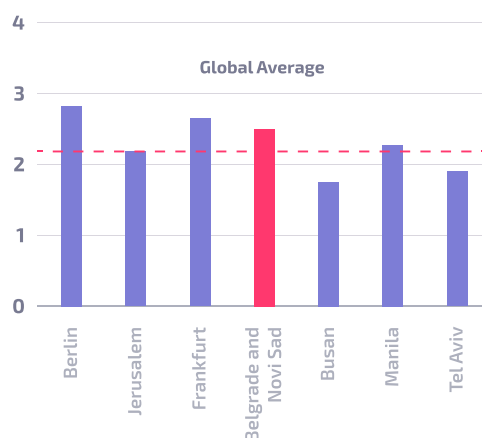
Female Founders



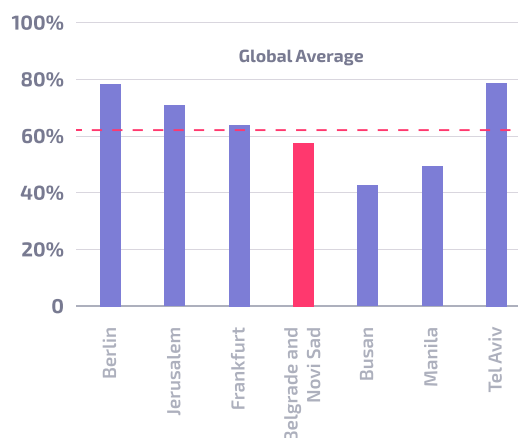
Startup founding team and their ambition⁵

The majority of startups from Belgrade & Novi Sad (58%) have the optimal number of founding team members, consisting of 2 or 3 individuals. Based on this data we can conclude that Serbian startup founders truly understand and depart from the 'one man show approach'. Additionally, another reason for optimism comes from the fact that 74% and 85% of founding teams have business and technical backgrounds, respectively, which puts them above the global average. This implies that startup founders, even in this early stage of development, recognize the value of distinctive backgrounds within the founding team.

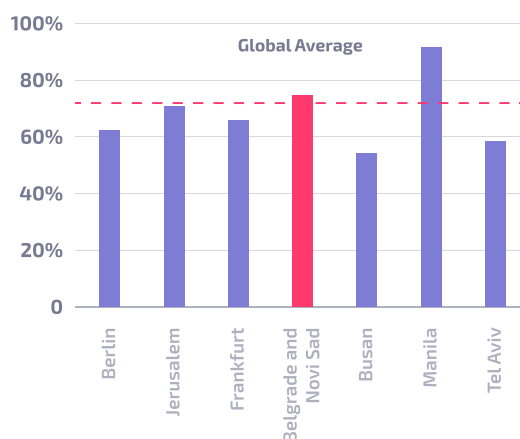
Founder Team Number



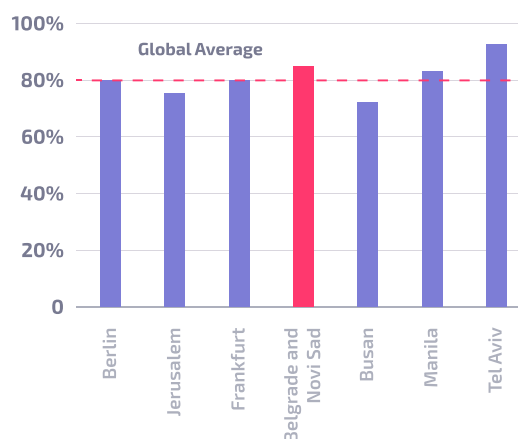
Startups with 2 or 3 Founders



Business Founder Team



Technical Founder Team



⁵ All data within this subchapter are related to Startup Genome's survey and analysis.

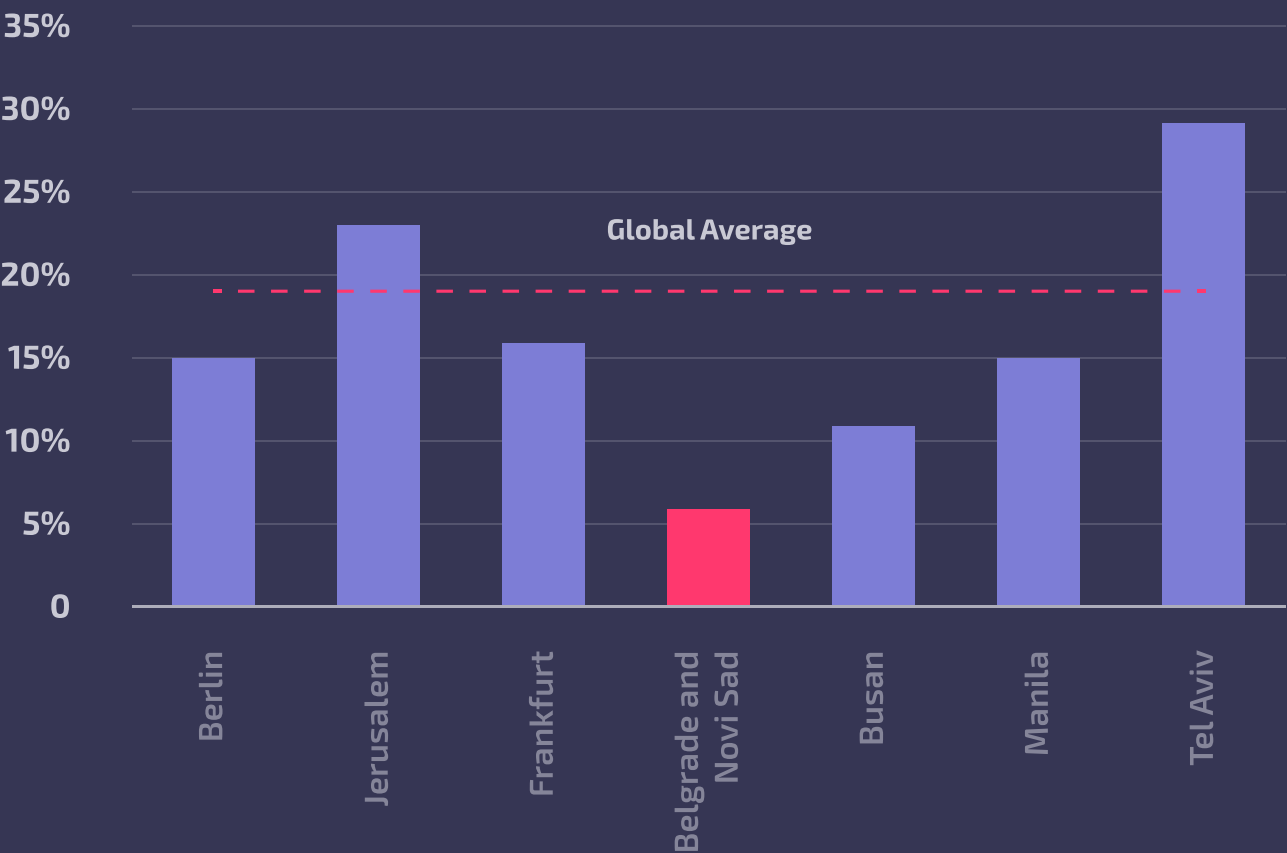
Startup Genome also considers two key founder factors that, according to their methodology, influence the success of startups and overall ecosystem development. They analyze the proportion of founders with high ambition and founders' DNA. The former is measured by their desire to develop a product with an addressable market larger than \$30 billion, motivation to change the world, and goal to develop a globally leading product. The latter is represented by access to personal and third-party sources of financing.

The proportion of founders in Belgrade and Novi Sad with high ambition is way below the global average, which stands at 19%, and is as low as 6%. Especially noticeable is their inability to target a \$30B+ market, where only 15% of them carry such ambitions compared to 30% of startup founders globally. Moreover, only 52% of them claim to have a globally-leading product.

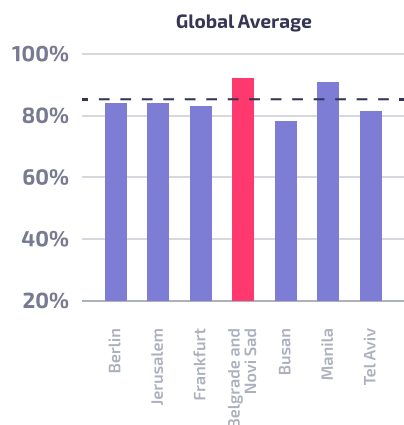
The majority of startup founders, **91%** of them, state that they **want to change the world**, and this is the only dimension of high ambition where **Serbian founders' motivation is higher than the global average**.

This data further confirms the DSI's finding that only 6% of startups target the global market. One of the reasons for this might be related to the broadly adopted phased approach starting from the local and regional market, or lack of belief in the global potential of the product.

