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INNOVATION-DRIVEN ECONOMY AND SERBIA*

Inovacijama vođena privreda i Srbija

Nebojša Savić
Metropolitan University
FEFA Faculty
Belgrade

Goran Pitić
Metropolitan University
FEFA Faculty
Belgrade

Jelisaveta Lazarević
CEVES
Metropolitan University
FEFA Faculty
Belgrade

Abstract

The economic strategies aimed at improving the competitiveness of the economy currently also include the creation of systems for supporting the development of innovations and innovation-related activities. Support to the development of innovations is encouraged by the formation of an efficient innovation ecosystem. In this paper, we attempt to present the state of the innovation ecosystem in Serbia. By analyzing each of its segments and building on the conclusions drawn from the survey results, we point to the importance of specified fields and their role in the creation of competitive innovation ecosystems. We present the main results of the survey conducted among high-tech IT companies, which have contributed to the presentation of the current state of Serbia's ecosystem. Bearing in mind that innovativeness is becoming the most significant component of competitive advantage, it is crucial to improve educational and research and development institutions, related infrastructure, as well as the government's involvement at all levels with the aim of supporting the abovementioned issue. In this context, it is also important to ensure the connections of companies with external institutions, accessibility of high-quality personnel, and finance, better protection of intellectual property rights, creation of an entrepreneurial culture among experts and research and development institutions, as well as the level of internationalization and access to the global market.

Key words: *innovations, competitiveness, Canvas matrix, innovation-driven, Serbia*

Sažetak

Ekonomske strategije koje za cilj imaju unapređenje konkurentnosti privrede, u aktuelnom trenutku u svoje programe uključuju i stvaranje sistema podrške razvoju inovacija i inovacionih aktivnosti. Podrška razvoju inovacija podstiče se formiranjem efikasnog inovacionog ekosistema. U ovom radu pokušaćemo da prikažemo stanje inovacionog ekosistema u Srbiji. Analizirajući svaki njegov segment i nadovezujući se na zaključke iz sprovedene ankete, ukazujemo na važnost pojedinih polja i njihovu ulogu u stvaranju konkurentnih inovacionih ekosistema. Predstavljamo glavne rezultate nalaza ankete sprovedene među visokotehnološkim IT kompanijama koji su doprineli oslikavanju trenutnog stanja ekosistema u Srbiji. Imajući u vidu to da najznačajniji elemenat konkurentske prednosti postaje inovativnost, od krucijalne je važnosti unapređenje obrazovnih, istraživačko-razvojnih institucija, infrastrukture i angažovanje države na svim nivoima u cilju podrške ovim procesima. Pored toga, ključnu važnost u postizanju ovog cilja ima i povezivanje kompanija sa eksternim institucijama, dostupnost kvalitetnih kadrova i finansija, unapređenje zaštite prava intelektulane svojine, stvaranje preduzetničke kulture među stručnjacima i istraživačko-razvojnim institucijama, i nivo internacionalizacije i pristup globalnom tržištu.

Ključne reči: *inovacije, konkurentnost, Canvas matrix, inovacijama vođena privreda, Srbija*

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Introduction

Innovativeness is one of the most important drivers and indicators of a country's competitiveness. Innovations are now present in all segments of the economy, from traditional to the most advanced, from agriculture, through medicine and pharmacy, to nanotechnologies, etc. The essence of modern development lies in the creation of innovation ecosystems, which are comprised of stakeholders who are interested in taking an active part in the realization of projects, including demand conditions, quality of education, access to finance, the number of granted patents and the like [11]. Furthermore, just the development of innovation ecosystems is a precondition for *boosting the economy*.

This paper is structured in the following way. In the first section, we present a review of the literature devoted to the innovativeness and competitiveness of the economy. In the second section, we analyze the state of the national competitiveness of the economy applying the New Global Competitiveness Index (NGCI). Thereafter, we analyze the state of the innovation ecosystem in Serbia on the basis of the Canvas matrix and the results of the survey conducted among high-tech IT companies in Serbia. In conclusion, we give our recommendations for improving the innovation ecosystem in Serbia.

Literature review

Successful economic development is the process of successive upgrading and sequencing of stages with a different set of economic challenges. These stages differ just according to the character of competitive advantages. The concept of achieving competitive advantage goes back to Alfred Marshall [8], and in modern economic science is primarily linked to Michael Porter [12, pp. 543-573]. According to Porter, economic development is essentially the process of creating competitive advantages aimed at generating the most productive segments of the economy which support fast productivity growth. According to Porter [12, pp. 543-573], in the process of boosting prosperity (GDPpc PPP growth), which is based on an increase in productivity, countries undergo three stages depending on the sources from which competitive advantages are derived: factor-driven stage, investment-driven stage, and innovation-driven stage.

