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ACCESS TO FINANCE FOR YOUNG INNOVATIVE ENTERPRISES IN SERBIA: ASSESSMENT AND RECOMMENDATIONS FOR POLICYMAKERS*

Pristup izvorima finansiranja za mlada inovativna preduzeća u Srbiji – ocena i preporuke za kreatore politika

Abstract

We provide new empirical evidence of broader relevance for financing innovation, by assessing access to finance for young, innovative enterprises in Serbia as a transition economy. A relevant data set was analysed using an online survey, building upon a wider literature review, policy documents and related entrepreneurship surveys. Derived results, corroborated by in-depth interviews with stakeholders, suggest that young innovative enterprises are overly reliant on internal sources of financing. When considering external financing, they tend to be mostly interested in grants, subsidised bank loans (and to a lesser extent equity investment), rather than the more traditional bank financing. These results support other studies demonstrating that equity financing is better suited to finance early innovation compared to debt, and that subsidised government programmes are required to bridge the gap to equity financing. Our policy recommendations centre on fostering non-bank sources of financing, while providing support to increasing technology readiness and improving the business climate.

Keywords: *access to finance, innovation, entrepreneurship, start-ups, EU, Serbia*

Sažetak

Proučavajući pristup finansiranju za mlada, inovativna preduzeća u Srbiji kao ekonomiji u tranziciji, autori predstavljaju nove empirijske dokaze sa širim značajem za finansiranje inovacija. Sprovedena je elektronska anketa, kao i pregled odgovarajuće literature, mera politike i povezanih istraživanja u oblasti preduzetništva. Izvedeni nalazi, potkrepljeni intervjuima, ukazuju na to da se mlada inovativna preduzeća preterano oslanjaju na unutrašnje izvore finansiranja. Prilikom razmatranja spoljnog finansiranja, uglavnom su zainteresovani za bespovratna sredstva, subvencionisane bankarske kredite (i u manjoj meri investiciona ulaganja), a ne za tradicionalne bankarske zajmove. Ovi rezultati podržavaju druge studije koje pokazuju da je investicioni kapital primerenije sredstvo za finansiranje ranih inovacija od bankarskog zaduživanja, te da su državne subvencije potrebne kako bi se premostio jaz do finansiranja investicionog kapitala. Stoga se i preporuke za razvoj ranih inovacija usredsređuju na podsticanje nebankarskih izvora finansiranja, uz pružanje podrške povećanju tehnološke spremnosti i poboljšanju poslovne klime.

Ključne reči: *pristup izvorima finansiranja, inovacije, preduzetništvo, novoosnovana preduzeća, EU, Srbija*

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Introduction

This paper aims to provide new empirical evidence of broader relevance for financing innovation, by assessing the state of young, innovative enterprises' access to finance in Serbia. To set the context for this empirical analysis, the current European Union (EU) innovation and access to finance policy for small and medium-sized enterprises (SMEs), and the available surveys on Serbia's entrepreneurial environment are assessed, building upon a wider literature review. Our objective has been to investigate the current state of access to finance for young innovative firms in Serbia, since studies on access to finance for innovative enterprises are generally rare, and none had previously been conducted in Serbia. Given the importance of young innovative enterprises for the overall economy and the country's competitiveness, this paper concludes by providing recommendations for policymakers and relevant institutions in Serbia, with potential applications for other economies in transition.

Ever since the pioneer research of one of the most influential economists of the twentieth century, Schumpeter [39] was published, innovations have been recognised as a key driver of economic development and growth, and a source of improvement of the standard of living. Fostering innovation-driven entrepreneurship has become a priority policy aiming to enhance a country's productivity growth and competitiveness. The European Union acknowledges the central role of innovation and entrepreneurship in job creation and economic development in the Lisbon Strategy [12] and Europe 2020 Strategy [15], as well as in other strategic policy documents including the Small Business Act for Europe [14], Green Paper on Entrepreneurship in Europe [10] and the Entrepreneurship Action Plan [16]. Entrepreneurship renders economies more competitive and innovative, with small and medium-sized enterprises (SMEs) representing the most important source of new employment in Europe, creating 8 out of 10 jobs in the EU since 2008 [46]. Particularly important to economic growth and job creation are young innovative firms. Science, Technology and Industry Scoreboard 2013 [35] concludes that young firms (5 years old or less) created nearly half of all new jobs in the past decade. "During the

crisis, most jobs destroyed in most countries reflected the downsizing of mature businesses; net job growth in young firms (five years old or less) remained positive." [35, p. 13].

Access to finance is a vital determinant of entrepreneurship, driving creation, survival and growth of innovative new ventures. Commercialising new ideas improves productivity and creates wealth [4], [2], [43]. Unfortunately, when seeking financing, young innovative firms face many challenges because they lack collateral or a track record. Based on a large EU survey, 79% of Europeans reported access to finance as the most significant obstacle to starting or expanding a business [17]. Even prior to the onset of the global financial crisis, access to finance was recognised as a leading factor adversely affecting innovation and growth [13]. Lack of financial resources limits innovative enterprises from investing in new innovative projects, financing growth and meeting market requirements. Improving access to finance for young, innovative enterprises should enhance their potential to create jobs by increasing the overall number of business start-ups and their ability to grow. To improve innovative and growth capacity, EU and its Member States have developed a series of policy interventions to support new, innovative enterprises. In late 2014, the European Commission launched the COSME programme – EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises, operating until 2020 with a planned budget of EUR 2.3 billion [19]. COSME intends to facilitate access to solutions for credit problems that small businesses currently face, providing better access to finance and markets, as well as to support promotion of entrepreneurship and help create more favourable conditions for business creation and growth.

Innovative firms provide impetus to growth and development of European economies, and are gaining increasing importance in transition economies such as Serbia. Due to their specific characteristics and dedication to development of new products, processes and services, innovative firms are at the centre of attention of researchers globally. Access to finance has been identified as a crucial challenge for young innovative firms. Without proven track record or portfolio, access to finance becomes a survival test for young innovative firms. Firms need to prove to

investors that their idea and new products possess true potential to become commercially successful. Prelipcean and Boscoianu [36] point out that when SMEs have limited access to finance, especially in developing countries, this directly impacts their strategies and investment decisions. Innovation is by definition something new [5], and therefore timing plays a crucial role. Uncertainty of innovation outcomes [24] imposes additional pressure on young innovative firms in comparison to start-ups, more broadly speaking. Mazzucato [29] considers that innovations have uncertain character and that only serious commitment can bring results, which requires specific financing. Mazzucato thus advocates reforming the financial markets to enable support for innovative firms instead of punishing these entrepreneurs with scarce finance [29]. Schneider and Veugelers [38] also consider access to finance to be a highly significant obstacle to commercial innovation.