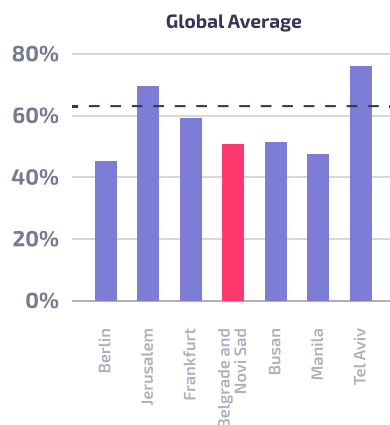
Founders With High Ambition



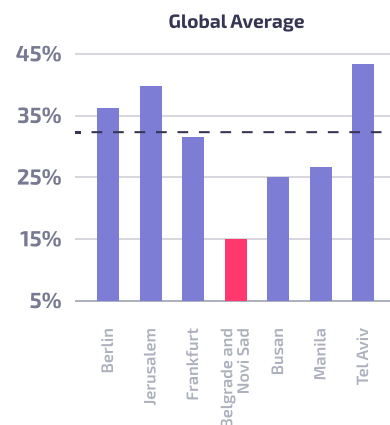
Founders With High Motivation (e.g. want to change the world)



Founders claiming a Globally-Leading Product

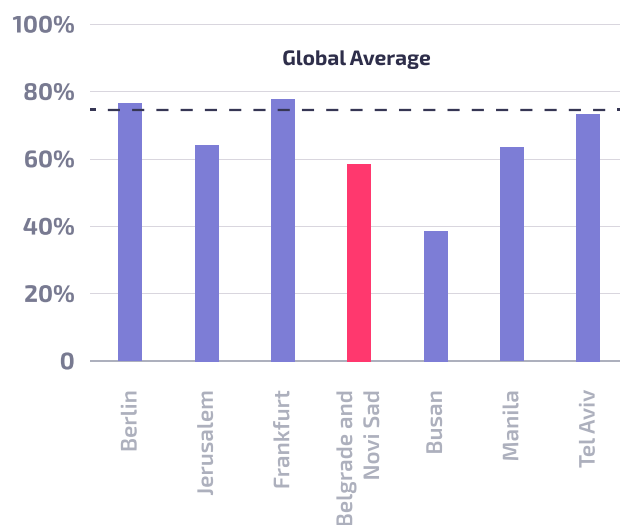


\$308+ Total Addressable Market

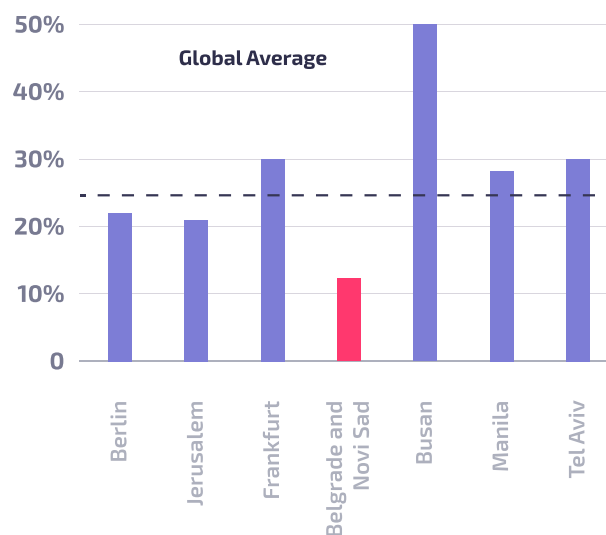


When it comes to personal and third-party financing it seems that most of the startup founders have personal financial support at formation, while majority of them are not aware of the third-party financial support. This further confirms the fact that early stage financing is quite limited and rather absent within Belgrade and Novi Sad startup ecosystem.

Founders with Personal Financial Support at Formation



Founders Aware of Third-Party Financial Support at Formation



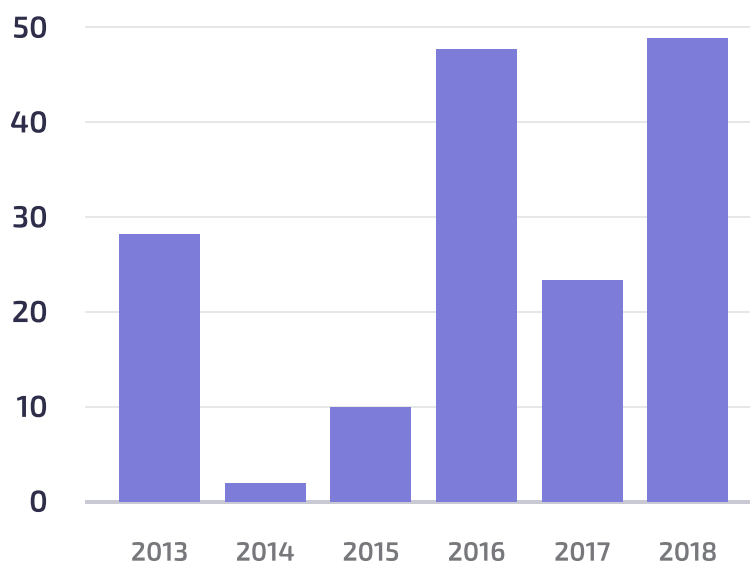
Funding Data

Startup funding usually becomes part of the wider public discourse only when a huge investment or exit happens. This is partially because of the fact that these situations are more of an exception than the rule within the Serbian startup ecosystem. Moreover, startup founders quite often like to keep information about investments completely under the radar, escaping the public spotlight. For this and several other reasons, it is difficult to determine the level of funding that startups in Serbia have received in the last decade.

The initial overview of the funding landscape was provided by Startit, which collects yearly data for startup investments in Serbia. The numbers clearly show a modest increase in the level of investment in 2014 and 2015. Moreover, significant check size seems to appear in 2016 and 2018, but a clear pattern or trend is still not visible. It seems like the level of funding is still dependent on individual and rare success stories of the Series A financing rounds which create spikes on the charts.

Investment status

(EUR mn)



Startups in Serbia **raised more than €143 million** in the last 10 years.

The research conducted by the Digital Serbia Initiative, at the end of last year, further confirmed data collected by Startit. Startups in Serbia raised more than €143 million in the last 10 years. It bears mentioning that startup investments in Serbia were almost nonexistent five years ago. Even though the number on its own might seem pretty high, when we consider the overarching context, the perspective changes completely. UK-based startups raised 6.95 billion last year. This is almost 5 thousand times higher than the total amount of investment Serbian startups managed to raise over the course of 10 years. Furthermore, approximately €122 million was raised by only two startups within our ecosystem. This implies that almost 97% of remaining startups received only €21 million.

Additionally, 45% of startups did not receive any external financing in the past 10 years and completely bootstrapped their development and growth.

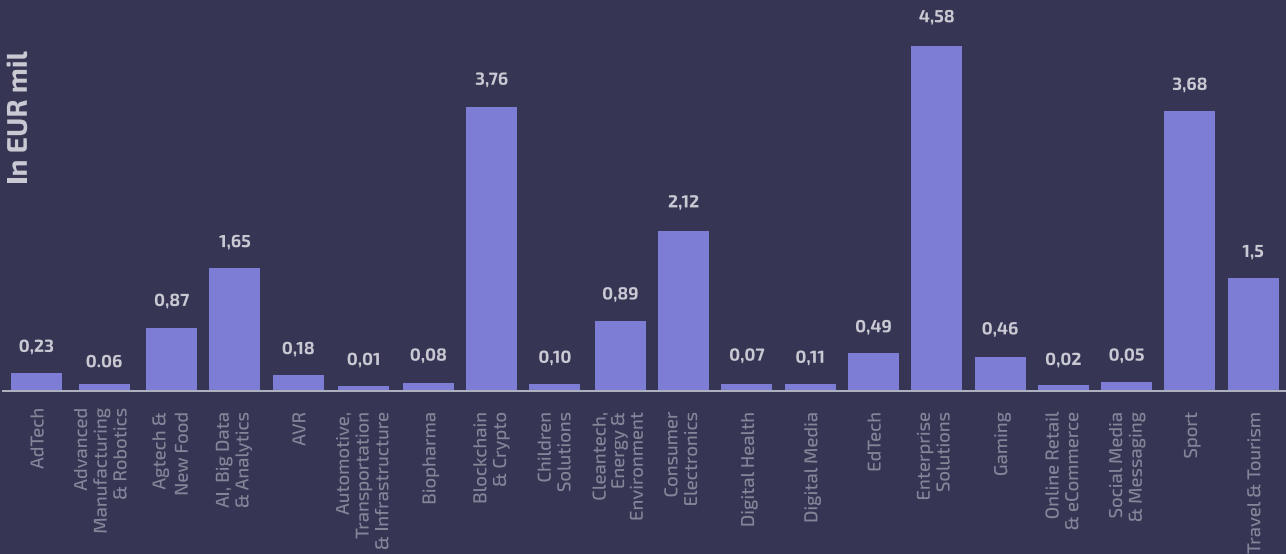
EXTERNAL FINANCING/INVESTMENT



Further analysis of the distribution of the raised €21 million shows that the highest levels of investment were received by startups that create enterprise solutions (€4.58 million), startups from the blockchain and crypto industries (€3.76 million) and startups that produce products related to sports (€3.68 million).