At the factor-driven stage, as the initial stage, almost all successful firms base their competitive advantage only on the endowments of labor and natural resources. At this stage, relatively low wages are a logical outcome. Considered through the Porter diamond [13, pp. 188-194], such economies achieve some competitive advantages only in one of four diamond components – factor conditions. Such a choice of the sources of competitive advantages represents sharp development restrictions. In those frameworks, firms can compete only on the price dimension, including small-scale production and relatively cheap imported technologies. In a technological sense, some imitation or acquisition based on FDI inflows may sometimes emerge. Under such circumstances, foreign partners can ensure access to foreign markets, while domestic demand is modest or even nonexistent.

The economies stuck in this position are very sensitive to the global economic cycles and fluctuations in the world prices of primary products and, in particular, foreign exchange fluctuations, because just these elements hide the key drivers of demand and relative price movements.

Although at this stage of competitiveness development the possession of abundant natural resources can be the temporary mainstay of sustainable productivity growth, factor-driven economies are characterized by a poor basis for the achievement of sustainable productivity growth, because the exhaustion of one factor is followed by the loss of competitive advantage. If competitive advantage is based on endowments, that is, inherited natural resources and available workforce, prosperity will be slow-paced, while salaries will remain relatively low.

At the investment-driven stage, competitive advantage is based on efficiency in the production of standard products and services; it is necessary to create the best possible conditions for attracting investments, especially those including modern technologies. It is the question of more complex products and technologies which include foreign licenses, joint ventures and the like, and enable competing in more sophisticated industries as well. The crucial characteristic of the investment-driven stage is the ability of a country to absorb and upgrade foreign

technologies. Firms and the government are concentrated on new investments with a view to upgrading the factors from the basic to more advanced ones, coupled with the modernization of infrastructure. At the same time, it is necessary to raise the educational level of the nation, increase the number of technical personnel trained to manage sophisticated facilities and assimilate and improve technology. Firms succeed in establishing international marketing channels and direct contact with buyers. Strong initiatives for cluster formation also emerge. Competitive advantages are derived not only from the improvement of factor conditions but also from upgraded firm strategies, structure, and rivalry. In this case, firms always retain advantages over the basic factor costs, while at the same time expanding their competitive advantage by including the more advanced factors associated with university-trained engineers, educational and research institutions and the like.

Although in this case the competitive advantage is derived from one's investment ability, from which competitive advantages are derived, there is still no ability to offer unique products; firms still compete in the relatively standardized and price-sensitive market segment.

At the investment-driven stage, domestic demand is still not sophisticated, because the standard of living is still modest, despite being on the upward path. The dominant source of competitive advantages at this stage lies in the efficient production of standard products and services, based on a strong emphasis on manufacturing and outsourcing.

This stage is characterized by a rapid increase in employment, salaries and factor costs. The competitive position in the most price-sensitive industries vanishes. The economy becomes less vulnerable to global shocks and exchange rate movements than at the factor-driven stage, but still remains fragile. The success at this stage depends on whether there is a social consensus in favor of investments and long-term economic development, while at the same time cutting current spending.

At the innovation-driven stage, the source of the competitive position is linked to the production of innovative products and services on the global technology frontier using the most advanced methods. All four components of the Porter diamond must be developed and in interaction. There are more and more domestic firms competing at the global level, while the economy is characterized by strongly developed clusters. Consumer demand is becoming increasingly more meaningful because earnings are also increasing; the level of educational attainment is significantly increasing and enhancing rivalry in the domestic market. The competitive power of firms is strengthening, while industry clients are becoming increasingly sophisticated. New entrants are enhancing domestic rivalry by accelerating improvements and innovativeness. In important clusters, supporting industries are developing at the world level. New competitive industries are created from related industries.

Innovativeness is becoming the most important element of competitive advantage. Upgrading existing universities, research capacity and infrastructure is of greatest significance. New mechanisms create advanced and specialized factors that are continuously upgraded. The diamond of such industries becomes self-reinforcing, as is done by all clusters.

This stage is called innovation-driven because firms not only appropriate and improve the technology and methods of foreign firms, but also create them. The leading firms in such economies become state-of-the-art in product and process technology, marketing and other competition aspects. Favorable demand conditions, supplier base, specialized factors and the presence of supporting and related industries in the economy enable firms to innovate. Innovation capacities open spaces for new industries.

The dominant source of competitive advantage is the ability of an economy to produce innovative goods and services at the global technological frontier using the most advanced methods. The clusters here are a basis for generating competitiveness; companies compete with unique strategies and make abundant investments in skills, state-of-the-art technology, and innovation capacities.