Another essential research question relates to the impact firm size on imminent financial constraints. Although it is widely believed that small firms encounter obstacles to access finance due to their size, this problem is more complex. Competitive business environment and characteristics and productivity of the SME sector itself are also important factors [7]. Nonetheless, there is an indubitably higher probability that small firms consider access to finance to be a more significant obstacle compared to medium-sized and large firms [7].

Wang [45], for instance, investigated the type of financing used by innovative small and medium-sized enterprises compared to non-innovative SMEs in Canada during 2004 and 2005. He showed that innovative firms sought external financing to a greater extent than non-innovative firms, whilst debt financing was the most frequently used type of external financing overall. An important finding is that innovative firms were more credit-constrained in comparison to non-innovative firms (54.2% of innovative firms obtained the requested loan compared to 83% of non-innovative ones). Furthermore, a higher percentage of innovative firms demanded venture capital (19.5% of innovative firms cf. 5.9% of non-innovative firms) [45]. Freel [23] researched loan applications on a sample of 256 small firms, also concluding that highly

innovative firms are more credit-constrained than the less innovative ones.

Aghion et al. [3] stress that attention should be paid to differences in financing patterns of innovative firms compared to those that are less innovative, and to how R&D intensity affects financing choices. In the case of firms that invest in R&D, with increase of investment there is an increase in use of external resources (debt and equity). However, when intensity of R&D investment increases to a certain level, firms reduce debt finance and move to equity financing [3]. Mina, Lahr and Hughes [31] strongly argue that it is necessary to further explore the ratio of application versus approval of external financing. Their research indeed showed that R&D-intensive firms do not seek external financing to a greater extent when compared to less innovative enterprises [31]. Yet these results could be explained by choice of other types of financing, partly due to apprehension of loan rejection and better suitability of alternatives. This leads various authors to consider venture capital to be a sound solution for innovative firms financing [24], [36]. Newer forms of financing such as business angels, private equity or venture capital and crowd-funding can all serve as a good alternative to traditional banking products, especially for highly innovative firms. Our research focuses on Serbia as a transition economy, testing the hypothesis supported by research in more developed countries that access to finance is the main obstacle to growth of innovative enterprises.

Serbia has gone through a period of dramatic changes during the previous decades, transitioning from a planned economy (with elements of a mixed economy) and an autarchy (economic sanctions applied during conflict in 1990s) to a market economy governed by EU standards, while enduring the impact of the global financial crisis at the height of its transition. In 2014, Serbia formally opened the negotiations process for EU membership. It also embarked on a path of structural reforms at a faster pace, urged by fiscal problems and high unemployment rate, which stood at 17.9% in the last quarter of 2015, decreasing to 12.9% in the third quarter of 2017 [41], [42]. According to the World Economic Forum's Global Competitiveness Report, Serbia is categorised as an efficiency-driven economy, lagging behind the innovation-driven economies in introducing

innovations in business. In 2017, Serbia ranked as 78th of 137 countries [48]. Despite the reforms undertaken since 2001, when Serbia initiated its market transition towards EU membership, the economy continues to be burdened by weak infrastructure, low investment, high unemployment, and poor demographics (ageing population and low birth rates), further compounded by brain drain, reflected in the very low, 134th position (of 137 economies) in terms of capacity to retain talent, and 132nd position when it comes to capacity to attract talent [48].

Notably, when the twelfth pillar focused on innovation is taken into account, the ranking is unfavourable, with Serbia attaining 95th place out of 137 countries, with weaknesses pinpointed in capacity for innovation (117th place), company spending on R&D (107th place), and university-industry collaboration (95th place). We have calculated and presented here Serbia's shift in rank for the selected indicators in the Financial Market Development and Innovation pillars of the WEF Global Competitiveness Reports, comparing results in 2008-2009 and 2017-2018 (see Table 1).

As shown in Table 1, Serbia is recording some progress in bank financing, but also an increasing gap in university-industry collaboration and venture capital financing compared to other economies, which is a concern for fostering innovation, especially early innovation.

According to The Global Innovation Index 2017 published by Cornell University, INSEAD and the World Intellectual Property Organisation (WIPO), Serbia is

ranked as the 62nd economy of 127 countries for which the index was calculated [11], and as 99th in the Market Sophistication sub-index, demonstrating a weakness in access to finance. Serbia's innovation potential is hampered by market sophistication, determined by the ease of obtaining a loan and obstacles resulting from poor innovation linkages. Finally, according to the Innovation Union Scoreboard 2017 [20], based on the average innovation performance, Serbia falls within the group of moderate innovators with a below-average performance, although innovation performance has been improving rapidly at an average annual growth rate of 17.3%, higher than the EU average of 2% for the 2010-2016 period.

A study conducted on a sample of 3,982 companies in Serbia revealed that the share of companies with at least one (process or another type) innovation is 47.9%; almost 70% of large companies, over one half of medium-sized companies, and over one third of small companies can be called innovative [28]. Innovative activities were found to be more common in manufacturing companies (innovations introduced in more than half of these companies), compared to 40% for service companies. The share of 47.9% of innovative companies in Serbia is just a little below the EU average (according to the Seventh Innovation Survey, 53% of EU enterprises from industry and services reported innovative activity between 2008 and 2010). The structure of different types of innovations for the period from 2014 to 2016 is provided in Table 2 [42, p. 1]. Nevertheless, since the innovation and development

Table 1: Index – Select GCI indicators: Financial Market Development and Innovation Pillars

Select Indicators	2017	2008	Change in rank 2008/2017
Availability of financial services	107	122	15
Affordability of financial services	116	-	-
Financing through local equity market	110	85	25
Ease of access to loans	86	93	7
Venture capital availability	95	85	-10
Soundness of banks	88	110	22
Regulation of securities exchanges	109	105	-4
Legal rights index, 0–10 (best)	49	16	-33
Capacity for innovation	117	92	-25
Quality of scientific research institutions	47	49	2
Company spending on R&D	107	97	-10
University-industry collaboration in R&D	95	62	-33
Availability of scientists and engineers	68	50	-18

Source: [48] and [49].

base in Serbia is lower, these innovations are generally of a more limited scope and quality compared to EU company innovations.