EXTERNAL FINANCING/INVESTMENT

BASED ON PRIMARY INDUSTRY

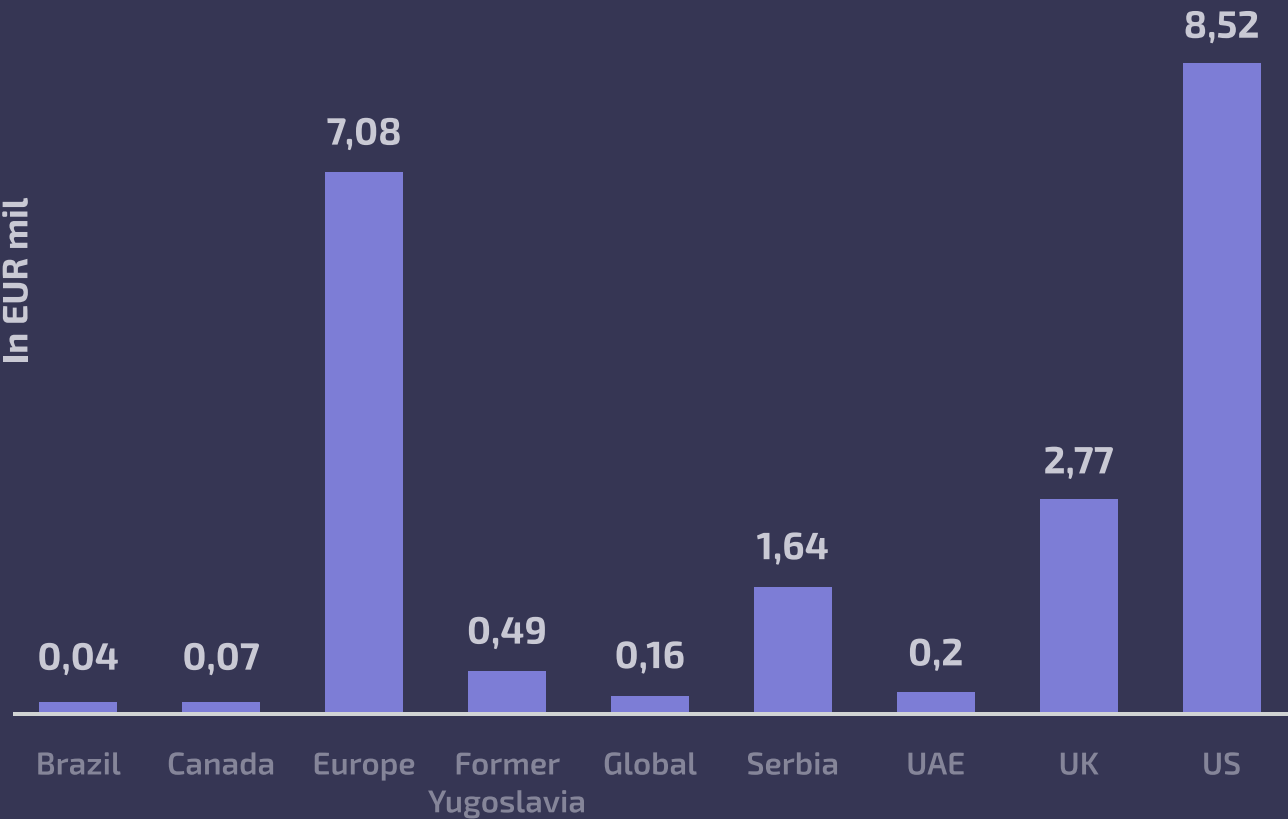


The data also reveals that the target markets of startups with external financing were predominantly Europe, the UK and the US - 88% of all startups that received funding targeted those markets. This strongly confirms that investors will make investments only when they recognize the global potential of the product.



EXTERNAL FINANCING/INVESTMENT

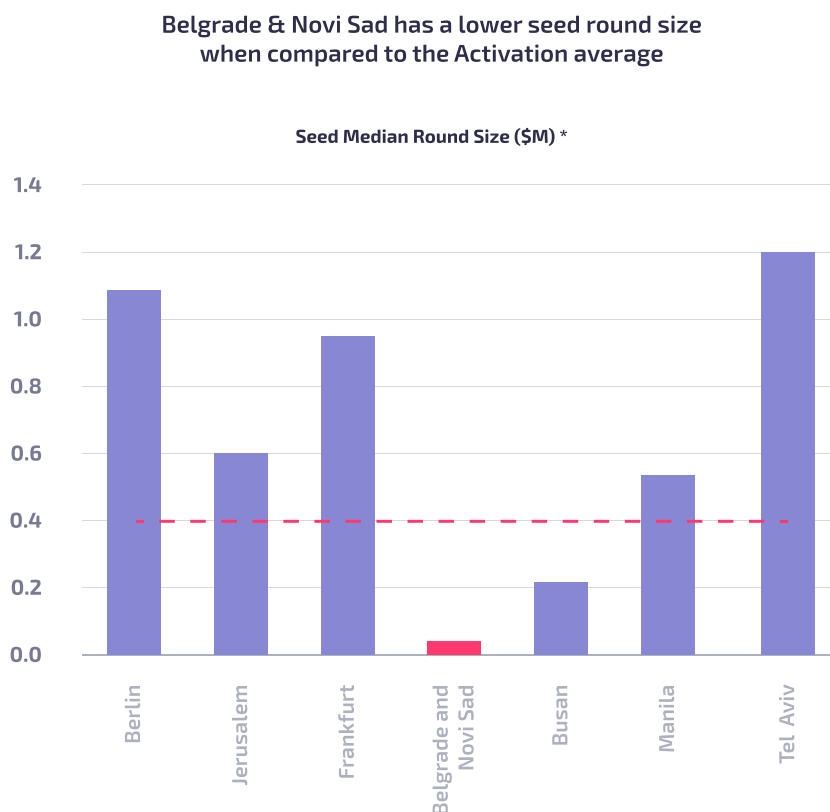
BASED ON PRIMARY TARGET MARKET



Seed and Series A round size

All of the above-stated is further confirmed by Startup Genome's research of the Belgrade and Novi Sad startup ecosystem. Their data reveals that Belgrade and Novi Sad have a seed round size that is almost 90% lower than the average for global ecosystems that are in the activation phase – the seed median round size is €20,000. According to Startup Genome, the smaller seed rounds can be compensated for through lower salaries for engineers. However, even when this factor is taken into account, the seed rounds in Belgrade and Novi Sad are significantly lower than in peer ecosystems. The seed round size in Belgrade and Novi Sad covers the salaries of 2.4 engineers, while the average seed round within ecosystems in the activation phase covers the cost of almost 12 engineers.

FUNDING GRAPH (SEED MEDIAN ROUND)



The absence of a greater number of Series A rounds limits our ability to draw relevant data driven conclusions about the later stages of financing. However, the research of Startup Genome clearly points out that the main challenges for the Belgrade and Novi Sad startup ecosystem are related to early-stage funding.

Strengths and Weaknesses



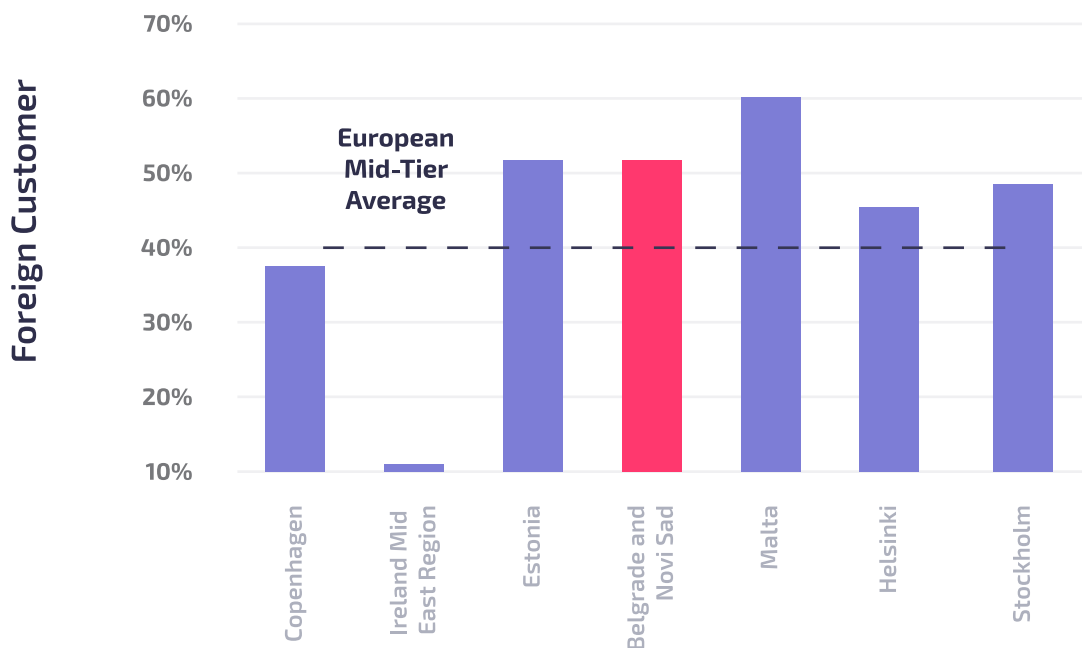
Global Connectedness

We have already stated that most startups from Serbia are targeting international markets and only 22% of them are focused on the markets of the former Yugoslavia. Startup Genome data have also shown that Belgrade & Novi Sad's founders have more connections to top-ranked ecosystems and that their global market reach is higher than the activation phase average.

Global Market Reach

Global Market Reach shows the percentage of foreign customers within a given startup ecosystem. It measures startups' ability to reach international clients and scale up their business. More than half of startups from Belgrade and Novi Sad have the majority of their customers outside of Serbia.

Customers outside of Serbia



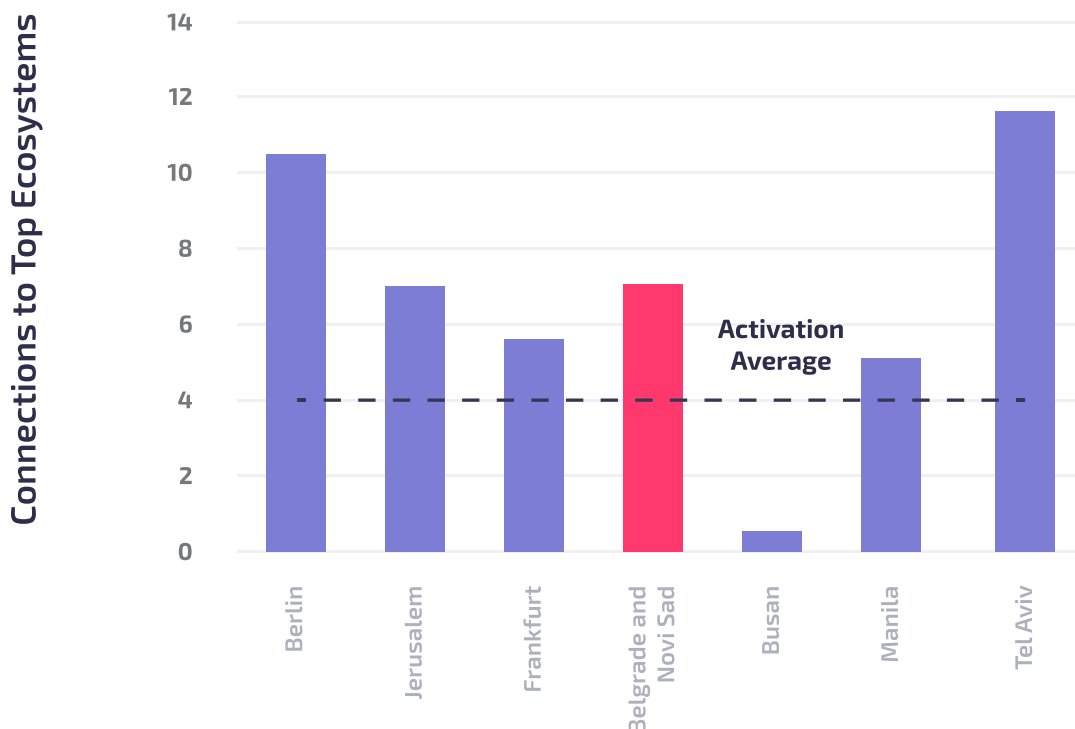
Compared to the average of the activation phase, our ecosystem targets the global market more often. However, as we already stated in "Founders persona" there is room for improvement in terms of ambition. Serbian startups have not stated that their product is globally-leading way more often than entrepreneurs in other ecosystems. This assessment may be objectively true, but it may also be due to cultural differences. However, if we are aware that a positive attitude and high ambition are very important for an entrepreneur, we need corrective action for both alternatives.

Global Connectedness

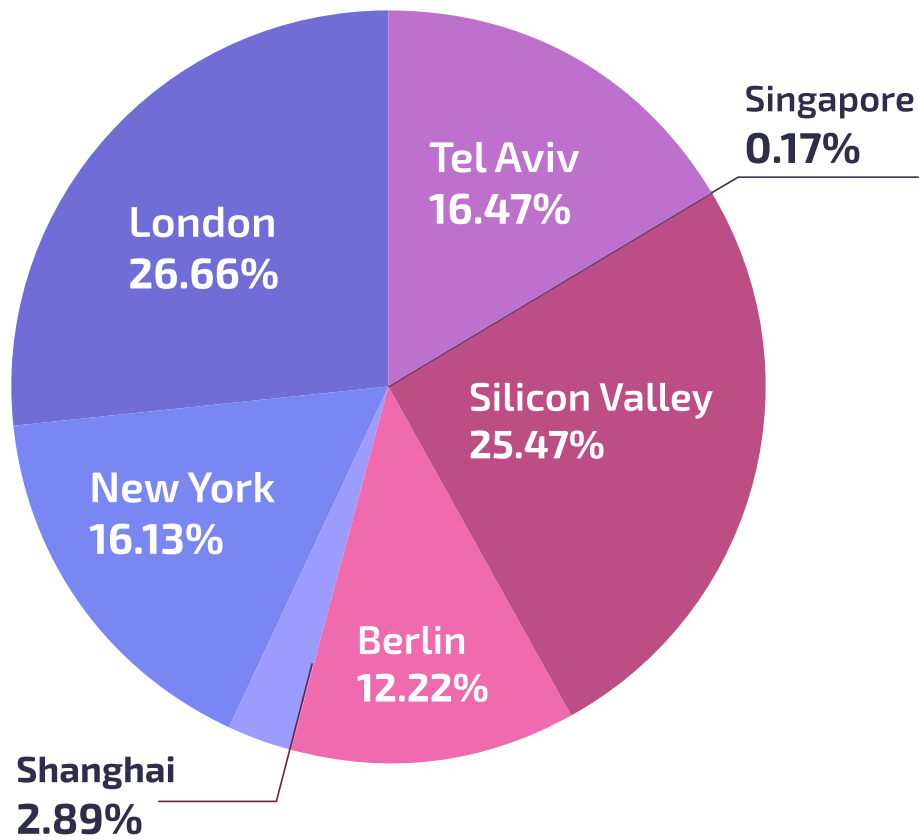
Global connectedness shows the number of founder relationships to top ranked ecosystems, which is a source of know-how enabling the creation of globally-leading business models and scaleups.

Our founders often meet their peers from top ecosystems both locally and during international travels. They are more globally connected than the global average, however, there is room for improvement in terms of 'importing founders' to our ecosystem.

Customers outside of Serbia



This international mindset among startup founders from Belgrade and Novi Sad is driven by connections to their peers in London and Silicon Valley.

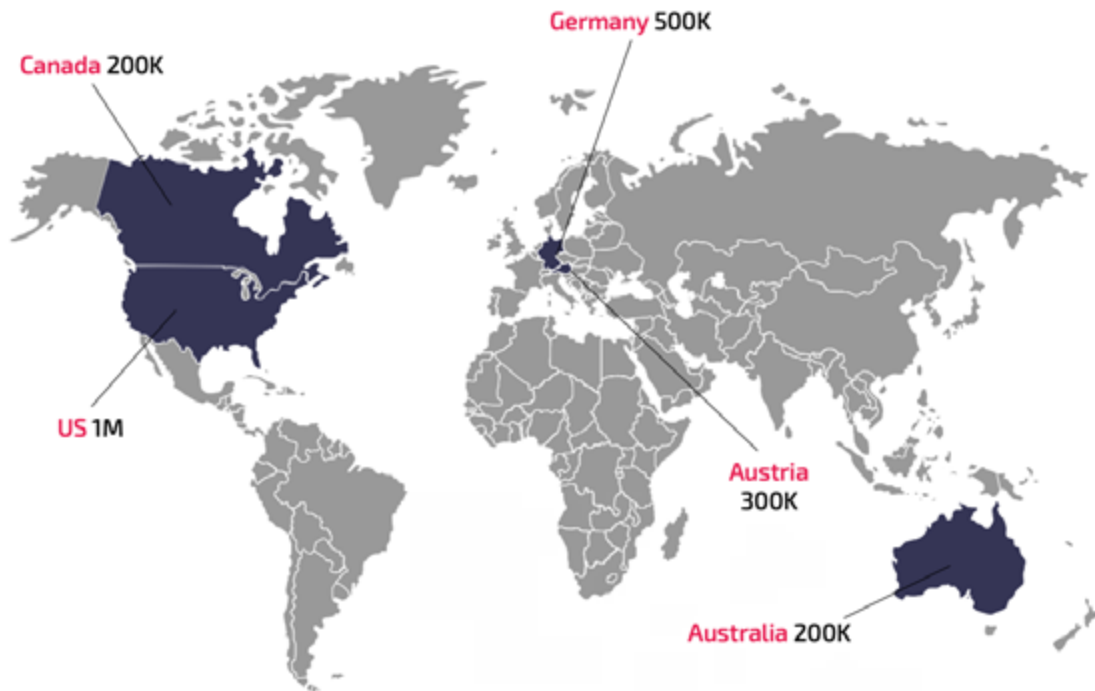


It is interesting that the connections our founders have with Asian markets are very low, barely existing. This is also visible in the markets our startups are targeting — the US and Europe are defined as target markets by 63% of startups, while Asia is a market for only 1% of them.

Serbian diaspora

Part of the reason for the high global connectedness is due to a strong Serbian diaspora across developed markets.

Serbian diaspora, top five countries*



The diaspora is getting more involved in supporting Serbian startups – from mentoring support to opening doors to investors and clients in their markets. In the last several years, these processes have been formalized through an organization called Serbian Entrepreneurs, founded in 2016 in Silicon Valley by successful entrepreneurs of Serbian descent. They foster the Serbian startup ecosystem around the globe through comprehensive access to skills, resources, connections, and mentorship, and have chapters in San Francisco, New York, Los Angeles, Miami, Toronto, London and Berlin.