An important factor in fostering entrepreneurship is one of people's attitudes and readiness to engage in an entrepreneurial activity. The World Bank commissioned a survey of the general population's attitudes regarding entrepreneurship, conducted by Ipsos in December 2015. The study found that almost every second unemployed adult in Serbia considers to have what it takes to start a business (this was defined as expertise, funds, perseverance and commitment), and yet just about 30% consider starting a business, while only 8 percent have taken steps to start a business. Insufficient access to finance is noted as the leading impediment to entrepreneurship, followed by market instability and high taxes and charges [27].

These findings can be contrasted to the opinions of the IT industry specialists on the topic, as revealed by the 2015 survey conducted by the Belgrade-based StartIT Centre in partnership with 15 local IT organisations. Out of a total of 1,650 surveyed software developers, 13 percent of them already own a company, and a relatively high 41 percent of those who are not entrepreneurs yet are considering starting their own business, with another 36 percent being open to this idea should a good opportunity arise [40]. This is an important finding, demonstrating a significant increase in the awareness and positive attitudes toward entrepreneurship in Serbia's ICT sector, especially compared to the general population. A high growth of the sector (software exports increased almost twelve-fold, from 62 million in 2007 to 740 million in 2016 [30]) and successful local innovators, such as the gaming company Nordeus or the energy management company DMS-Schneider Electric, contributed to this positive change.

Without adequate funding and liquidity, no business can operate, invest and grow. The financial market in Serbia is underdeveloped. Serbia's financial system continues to be characterised as bank-centred. Public and private equity markets remain shallow. Banking loan services dominate and they tend to be unfavourable due to relatively high interest rates, high collateral demands, inadequate attention to business plans and insufficient availability of long-term loans. This is rooted in high country risk, derived from complicated business environment, inefficient judiciary and relatively frequent political changes. The United States Agency for International Development (USAID) report *Financing the Growth of Small and Medium-sized Enterprises – Critical Issues and Recommendation for Serbia* [44] highlighted access to finance as one of the main challenges for SME growth in Serbia [44]. According to the USAID report [44], 60% of SMEs in Serbia do not use loans from formal sources, but rely on their own resources, which has a limited growth potential. Those that use bank loans, take on average relatively small amounts and seldom use these for investments, especially in R&D activities. A subsequent report by the European Investment Bank, published in late 2016, continues to stress political and economic uncertainty as a limitation to investment loan demand: "Demand for investment loans is limited by the uncertain political and economic climate in the country, with SMEs showing reluctance to take on additional credit to invest in business expansion." Nonetheless, the report also finds financial conditions for loans to have improved over the last three years, though principally targeting larger Serbian SMEs [21].

Availability of government-guaranteed credit lines in Serbia has improved in the recent period, presently including the European Investment Bank (EIB) Apex line for medium-sized enterprises, the Italian Government's

Table 2: Structure of Types of Innovations in Total Innovation Activities of innovators, 2014-2016 (%)

	Product/service innovations	Process innovations	Ongoing or abandoned innovations	Organisational innovations	Marketing innovations
Republic of Serbia	26.9	21.0	14.3	24.2	22.3
Small	25.3	19.0	13.3	22.1	20.3
Medium-sized	33.0	28.9	17.7	31.8	30.3
Large	45.4	41.7	27.7	47.3	40.9

Source: [43, p.1].

credit line for SMEs older than two years, the European Bank for Reconstruction and Development's (EBRD) credit line for SMEs, the German KfW Development Bank's credit line for SMEs, albeit with the Development Fund of the Republic of Serbia as the sole institution offering credit lines for newly founded enterprises. Credit guarantee schemes as an instrument of financing enterprises are generally underdeveloped in Serbia, as are other sources of financing such as leasing and factoring, with limited but highly valued financing provided by AOFI – Serbian Export Credit and Insurance Agency.

Equity instruments, critical for development of new, fast-growing innovative enterprises, are also rare in Serbia. To provide financial support to young innovative enterprises and technology transfer, enabling new technologies to reach the market, the Government of Serbia established the Innovation Fund in 2011. The Fund finances technological innovations by means of mini and matching grants for early-stage, private, micro and small enterprises, support for technology transfer endeavours and grants for research collaboration between private companies and public research organisations. Since 2011, the funding for these projects has mainly derived from the European Union, with technical assistance provided by the World Bank. The Government of Serbia has financed the Innovation Fund operations, and in 2018 it has also supplied budgetary support for awarding mini and matching grants. The Innovation Fund evaluates proposals by using a process that ensures transparency and efficiency [26], which stands in contrast to the Government of Serbia's Development Fund, frequently criticised for non-transparent and inefficient selection and monitoring procedures.

When Serbia is compared to Slovenia and Croatia, countries in the region that also stem from former Yugoslavia but are now EU members, it is notable that unlike in Serbia, most of the innovative start-up funding there comes from venture capital (over 90%). Public sources, including EU donor support, still dominate in Serbia. Furthermore, the magnitude of investments in innovative companies in 2016 was much larger in Slovenia (around EUR 95 million) and in Croatia (little over EUR 15 million), compared to Serbia (EUR 1-5 million) [1]. This finance gap in Serbia can be explained by the lower level of development,

demonstrated both by the GDP gap, but also by specific competitiveness rankings, such as terms of venture capital availability (Serbia ranks as 95th out of 137 countries) or efficiency of corporate boards (85/137 ranking), among other rankings outlined above. According to The Venture Capital & Private Equity Country Attractiveness Index, Slovenia ranked as 50th, while Serbia ranked as 77th of 125 countries, and yet performing better than Croatia, which was ranked as 80th [25].

An important regional initiative is the Western Balkan Enterprise Development and Innovation Facility (WB EDIF), providing financial support to SMEs in the Western Balkans, with a facility aimed at growing companies and implemented by EBRD launched in 2014 and a privately managed venture capital fund initiated in mid-2015 [22]. Enterprise Innovation Fund (ENIF) is dedicated to investments in start-ups, small and medium-sized tech companies in the Western Balkans, implemented through its investment fund vehicle South Central Ventures. Private investment funds (e.g. StartLabs, ICT Hub Venture) and USAID-supported Small Enterprises Assistance Fund (SEAF), the Serbian Business Angels Network (SBAN), Serbian Private Equity Association (SPEA) and the Belgrade Venture Forum, as well as the Belgrade Technology Park and a network of incubators are promoting private equity funding in Serbia with a rising momentum. Interestingly, several Serbian companies are also benefiting from a new form of innovation financing, the Initial Coin Offering (ICO) crowdfunding. Most notably, Game Credits received USD 54 million in the 2017 ICO [50].