Diaspora size

2.7m

Estimated Serbs outside Former YU

Affordable Engineering Talent

The salaries of IT employees in Serbia are 2 to 5 times higher than the Serbian average, which makes this profession one of the highest-paid in the country. Still, those salaries are low compared to most of the EU region resulting in affordable engineering talent, which is recognized as one of the strengths of the local startup ecosystem by Startup Genome.

Education in Serbia

Serbian ICT Education Scene

5.500

ICT graduates annually

IT Focused Graduates

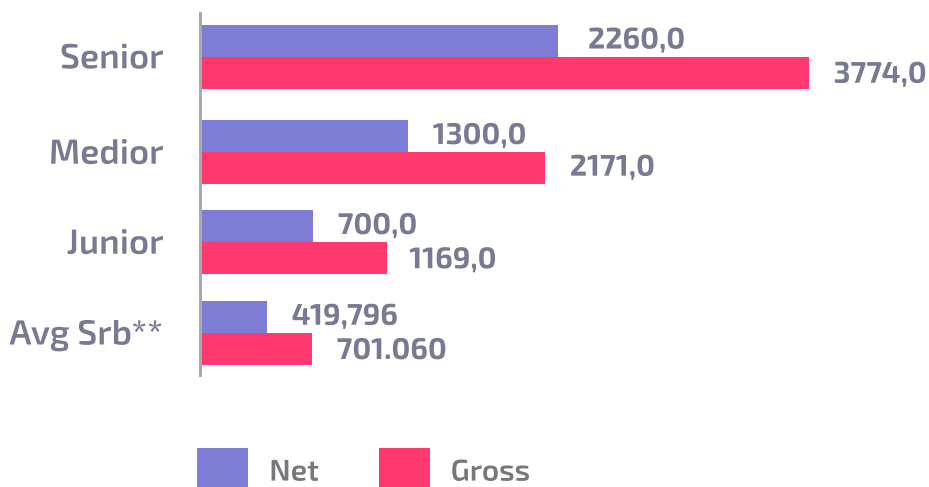
1.300

With only 1,300 IT graduates each year, Serbia cannot keep up with market demand for talent. This is an obstacle for the local startup ecosystem due to high pressure for more skilled labour coming from local companies, international players who are opening R&D centers, and international companies looking to outsource to the country.

In the last several years, the Serbian government has been working on growing the talent pool through initiatives such as implementing a more IT-focused syllabus in elementary schools and high schools, as well as universities. The focus of the government is not only on creating engineers, but also on creating a workforce that will be future-proof. The Ministry of Education is, therefore, building programs to ensure that every student understands programming, regardless of whether in the future they will work in biology, marketing or engineering.

Average monthly salary of Serbian IT employees (in EUR)*

IT employees are among the highest paid in Serbia, with 1.7x to 5.4x (depending on seniority) higher salaries than the average.

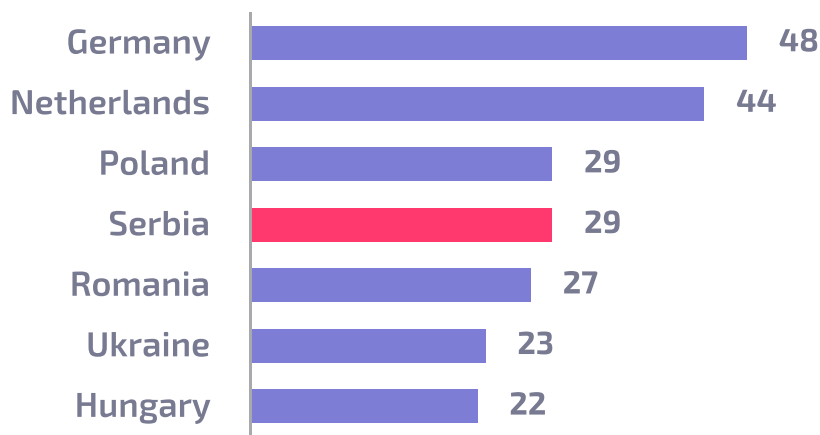


*Source: Software Development Salary Survey 2017, FenixHR.

**Average Monthly Salary in Serbia for 2018

(Senior — 5+ years of experience, Medior 2-5, Junior 0-2)

Annual cost of an IT employee to a company (in 000s of EUR)



Serbian IT professionals' salaries have seen continuous growth in the past few years, but are still well below those in Western European countries.

A significant proportion of IT companies in Serbia are hiring employees as "independent contractors" (47.8%); this is likely to change this year, due to new legislation. Still, the costs will not increase significantly, since the government is introducing tax-incentives for those who transfer independent contractors to full-time employees.

If we compare the number of Serbian IT employees to other countries in the CEE region, we can see that Serbia is way below the average — there is almost 3 times fewer IT employees in Serbia than in Hungary and more than 9 times fewer than in Poland. This is why the emphasis on education should be even greater.

Number of IT employees in Serbia compared to the CEE region (in 000s)



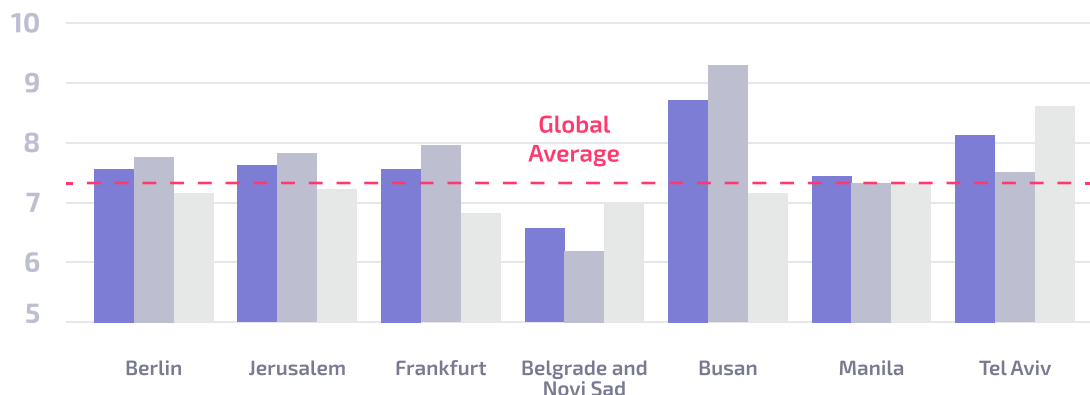
Local Connectedness

Almost all startup founders will agree that there's never enough time to deal with everything that requires their attention. Growing revenue, keeping employees and investors happy, watching the burn rate, staying ahead of the curve – that's just the start of the to-do list.

On top of that, founders usually have to find space in their already busy schedules for conferences, coffee meetups, networking events, keynotes, and various interviews. At such a hectic pace, one might wonder if it makes sense for founders to take time away from business-related tasks in order to attend these events and build meaningful relationships in the ecosystem.

According to Startup Genome, for the current development phase of the Belgrade and Novi Sad startup ecosystem, a growing connected community is one of the key factors that will enable its future growth. Their research shows that startup ecosystems with greater local connectedness see higher levels of individual startup success. In fact, **startups with higher local connectedness manage to grow their revenue 2x faster and have greater potential for bigger exits.**

Expert Relationships

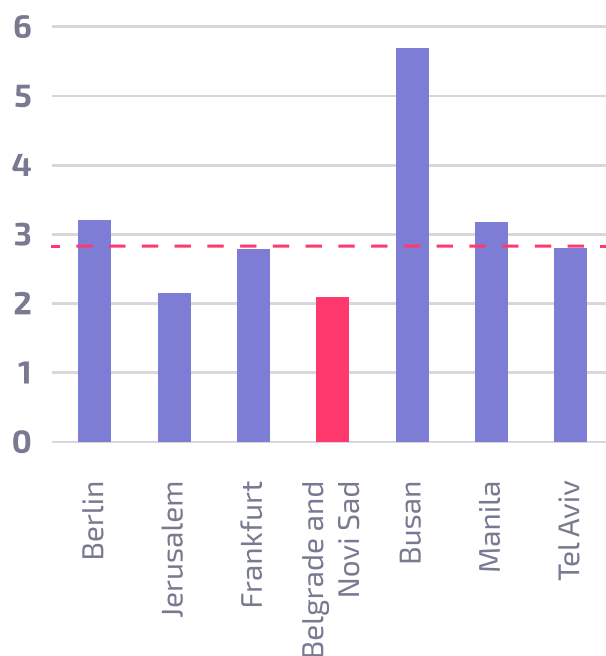


Startup Genome's results clearly indicate that Belgrade and Novi Sad lag behind the global average when it comes to local connectedness. The analysis reveals that the ways in which founders and investors help each other (sense of community), and the number of quality relationships between a founder and fellow founders, investors, and experts (local relationships), are below global levels.