Research methodology

As previous empirical studies have demonstrated, equity financing is better suited to finance innovation compared to debt, and we have analysed the state of young innovative enterprises' access to finance in Serbia and how it compares to international findings. Our interest stems from the fact that equity financing in Serbia, especially private equity financing, is not very developed, while there are limitations to traditional access to finance. The assessment was conducted by means of a quantitative and qualitative analysis, employing an online questionnaire as a data-

gathering tool, followed by in-depth interviews. The data were analysed in the context of a wider literature review, as well as in consultation of primary sources and policy documents developed by the European Union and Serbia.

The questionnaire principally relies on the European Commission (EC) and the European Central Bank (ECB) survey on access to finance of SMEs in the European Union. This survey was conducted for the first time in 2009, and then again in 2011 and recently in 2013, across 37 countries, including 28 European Union Member States [18]. The EC questionnaire was modified and tailored to the needs of our research, providing us with comparable data and background on innovative firms and gazelles. A structured questionnaire with closed answers was applied. The questionnaire encompassed three sections of questions, with the first two sections focusing on general characteristics of the firm and firm financing. The third section covers the perspectives and obstacles to company growth.

The target group of respondents included owners/executives of young innovative firms. The characteristics used to identify young, innovative enterprises (YIE) involved the combination of age, size and innovation profile. Innovative companies are defined as those introducing new or significantly improved products, services or processes, a new marketing method or a new organisational method in the business practice. To determine the company's development stage, we followed the EU state aid rules definition where young, innovative enterprises are less than 6 years old. The data set was further defined to include micro and small enterprises with up to 49 employees. The definition that is widely accepted by researchers in this area follows the EU state aid regulations definition, where young innovative companies are defined as small enterprises, less than 6 years old, "certified" by external experts on the basis of a business plan, and capable of developing products or processes which are technologically new or substantially improved and which carry a risk of technological or commercial failure, or have R&D intensity of at least 15% in the last three years or currently (for start-ups). Another related concept used in the literature is the gazelles. These companies are solely defined by their fast growth (more than 20% per year, over a period of three

years), and do not necessarily need to be small, young and innovative. In fact, many of the gazelles are not based on innovations [38]. The questionnaire was distributed electronically to 115 firms that have benefited from the Innovation Fund grants and/or are tenants of business incubators, by employing an online survey tool. A total of 52 respondents, amounting to 45.22% of the response rate, completed the questionnaire which is considered to be representative due to the small market segment targeted in the research, conducted in 2015. Since there is no appropriate database that could provide us with the exact number of young innovative firms in Serbia, we took the approach of engaging the Innovation Fund of the Republic of Serbia and business incubators (via STIPNet – Serbian Technology Incubators and Parks Network), which are key institutions that are providing assistance and hence interacting with active young innovative firms, to facilitate our research. Therefore, our sample size, although relatively limited compared to international surveys, is relevant for the study of the Serbian market, which is representative of a moderately sized transition economy with an emerging innovative sector. In data processing and analysis, descriptive statistics were employed by using the SPSS statistical software package. The results are presented in the form of graphics and tables.

In order for the research to address the second research objective and provide concrete recommendations for policymakers and relevant institutions, which can be significant for improving financing of young innovative enterprises, we also conducted in-depth interviews with 9 leading representatives of institutions relevant to innovation financing – representatives of investment funds, business angels, policymakers, business incubators and the Intellectual Property Office, inquiring on their perspectives on the current state of access to finance for YIE, and, more importantly, any recommendations for relevant policy interventions. The interview was divided into two segments. The first segment featured closed-ended questions, and respondents were asked to express their opinion on the current state on access to finance. The second part of the interview was based on open-ended questions in relation to recommendations for policy interventions to improve access to finance.

Discussion of the survey results

By variable definition of a young innovative enterprise, we derived the following structure of the respondents with regard to their general characteristics – company size (number of employees), sector, duration of operation (age), ownership, and structure (see Table 3).

To conclude, most of the surveyed companies, with the exception of just two respondents, correspond to our definition of young, innovative enterprises and hence the survey results could be deemed valid for this study. They operate in a variety of sectors, but are focused on services.

Besides the general profiling characteristics, we also wanted to determine the type of innovation. According to the OECD definition, “innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method or a new organisational method in business practice, workplace organisation or external relations.” [34, p. 46]. Out of 52 respondents, 80.77% stated to have new or significantly improved product or service, 21.15% to have new or significantly improved process, and 7.69% and 1.92% of respondents stated to have a new marketing method or a new organisational method in their business practice.

When asked if their enterprise is using the services or is otherwise connected to a business incubator, somewhat

over 40% of the respondents responded positively. Indeed, 33.33% of the respondents stated that their business has outgrown the incubation stage and that the company currently has its own premises. The alarming finding is that 57.14% of the respondents who are not housed in business incubators are not aware of how business incubators can support start-up companies.

We also inquired on the most pressing problems that young innovative enterprises are facing while doing business in Serbia. When rated on a 10-point scale, the severity of the problem of “obtaining access to finance” was found to be most pressing (6.68 weighted average score), along with the issues of “market regulation” and “functioning of the public administration” (5.72). Pressing issues that were also deemed very important for doing business by these enterprises include “strong entry barriers and high investments required in marketing and logistics” – 5.44, “finding customers” – 5.81 and “availability of skilled staff or experienced managers – 5.43”. Compared to EU-28 and other 17 countries in the Eurozone research [18] on access to finance for SMEs, the pressing issues differ. Finding customers and lack of skilled workers and managers rate as top two problems in the Eurozone, along with access to finance, which is ranked third. Yet, it is necessary to stress that this report is dedicated to the analysis of all SMEs and not only those that can also be described as

Table 3: General Characteristics of Surveyed Enterprises - Sample

Number of employees	Responses (percentage)	Responses (number)	Age (duration of operation)	Responses (percentage)	Responses (number)
1 – 9	90.30	47	Less than 2 years	44.23	23
10 – 49	9.62	5	2 years or more but less than 6	55.77	29
50 – 249	0	0	6 years or more but less than 10	0	0
250 employees and more	-	-	10 years or more	0	0
Total		52	Total		52
Sector	Responses (percentage)	Responses	Ownership	Responses (percentage)	Responses
Agriculture, forestry and fishing	9.62	5	Shareholders	5.77	3
Manufacturing	3.85	2	Limited liability company (owned by 1 or more persons)	94.23	49
Electricity, gas and water supply	1.92	1	Venture capital firms or business angels	3.85	2
Construction	11.54	6			
Transportation, storage and communications	1.92	1	Total		52
Information and communication technology	38.46	20			
Education	5.77	3			
Professional, scientific and technical activities	23.08	12			
Other services	3.85	2			
Total		52			

Source: Authors' calculations.

innovative, and that these companies are generally at a higher stage of development.