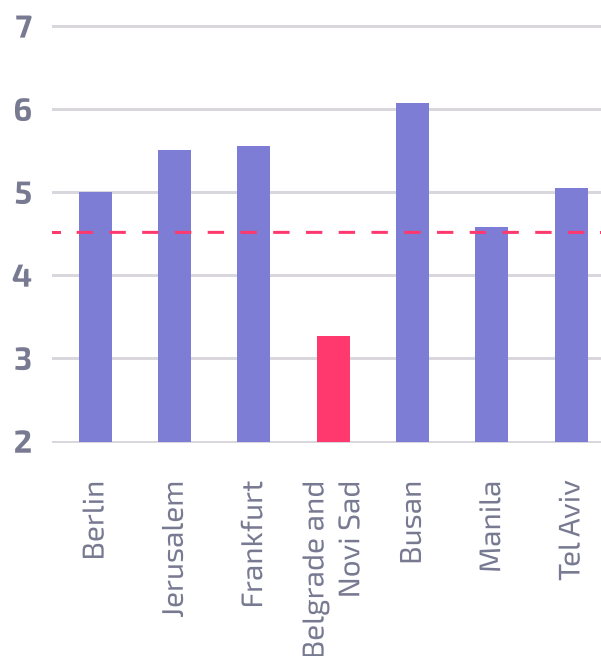
Particularly alarming is the low sense of community, which implies the relative absence of a 'people helping people' mentality.

Support and assistance between local founders is not at the required level for a healthy ecosystem, even though it represents a key source for introductions to other founders and investors, business advice, talent-related questions or just a discussion about shared experiences and challenges. Similarly, informal help from investors and experts is far below the global average. This implies the clear absence of a wider community understanding that startup founders need broader support.

Local Founder Help



Informal Investor and Expert Help

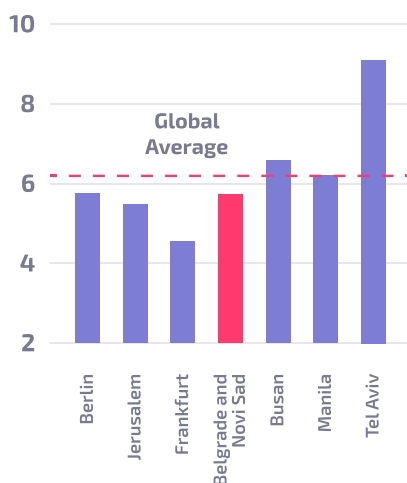


Data regarding local relationships imply that the number and quality of interactions between founders and other participants in the Belgrade and Novi Sad startup ecosystem require additional attention. When we disaggregate this finding, we can clearly see that the number of founder interactions, as well as the meaningfulness of those relationships, is slightly below the global average. Contrary to this, the number and quality of investor relationships are staggeringly low. This stems, in part, from the relatively small number of investors present within the ecosystem.

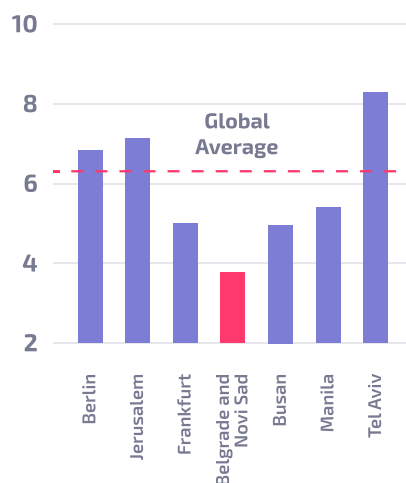
The need for greater interaction is clear. Through positive interactions with investors, startups can learn how to build a product that is both investable and scalable. The same reasoning can be applied to building deep relationships with experts from different fields who have specific industry knowledge.

The extent to which other participants within the ecosystem provide support to founders determines the flow of knowledge and the ability of startups to grow their revenue streams. Startup Genome emphasizes that even though a local startup might have a global market as its target, it is their interactions with local investors and experts that will propel them to higher success.

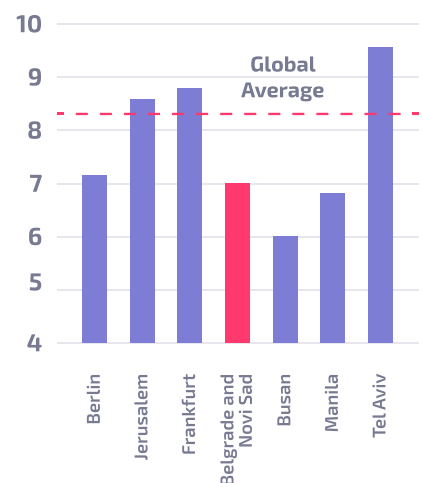
Founder Relationships



Investor Relationships



Expert Relationships



It is critical for all ecosystem participants to realize that their active participation is crucial for enhanced local connectedness. A higher level of local connectedness enables startups to have faster revenue and employment growth, with the ultimate result being the enhanced overall performance of the Belgrade and Novi Sad ecosystem. The question is: how can we accomplish this?

1. The change starts with you. No matter whether you are a startup founder, an investor, or an expert, set aside a couple of hours each week to get to know other founders, to provide advice from your own experience, to have a coffee meeting, or to simply make introductions for those who need them.
2. 'Pay it forward'. The key to growing local connectedness is to foster a sense of local pride, and a willingness to provide support to others who have just started or are still early in their journeys. It is important that all participants in the ecosystem learn to 'give before you get'.
3. Let's talk about success and failure. People often have the tendency to only talk about success - so we rarely get a chance to hear the whole story, including all the hardships and challenges along the way. This makes it easy to fall into the trap of 'perfect success', which makes it difficult for founders to share their failures even when they obviously need help. Let's try and share our authentic stories, including highs and lows, within the startup community.
4. Become a mentor. There is certainly a new founder somewhere who would benefit greatly from your insight, advice, and help. Try to find a less experienced founder and start sharing your knowledge, experience, and expertise - they'll greatly appreciate it.

Previous Startup Experience

The Serbian startup ecosystem is, as stated before, in its early stages, therefore it is quite understandable that we are lacking startup experience. Experience which is relevant to startups has many different forms — the more experienced startup founders, investors, mentors, and employees are, the faster the ecosystem evolves.

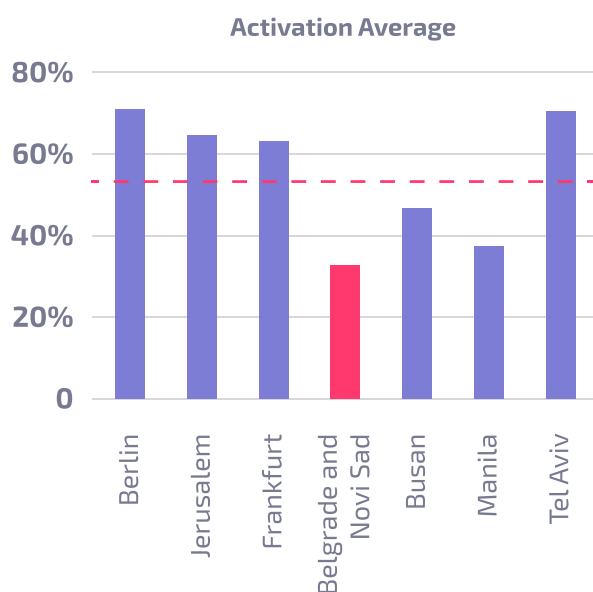
Most of the Serbian startup founders are first-time entrepreneurs, which means that it is even more important for them to be in a supportive and knowledge-based environment. Inexperienced founders might increase their success rates by surrounding themselves with investors, mentors and team members who are knowledgeable not only in their area of expertise but also in working with startups.

When it comes to the **experience of investors**, in three investment funds active in Serbia, only one has a manager who has previously run a VC fund, but no other employees have done it. This means that the investors are also in the process of learning together with the founders.

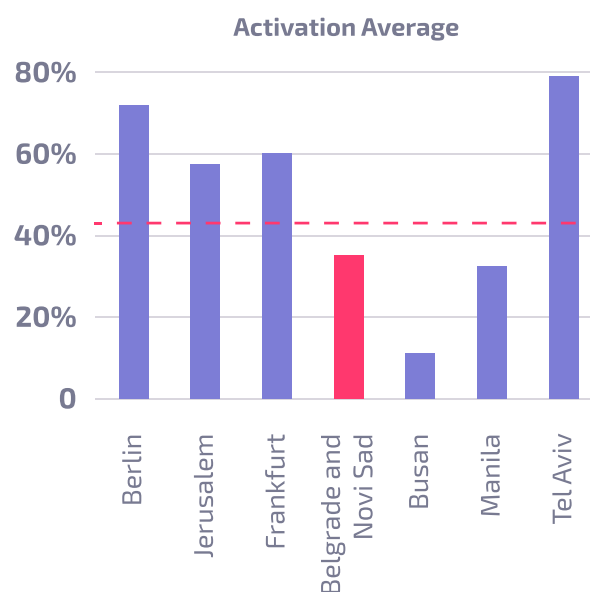
The small size of the ecosystem leads to another experience-gap — we are lacking **entrepreneurs and early-employees who have gone through the whole process**, from early-stage startup through growth to exit. The ecosystem has even a small number of those who have raised Series A and later stage, while there is only around 10 teams who have gone through an acquisition. This is important because these individuals are the ones who can support new growing entrepreneurs and ensure they don't repeat every single mistake.

When it comes to the previous experience of **team members**, while Serbia is considered a location with high engineering quality, the best local engineers are in every ecosystem mostly out of reach for early-stage startups. This is why it is important to have engineers with prior experience in a startup, and secondly, scaleup experience along with the attraction of foreign engineers. Apart from engineers, this is also relevant for other employees.