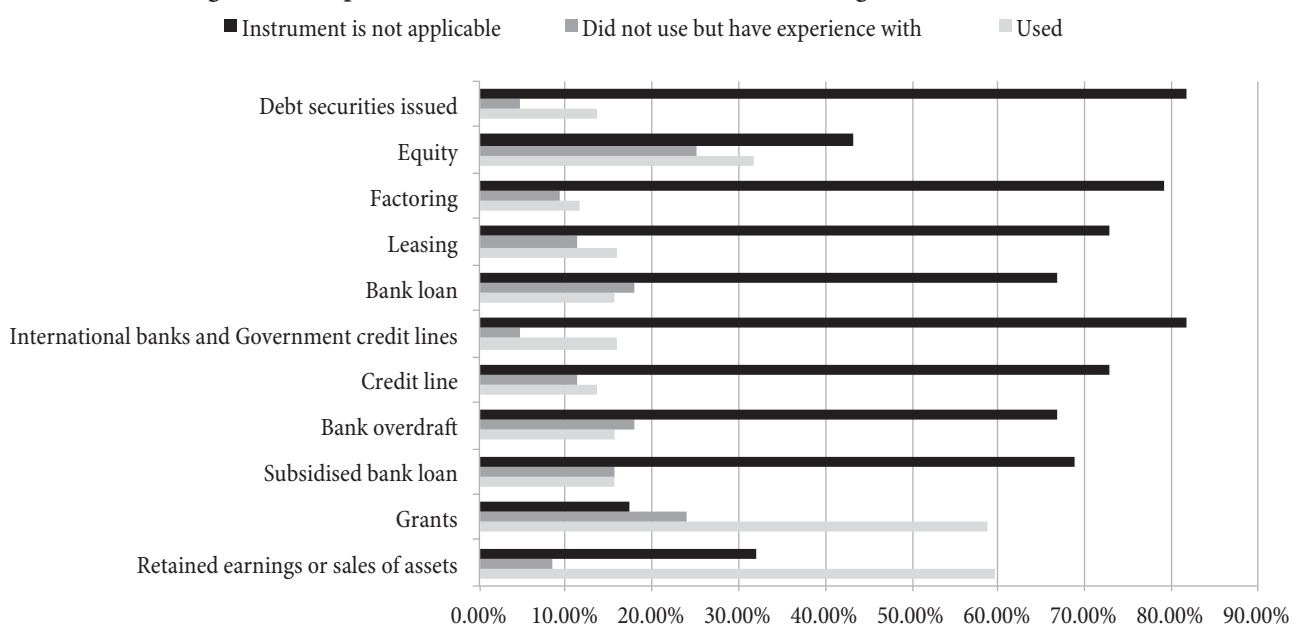
The second section of our questionnaire examines the use of different types of financing, comparing the ease of use of internal funds, debt financing and equity financing. The first subsection assesses the use of various types of external financing during 2014. The second group of questions focuses on companies' experience when applying for external financing. In the final group of questions, we study the level of financing, purpose and source of funding in the past two years. As shown in Figure 1, we found that internal funds were a primary source of financing, used by 59.57% of the respondents. Among other sources of financing, grants were most commonly used (by 58.703% of the respondents). Subsidised bank loans, supported by the Government, were used by 15.56% of the surveyed firms. An interesting and important result is that 31.82% of the firms used equity (including venture capital or business angels) as a way of financing their growth. The rest of the list is as follows: bank overdraft (15.56%), credit lines (15.91%), bank loans (15.56%) and leasing (also 15.91%). It is significant to note that more than 70% of the respondents stated that bank overdrafts, credit lines, credit lines from international banks, leasing and factoring have never been relevant to their firms. This percentage (81.82%) is even higher for securities. Based on these findings, it can be

concluded that young innovative firms are overly reliant on internal sources of financing, and when they do need external financing, they are mostly interested in grants, subsidised bank loans and equity investments, rather than traditional bank financing.

We further inquired whether a need for a specific type of financing increased, remained unchanged or decreased in the past twelve months (see Figure 2). We discovered that the need for many sources of external financing remained unchanged during the last year. However, respondents acknowledged an increased need for grants (25.58%), equity (38.10%) and subsidised bank loan financing (13.33%), which corroborates the findings stemming from the first set of questions. Firms identified investment in research and development (64.44%), inventories and working capital (34.78%) and fixed investments (34.78%) as factors that increased their need for external financing. The ensuing set of questions focused on companies' experience when applying for external financing and on the outcome of the application process.

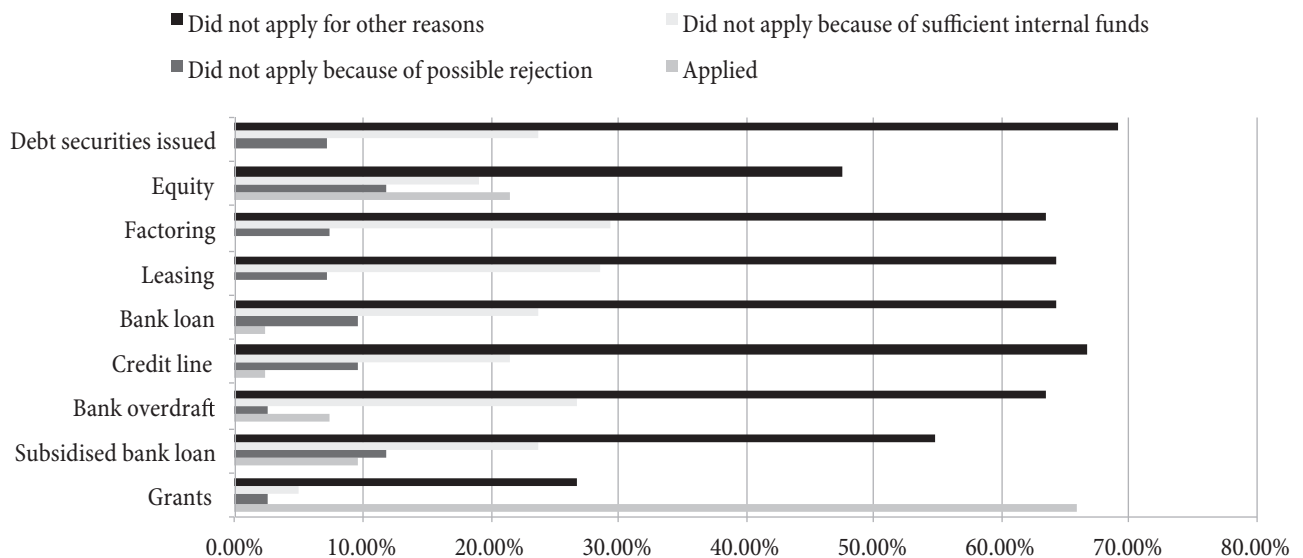
A total of 65.85% of our respondents applied for grants, which could be explained by the data set (respondents recruited in part with the help of the Innovation Fund of the Republic of Serbia that provides grants), but nonetheless should be considered a valid result since the data set is representative of innovative firms in Serbia. Pursuit of

Figure 1: Companies' Use of Internal and External Financing in the Past 12 Months



Source: Authors' calculations.

Figure 2: Types of External Financing for which the Firms applied



Source: Authors' calculations.

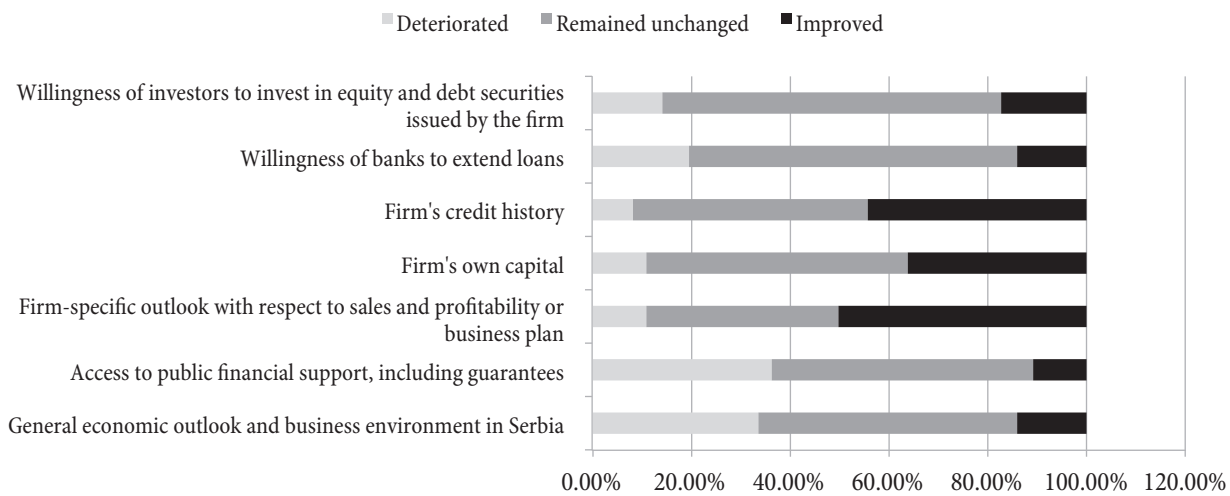
equity capital ranks second, with 21.43%. Third place is held by subsidised bank loans, for which 9.52% of firms applied. The percentage of firms that did not apply out of fear of rejection is not so high. For example, it is 11.90% for subsidised loans, the same for equity financing, 9.52% for bank loans, and 7.14% for leasing. Yet, these results can be viewed as skewed since only the established innovative enterprises were surveyed, with likelihood of apprehension being significantly higher among potential innovators.

If we analyse the outcome of application for external financing, a high 61.29% of the respondents who applied for grants obtained all the funds they requested, and another 19.35% of applicants stated that they have received most of the requested funding (75-99% of the requested funds). A total of 50% of the respondents that asked for a subsidised bank loan received all the funds they requested, and another 33.33% stated to have received most of the funding (between 75% and 99%). 75% of the firms that applied for equity financing obtained the funding they required, with the exception of one firm, which was rejected. Improvement in access to finance was reported for equity investments and grants, while subsidised bank loans were said to be less available (note: the situation has most recently improved).

The study also assessed trends relating to factors that impact the availability of external financing (see Figure 3). More than half of the respondents considered that the general economic outlook and access to public financial

support remained unchanged over the past year (52.78%). Similarly, the majority (66.67% of the respondents) perceive the willingness of banks to extend a loan, and 68.57% perceive the willingness of investors to invest in equity or debt securities, as unchanged. If we analyse the firm-specific outlook, 38.89% of firms are optimistic and see improvements in their firm's specific outlook with respect to sales, profitability or business plan, while a total of 47.22% notice improvements in the firm's credit history. It is generally considered that improvement of these two factors can have positive impact on access to finance.

Investigation of the scope of external sources of financing used by young innovative enterprises in Serbia in the last two years showed that 20.51% did not use any external financing, 12.82% obtained funds in amounts less than EUR 25,000, and 2.56% of the firms obtained between EUR 25,000 and 49,999. The highest percentage of the firms (46.15%) obtained between EUR 50,000 and 99,999, and 15.38% obtained between EUR 100,000 and 249,999. Only 2.56% received funds between EUR 250,000 and 1 million, and no company had received funds exceeding 1 million. It was also valuable to determine the most popular providers of external financing. The highest percentage of the respondents – 55.56%, obtained a grant from the Innovation Fund of the Republic of Serbia, which was an expected result, and since all business incubators were contacted, it also confirms that the Innovation Fund is the key source of financing for innovative start-ups in

Figure 3: Changes in Key Access to Finance Factors

Source: Authors' calculations.