Experienced Engineers



Experienced Growth Employees



This lack of startup-related experience is expected given the stage and size of the ecosystem. Still, it should be addressed and improved proactively, instead of waiting for the ecosystem to become large (and old) enough to produce relevant experience.

There are different ways that this problem can be addressed – from changing the mindset and adding prestige to working for and with an early-stage startup, to introducing stock-options for employees, to improving relationships with global investors and mentors, starting with the Serbian diaspora.

**“Most of the Serbian
startup founders
are first-time
entrepreneurs.”**

Early Stage Funding

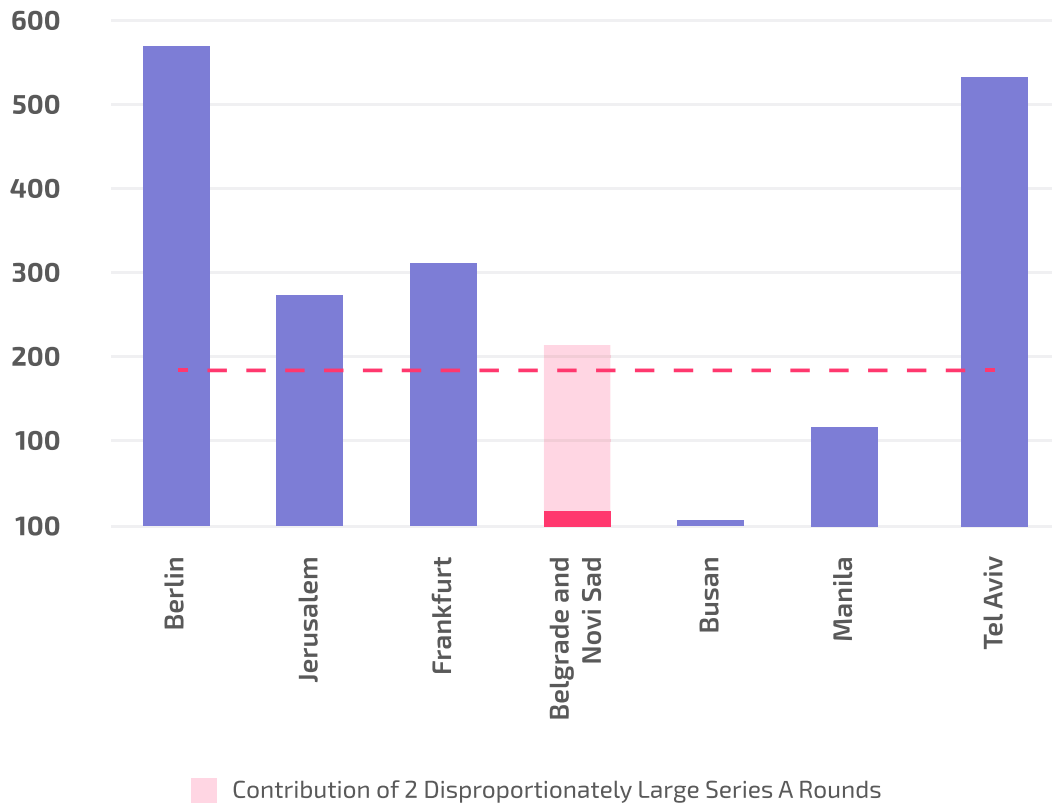
The survival of startups and their ability to grow is highly connected to funding. The lack of funding for startups in the early stages of their development leads to higher failure-rates than average. That is one of the reasons why we still do not observe the classical funnel in the Serbian startup ecosystem. Individuals may have a great idea, based on which they develop an MVP and validate it, with a great team and clear market potential, and then fail because of the lack of early-stage financing limits the possibilities for ecosystem growth.

Raising seed round is difficult even when you can do it in your local ecosystem. If you factor in the small number of locally present venture capital funds, almost non-existent business angels and the absence of crowdfunding platforms due to several regulatory barriers, it is not hard to see that early-stage funding represents one of the greatest weaknesses of the Serbian startup ecosystem. According to a survey conducted by the Digital Serbia Initiative, almost 60% of startups that have existed for up to two years have not obtained any financing. It can be assumed that a certain number of those startups decided to bootstrap their activities and that this is the primary reason for such a high percentage of startups without external financing. However, if we take into consideration the Startup Genome finding that for Belgrade and Novi Sad the total early-stage funding amounts to \$67 million, we can conclude that the majority of startups don't have access to funding. This becomes even more obvious when we look at the global early-stage funding average and realize that Belgrade and Novi Sad represent only 8% of that number.

The average early-stage funding per startup in our ecosystem amounts to \$222,000 and that is 22% below the global average, but higher than the expected cheque size in the activation phase. This data, observed independently, would imply that startups from Belgrade and Novi Sad have all the necessary funds for their early-stage development. However, the fact that two startups received the majority of early-stage financing rounds skew the picture for the whole ecosystem.

When the two **disproportionately large Series A** rounds are removed from the sample, we come to the realization that **early-stage funding** per startup is equal to **\$21,000**, which is far **below the global average**.

Early Stage Funding per Startup (\$K)*



Greater availability of early-stage funding is correlated with:

1. A greater number of startups in the ecosystem (they last longer and have a better chance for survival), and
2. Higher valuations for follow-on investments by high-quality VCs and exits, which in turn act as "triggers" to attract more startups and investors to the ecosystem, creating a positive loop.

Hence, it is of the utmost importance to find a way to resolve the lack of early-stage financing in a short period of time.

Policy Overview



Startup Support Policies and Environment

In terms of relevant startup infrastructure, Belgrade is the most developed city in Serbia, but other cities are catching up with both governmental and non-governmental support. Belgrade has had a Science Technology Park since 2015, and similar parks in Niš and Novi Sad, predominantly financed by the government, are under construction. The government has also supported the creation of startup hubs across smaller cities in the country, which are the result of cooperation between private sector players and municipalities.

The most important government support project is the Innovation Fund, operational since 2011 with the goal of increasing the capacity of startups and the resources available for their growth through support in funding, connections and mentorship. Since its inception, a total of €15.8M has been approved for 352 projects, which were carried out by 288 enterprises and 59 R&D organizations.

In addition to the Innovation Fund, the government has introduced several tax incentives which could be highly beneficial for further startup development:

- R&D costs are double-counted for tax purposes, lowering the corporate income tax baseline;
- Revenue from all IP developed in Serbia is taxed only 3% instead of the regular 15% and when combined with the accelerated R&D deduction, corporate income tax can easily be reduced to 0%;
- There is a 30% tax credit for companies investing in startups (capped at around €850,000);
- Startup founders and up to 9 employees pay no salary tax and contributions in the first year;
- A 70% deduction of tax and social contributions can be applied if you employ a foreigner in Serbia and pay at least three times the average national salary (except for internal transfers).

Although these incentives can be interesting for startups, they will attract established companies as well, which threatens to make the talent-pool for startups even smaller. Therefore, it is necessary to carefully monitor these programs and ensure they don't slow down the growth of the local startup ecosystem.

According to the **European Commission's measurement of innovation** by region, we see that Serbia is among the leaders of Eastern Europe, but still lags behind Western countries. It is interesting that Belgrade and Vojvodina are above the EU average in the field of tertiary education, and below the average in many other areas – from business sector R&D, through the number of patents, to the level of lifelong learning programs.

The **Global Innovation Index** ranked Serbia 57th in 2019, down two places from the last ranking, and behind Slovenia, Hungary, Bulgaria, Romania, Croatia and Montenegro. Serbia scored worst on the sophistication of its domestic market, and best in two areas – institutional development and knowledge and technology.

Investments in R&D in Serbia accounted for **0.93% of GDP in 2017**, far worse than EU-level R&D investment, which amounted to **2.07% of GDP in the same year**.

Serbia's rank improved from 48 to 44 between 2018 and 2019 on the Doing Business list, which is a positive sign. By category, Serbia has the best rankings in dealing with construction permits (9) and trading across borders, with a focus on exports (23). Its lowest ranking is in getting electricity (94), paying taxes (85), starting a business (73) and getting credit (67).

Regulation Relevant to Startups

In the previous chapters, we have described some of the ways that the government has been working to improve digital and tech infrastructure in the last several years. Apart from the tax incentives and investments in infrastructure which we already mentioned, there have been several regulatory changes that affect the startup ecosystem. Still, there is a lot more to be done.

Serbia now has Employee Share Plans which can easily be granted from Serbian or US-based legal entities. They are taxed only on capital gains at the moment of sale, with a step-up in basis for those who come with assets from abroad.

As part of these efforts, two regulatory sandboxes have been introduced:

- A FinTech sandbox, enabling innovative payment solutions to be tested in a limited market without prior registration; and
- A MedTech sandbox, where unregistered medical devices can be imported for R&D on a fast track procedure, for the companies from Science and Technology Parks.

On the other hand, as we saw from the Doing Business results, it is still difficult for businesses to obtain financing, and the economy remains very bank-centric. The banking sector represents more than 90 percent of all financial sector assets and there is almost no offering of other financing products, such as microfinance, factoring, trade finance, equipment leasing, or different equity financing options. This means that when it comes to the financing of innovative projects, Serbia's regulation is even further behind. Namely, micro-financing and equity crowdfunding are still not recognized in the country. But things are moving in the right direction, with the Law on Alternative Investment Funds, which also covers venture capital, having just been introduced.