Serbia generally. Private individuals – family or friends are also highly ranked as providers of loans, with 25%. Banks provided loans to 5.56% of respondents, with 13.89% of those who borrowed from other private investors or business angels and from the Government through different financial sources (8.33%). The National Agency for Regional Development of Republic of Serbia conducted a survey called Conditions, Needs and Problems of Small and Medium-sized Enterprises and Entrepreneurs 2013, which covered a sample of 795 micro, 638 small and 150 medium-sized enterprises and 972 sole traders. The results showed that commercial bank loans are indeed the foremost important external source of financing (used by 76% of the surveyed companies), followed by loans from relatives and friends that are ranked second (13%) [32].

The last question concerned the purpose of funds. Firms indicated three main reasons. The first reason why financing was required relates to investment in research and development or intellectual property (77.14%), while the other two reasons are: land/buildings/equipment or vehicles (42.86%) and working capital (22.86%). A significant percentage of firms (28.57%) also used the obtained funds for staff training, which is a very good indicator that firms invest in their human capital.

The third part of the questionnaire explored future expectations of young innovative enterprises. We started with firms' projections of annual turnover and employment for the next three years. In terms of expected annual turnover, 78.95% of the respondents stated to expect to

grow substantially – over 20% per year. Only one of 38 respondents who answered this question stated to expect a reduction in business activity. The rest of the respondents are expecting to grow moderately – below 20% annually. When compared to EU-28 and 17 Eurozone survey, our sample results correspond to the gazelles and innovators sub-sample where high-growth firms are expected to continue to grow (84%) and at a high pace of over 20% (44%). EU innovators are also confident of growth, with almost two thirds expressing that confidence (63%) [18]. The expected growth of employment is also very optimistic, with around 84.62% of firms expecting to hire new full-time employees, the majority of them (61.54%) at a pace of over 20% annual increase. This corresponds to other studies' finding that high-growth firms are job generators for the national economy [33].

Somewhat over 83% of the respondents confirmed that they would need external financing for growth. Most companies (74.19%) are interested in equity investments, while every fourth respondent is interested in obtaining the required financing from banks. Every seventh respondent is interested in credit financing from sources other than banks (e.g. trade credit, public sources, related company). This is in line with the finding that “lenders are less interested in the value of the businesses they are lending to, and more concerned with cash flow and ability to repay the loan, they are unlikely to finance innovative activities” [37, p. 4]. Young innovative enterprises are aware of this and looking for alternative sources of debt financing.

The amount of financing that young innovative firms are hoping to obtain stands between €250,000 and €1 million for 29.41% of the respondents, and between €100,000 and €249,999 for the same percentage of respondents. Others are more interested in smaller amounts of financing, except for two respondents needing over €1 million to finance growth.

The three largest obstacles to external financing identified by the surveyed young innovative enterprises are the following: inadequate banking credit services with high collateral demands (reported by 24.14% of the companies), high interest rates and insufficient collateral or guarantee (the latter two obstacles reported by somewhat more than 20% respondents). Our survey deduces that the portion of firms finding no obstacles to obtaining financing (24.14%) pertains to those interested in equity investments to finance their R&D activities and staff training. Several respondents provided additional comments, explaining that an important obstacle to their financing lies in “the lack of access to foreign investments, low VC and business angel investments,” as well as “the lack of strategic determination of the country to promote innovation as the key source of competitiveness”.

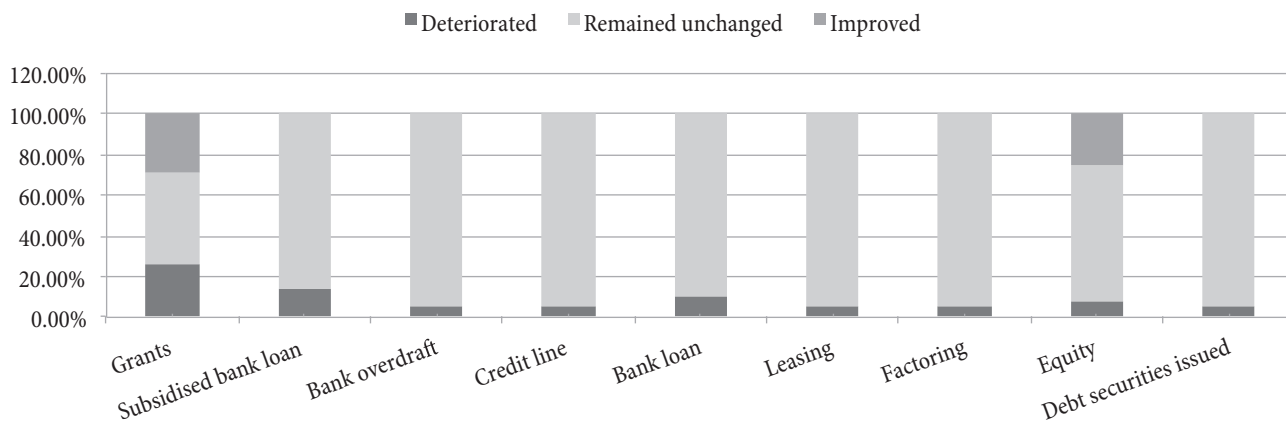
Our in-depth interviews with the relevant stakeholders reinforced the findings from the company survey. When asked about the pressing problems that young innovative enterprises are facing while doing business in Serbia, rated on a 10-point scale, the severity of the problem of “obtaining access to finance” was found to be the most pressing (6.68 average weighted score). This coincides with the enterprises’ view of this matter. Less pressing, though

still relevant concerns, are issues of “product/market fit” (5.81), “market regulation” (5.72), and “the strong entry barriers” (5.44). When asked to select the most useful source of external financing for YIE, the vast majority of respondents indicated equity financing as the most beneficial (74.19%), ranking bank loans as the second, but far less desirable option (nearly 26% of the respondents). In terms of the observed changes in access to different sources of financing, respondents generally agree that there has been no improvement in the last year. As shown in Figure 4, availability of different sources of financing remained unchanged or deteriorated in the past twelve months. This is mainly due to the unfavourable general economic outlook, which projects further stagnation in growth.