Another obstacle for local startups is the fact that the possibilities for digitization of financial transactions in Serbia are quite limited, primarily due to the Foreign Exchange Act (ZDP) and its restrictions on international transactions. In the context of innovation of the domestic economy, legal uncertainty is introduced by the principle underlying the ZDP that everything that is not explicitly allowed is forbidden, which runs contrary to the ever-changing nature in the business world, especially in the context of the development of the digital economy.

Companies registered in Serbia, primarily due to the ZDP, cannot access most online payment and trading platforms, which reduces the competitiveness of domestic companies, especially those seeking to sell their products and services abroad. As a consequence, an increasing number of companies are registering in other countries, while those that choose to operate in Serbia face harsh business conditions that limit their potential for growth.

When it comes to regulation relevant for startups, IP protection is always important. Serbian IP protection laws have been recently updated and reflect contemporary trends and business needs. One problem when it comes to research institutions is that they define their own rules on IP ownership. Therefore, the biggest university in Serbia, the University of Belgrade, has regulations in place so that all IP created at the university and by university staff is owned by the institution. This is a huge disincentive for entrepreneurship at post-secondary institutions and should be changed to be in line with state policies and best global practices.

Recommendations



Recommendations for Policymakers, Ecosystem Builders and Educators

Analysis across several criteria has made it clear that the Serbian startup scene is performing better than expected – it has by far the lowest GDP and number of IT professionals per 1,000 people in the region, but it is keeping up with investments, startup quantity, and exits. However, since the ecosystem is in its early stage, this good start could be easily lost if we don't provide more meaningful support to our startups.

Recommendations in this section are based on the author's analysis of the Serbian ecosystem, but also on best practices from ecosystems across the world. The recommendations are segmented into three groups: recommendations for policymakers, ecosystem builders, and educational institutions.

Recommendations for policymakers

I — Early-stage funding support

One of the biggest challenges for the local ecosystem is low early-stage funding – Belgrade and Novi Sad have a seed round size that is almost 90% lower than the global average for ecosystems in the activation phase. Therefore, it is crucial for the government to design support programs to increase startup funding. As we mentioned earlier, the government is currently addressing this problem exclusively through the Innovation fund. These grants are the main funding source for local startups, but in order for the ecosystem to continue to grow, additional market-driven investment support mechanisms need to be built.

Private initiatives generally prove more effective than top-down government intervention. However, in nascent ecosystems, the private market can take decades to solve deep funding gaps, or otherwise entirely fail to address key issues without government support. The government and the public sector can play a critical role in solving deep early-stage funding gaps, especially when it acts through private actors. The core principle of best-proven practices is that private participants should be subject to competition, and that they need to demonstrate “skin in the game”, e.g. by taking financial risk.

For Serbia to build its startup ecosystem, it needs to increase both the number of startups and investors. Therefore, the country needs to implement short-term and long-term programs to support the development of local investors through various programs. Lowering the risk of investment for investors is especially important in the early stage and seed rounds, and that is why policy from the state is necessary. Some steps in this direction have already been made through the introduction of tax credits for investments in startups by business entities. Still, these incentives need to be expanded to include individual investors, as well as to include investments in VC funds.

Apart from tax incentives, the government should lower the risk of investment in the ecosystem through matching programs, and eventually Fund of Funds, which will increase competitiveness and the variety of investors in the ecosystem.

II — Educational programs

A strong education system is widely recognized as crucial for further development of not only the startup ecosystem, but the tech scene in general. If we compare the number of Serbian IT employees per 1000 people to other countries in the CEE region, we can see that Serbia falls short – there are almost 3 times fewer IT employees in Serbia than in Hungary, and more than 9 times fewer than in Poland.

Positive steps have been made in the area of primary and secondary education, with the introduction of mandatory computer science classes and specialized IT streams. This will, in the long-term, create a highly skilled workforce that can work in the tech sector and combine IT skills with various other forms of expertise. However, the efforts made in post-secondary education are still not sufficient. 1,500 graduating IT students per year is not enough, and the number of students must be increased.

Furthermore, investing solely in engineering skills will not be enough to build a healthy startup ecosystem. Strong marketing and business skills are crucial when building a startup, as is innovation across different sectors. Therefore, support should be extended to other disciplines, focusing on modernizing their curricula and helping to build digital expertise. For example, business schools should include courses about fintech, blockchain and global digital marketing and business models; similarly, fine arts programs should provide students with knowledge about UX design, 3D modeling, and other available tools.

III — Increase support for identified strong subsectors

Startup Genome has recognized Blockchain and Gaming as the Serbian subsectors with the highest potential. These two subsectors have received the most attention within the ecosystem, and there are more and more private initiatives that are specifically investing in their development. In the last two years, the Serbian Blockchain Initiative and Serbian Games Association have been established. In addition, the largest gaming company in Serbia has launched its own gaming hub, while one of the biggest gaming companies in the world, Epic Games, which recently acquired 3Lateral, will increase its team in Serbia and build its own campus.

These subsectors should be supported through specific support programs created by the government and other international institutions and donors. For example, the Innovation Fund could design its programs to increase support to these sectors, and educational initiatives should be similarly tailored.

IV — Further support of global connectedness

Our startup founders are more globally connected than the average founder around the world. The international connections of startup founders from Belgrade and Novi Sad are driven by connections to their peers in London and Silicon Valley.

One of the reasons for this connectivity might be the large Serbian diaspora across Western markets, which is also becoming more and more active in the local startup ecosystem. The government is already looking for ways to take advantage of this by planning events for the diaspora, but also through tax and social deductions intended to promote the employment of foreign workers.

Still, there are programs that could increase this global connectedness even more by supporting various knowledge exchange and partnership building activities in international markets, from sponsoring local entrepreneurs to visit international startup conferences to building hubs in main cities, such as San Francisco or London.

V — Changing the Foreign Exchange Act

We have written in more detail about this Act and its restrictiveness in the field of international transactions in the previous chapter . In summary, it introduces legal uncertainty through its principle that everything not expressly allowed is forbidden, which is contrary to the goal of fostering innovation and the context of the current fast-changing global environment.

This law has been inherited from the previous communist system which aimed to control state- and socially-owned assets, and currently regulates foreign exchange and foreign trade operations in Serbia with 49 bylaws. The law imposes many restrictions on foreign companies, which has been brought to the attention of many business entities and organizations. For example, in its White Paper, the Foreign Investors Council points to this statute as one of the major problems for business in Serbia, and states that there has been insufficient improvement in this area.

Recommendations for ecosystem builders

Startup support organizations contributed significantly to the growth of the Serbian startup ecosystem, and these recommendations have been drafted with the goal of bringing attention to some points which have been less visible in the past, but which have since proven to be of importance.

We have seen that Belgrade and Novi Sad lag behind the global average when it comes to local connectedness. The analysis reveals that the way in which founders and investors help each other and the number of quality relationships between a founder and other founders, investors, and experts is below global levels.

This is very important since, according to Startup Genome, a growing connected community is one of the key factors of success that will enable its future growth. Their research shows that startup ecosystems with greater local connectedness see higher levels of individual startup success. In fact, startups with higher local connectedness manage to grow their revenue 2x faster and have greater potential for bigger exits.

Therefore, startup support organizations should focus on this issue through targeted programs to foster local connections and knowledge exchange in the ecosystem. This can be done in various ways – from running joint programs for founders in similar stages, through organizing various events for smaller audiences focused on particular challenges and building connections, to the promotion of a pay-it-forward culture.

In addition, ecosystem builders should look for further ways to increase connections with global markets, increase support for women founders, and get involved in sharing an entrepreneurial spirit and know-how to a wider audience.

Recommendations for educational institutions

Part of the recommendations for educational institutions is covered in the segment aimed at policymakers. Still, there are several good practices we would like to emphasize.

We have learned that Serbian startups and their employees lack entrepreneurial and startup experience, as well as relevant business skills. This is an area where universities can make a strong impact and shape the available talent within a few years.

It is sometimes very difficult for university instructors to catch up with the most recent startup practices, but this is where the private sector could provide support. Serbian regulations have recently allowed experts from the private sector to teach courses in partnership with professors, which is a great opportunity for bridging the current gap and can lead to a win-win solution. A good example of this practice can be seen in the Master 4.0 program, with leading schools partnering to offer world-class programs that combine technical and business skills. The first generation of students has enrolled in the state-wide **Master 4.0 program**, which is hosted across three universities and features 300+ instructors from Serbian and international universities, as well as more than 70 companies, covering 140+ subjects.

There are many additional actions that could be taken by post secondary institutions to address this gap, such as:

- Introducing or expanding internship opportunities to cover SMEs, startups and innovation development, which could have a positive effect on the available skills and entrepreneurial ecosystem;
- Offering extra-curricular entrepreneurship and startup education – one good example of this practice can be seen in Startit's cooperation with two faculties at the University of Belgrade, where they offered a one-semester startup course featuring many successful entrepreneurs as lecturers; and
- Opening accelerators and incubators within university faculties, which have proven an important driver of startup experience and entrepreneurial spirit in ecosystems worldwide.



January, 2020