Nikola Stefanović, General Director of USAID-supported Small Enterprise Assistance Funds - SEAF in Serbia, succinctly described the state of innovation financing in Serbia:

“In order to support the growth of innovative enterprises, the Government should build an appropriate economic system. The system would nurture innovative enterprises, and the companies would develop as a result of the system, not in spite of it. When building the necessary pillars of this economic system, the Government would need to pay specific attention to access to finance. As the first step, it would need to develop sources of financing that would accelerate growth of innovative enterprises, such as: (research) grants, business angels, crowdfunding, and venture capital. Then, as the second step, the Government would need to focus on developing

Figure 4: Changes in Availability of Different Sources of Financing



Source: Authors’ calculations.

stable and sustainable capital markets (both equity and debt), which would provide support not only to innovative companies, but also to all other companies in the country.”

Other leading experts we interviewed generally concur with this viewpoint, with several emphasising the business-enabling environment or legal framework as a key precondition to improving access to finance for innovative companies, and businesses in general. Furthermore, promotion of the importance of innovative entrepreneurship in Serbia is critical since there is generally low awareness of possibilities for entrepreneurship and a relatively weak entrepreneurial spirit, with most of the young, educated people aspiring to get “safe employment in the public sector” [9]. Due to limited financial support from the Government, our respondents generally recommend that private or public-private based initiatives should be supported and promoted.

Aleksandar Čabrilo, co-founder of SBAN - Serbian Business Angels Network, further identified tax incentives for innovative enterprises and investors as a means to create an improved access to finance environment for innovative entrepreneurship in Serbia. He also suggested additional Government interventions, such as:

“Opening co-investment funds with private investors (‘matching grants’) that would match every investment a private investor makes in SMEs in the early stages of development in the areas of interest (high-tech, IT, fast-growing companies).”

These, according to Čabrilo, could be grants or “soft” loans, which would be returned to the fund with a certain interest on income by SMEs, should it succeed in commercialising the developed product.

Conclusions

Access to finance has been identified as a crucial challenge for young innovative firms, especially in a country in transition such as Serbia, with an underdeveloped, bank-dominant financial market. Moreover, the available credit services are generally unfavourable due to high country risk, stemming from complicated business procedures, inefficient judiciary and generally weak rule of law.

Our results suggest that young innovative enterprises in Serbia, i.e. those younger than 6 years, usually of micro and small size, and those introducing new or significantly improved product, services or process, a new marketing method or a new organisational method in their business practice – are overly reliant on internal sources of financing, and when they need external financing, they are mostly interested in grants (including co-financing), subsidised bank loans and equity investments, rather than traditional bank financing. When applying for these sources of financing, they tend to be successful, although this conclusion is also influenced by our sample (companies that have been selected by the Innovation Fund of the Government of Serbia and tenants of predominantly technological business incubators).

These results support other international studies demonstrating that equity financing is better suited to finance early innovation compared to debt, and that subsidised government programmes are required to bridge the gap to equity and venture capital financing [24], [36]. As advocated by a number of researchers [29], [38], a reform of the financial market is required to enable support for innovative firms and commercial innovation. The conducted stakeholder interviews also confirm this finding.

Empirical results of our study affirm that the severity of the problem of “obtaining access to finance” is the most pressing for young innovative enterprises, along with the issue of “market regulation” and the “functioning of the public administration”. Although young innovative enterprises are mostly reliant on internal sources of financing (59.57% of the respondents), when requiring external financing, they tend to apply for grants (58.70%), equity financing (31.82%) and subsidised bank loans (15.56%). Debt financing involving bank financing instruments is perceived to be far less attractive due to unfavourable conditions of financing (relatively high interest rates and collateral demands), including strict banking conditions and procedures for loan approval. This is supported by our survey results, where 65.85% of the enterprises state to have applied for grants, in contrast to 21.6% applying for any kind of bank loan in the past twelve months, including those subsidised by the state.

Future prospects are optimistic for young innovative enterprises in Serbia, since 78.95% of the respondents expect to grow by more than 20% annually in the next three years in terms of expected annual turnover, and 61.54% in terms of employment of new full-time employees. This growth is expected to require the support of external financing, and our wider secondary research supports this finding. In this respect, improved SME bank financing instruments, better suited to meet the needs of these enterprises, as well as alternative sources of financing such as equity financing, need to be made available. The former may be resolved by improving banking regulations, as well as by further investment of commercial banks in expertise in business plan valuation that could ease high collateral demands. Our recommendations are aligned with Beck et al. [6] and Bolton et al. [8], deducing that during economic downturns banks should act like relationship lenders – more oriented towards developing long-term lending relationships with SMEs and gathering inside information about companies to assess lending to relatively opaque borrowers.

Our second recommendation relates to the improvement of microfinance instruments, both by facilitating the adoption of the relevant legislation and providing SME training. Third, bank loans and export guarantees, rather than public development banks should be the sole financial market intervention by the state, especially considering the criticism of the Serbia Development Fund operations. Well-designed grants such as those administered by the Innovation Fund still play a vital role in supporting early innovation, as demonstrated by the continued high application rate. Fourth, as underscored by the relevant stakeholders, new sources of financing, which would accelerate growth of innovative enterprises, such as: (research) grants, business angels, crowdfunding, and venture capital, should be fostered. Venture capital financing in particular could be encouraged by using the SME support services provided by the public sector, such as development agencies, to build a pipeline of potential investment projects and train companies in technological readiness. Education reform centred on promoting entrepreneurship and commercialisation of innovation will also play a role in the midterm, especially if leveraged against wider European initiatives such as those led by

the European Institute for Innovation and Technology - EIT. Finally, the wider business climate, and rule of law specifically, should be improved to reduce the cost of finance across the available financial instruments.

Note

1. A total of 9 in-depth interviews were held with the following stakeholders: Nikola Stefanović, General Director of USAID-supported Small Enterprise Assistance Funds - SEAF in Serbia, Aleksandra Drecun, the-then Director of the Centre for the Promotion of Science of the Republic of Serbia, Kosta Andrić, Managing Partner of ICT Hub, Đorđe Ćelić, Director of the Business Incubator Novi Sad, Gordana Danilović Grković, Acting Director at Science Technology Park Belgrade, Nikola Radovanović, Member of the Education and Information Centre at the Intellectual Property Office of the Republic of Serbia, Aleksandar Čabrilo, co-founder of SBAN - Serbian Business Angels Network, Katarina Jovanović-Obradović, Assistant Minister in charge of the SME sector and competitiveness at the Government of Serbia's Ministry of Economy, and Natalija Sandić, Programme Director at the Innovation Fund of the Republic of Serbia.

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