At this stage, firms compete in more differentiated industry segments. They continue to compete on cost where this depends not on factor costs, but on productivity due to high skill levels and advanced technology. At the same time, price-sensitive and less sophisticated segments are being gradually surrendered to foreign firms.

At the innovation-driven stage, firms are most resistant to macroeconomic fluctuations and exogenous events, especially if they succeed in developing strong clusters. Such an economy is less vulnerable to external shocks and foreign exchange movements, because they compete on the basis of technology and differentiation.

The described model of stages of competitive advantages enables the correct setting of the transition points of upgrading the competitiveness of every country.

There remain numerous incomplete factor condition components, primarily those relating to the development of logistic and administrative infrastructure, which represents both a heavy legacy and an obstacle to exponential growth. In order to successfully round off Serbia's current state of competitiveness development, it is crucial to raise the level of factor conditions constituting the Porter diamond to the highest efficiency level, and significantly intensify the context for firm strategy and rivalry, primarily by reducing market monopolization, that is, strengthening rivalry and corporate structure.

However, one must bear in mind that Serbia also has the accessible islands of excellence, which represent modest yet promising achievements for the transition to the innovation-driven economy in the future, once the necessary conditions are fulfilled. The strengthening of these mainstays and the expansion of innovation zones are of utmost importance for success in this area.

The Competitiveness of Serbia

By applying the method for calculating NGCI – New Global Competitiveness Index [1] to the competitiveness rankings achieved by Serbia in 2017 according to the Global Competitiveness Report [27], we analyzed Serbia's competitive position in 2017; its competitive position in the earlier periods was analyzed in N. Savić [14], while the comparative analysis of Serbia's position relative to the countries of Central and Southeast Europe can be found in Nebojša Savić, Goran Pitić and Snežana Konjikušić [15, pp. 36-48] and [16, pp. 264-280].

In 2017, Serbia essentially improved its competitiveness ranking – it ranked 78th (in 2013, it ranked 101st). Despite this improvement, which certainly is a good tendency, other ranks are less favorable than the rank achieved by Serbia in terms of GDPpc PPP (it ranked 75th out of 144 countries). This difference between the competitiveness ranks and the rank based on GDPpc PPP shows that Serbia is unable to make productive use of available resources. The reasons lie in the fact that Serbia generates much more competitive disadvantages relative to competitive advantages.

By analyzing the NGCI for 2017 in terms of the determinants of competitiveness, we found out:

- that the microeconomic determinant of competitiveness is still in the zone of competitive disadvantages (rank 87);
- that within the microeconomic determinants of competitiveness there are competitive disadvantages in company operations and strategy (94), and modest disadvantages in the subindex National Business Environment – the Porter diamond of the Serbian economy (85);
- that within the four components of the Porter diamond, Serbia has competitive neutrality only in one part of factor conditions (79), and that it has competitive disadvantages in all three remaining components: context for strategy and rivalry (rank 93), supporting and related industries (rank 92) and demand conditions (rank 117); this means that Serbia has no competitive advantage in any of the four components of the Porter diamond, and
- within factor conditions whose rank is neutral (79), Serbia achieved competitive advantages in communications (60) and administrative infrastructure (68), competitive disadvantages in capital market infrastructure (94) and logistic infrastructure (88), and competitive neutrality in innovation infrastructure (78).

Since the issue of innovation infrastructure is very important for this paper, it should be noted that behind this neutral position according to the WEF data (rank 78), competitive advantages in skills (63) and competitive disadvantages in innovations (88) are hidden. Behind these two subindices, both competitive advantages and disadvantages are hidden. This will be illustrated with the following examples: we achieve competitive advantages

in the quality of math and science education (29), tertiary education enrolment (45), quality of scientific research institutions (47) and PCT utility patents (50). At the same time, we have dramatic competitive disadvantages in country capacity to retain talents (134), country capacity to attract talents (132), university-industry collaboration in R&D (95) and quality of educational system (93).

It has been empirically determined that Serbia is at the investment-driven stage, but in its lower segment. There are still many incomplete components in factor conditions, primarily those relating to the development of logistic and administrative infrastructure, which represents a heavy legacy and an obstacle to accelerated growth. In order to successfully complete the investment-driven stage, it is necessary to eliminate disadvantages in factor conditions as soon as possible, while at the same time improving the other two components of the Porter diamond – context for strategy and rivalry (by reducing market monopolization and enhancing rivalry and corporate structure), and demand conditions (primarily consumer protection).

Despite such a relatively low level at this stage of development, Serbia has the islands of excellence, which represent modest yet promising achievements for the transition to the innovation-driven stage in the future, when the relevant conditions are fulfilled. The strengthening of these mainstays and expansion of innovation zones are of utmost importance for success in this area.

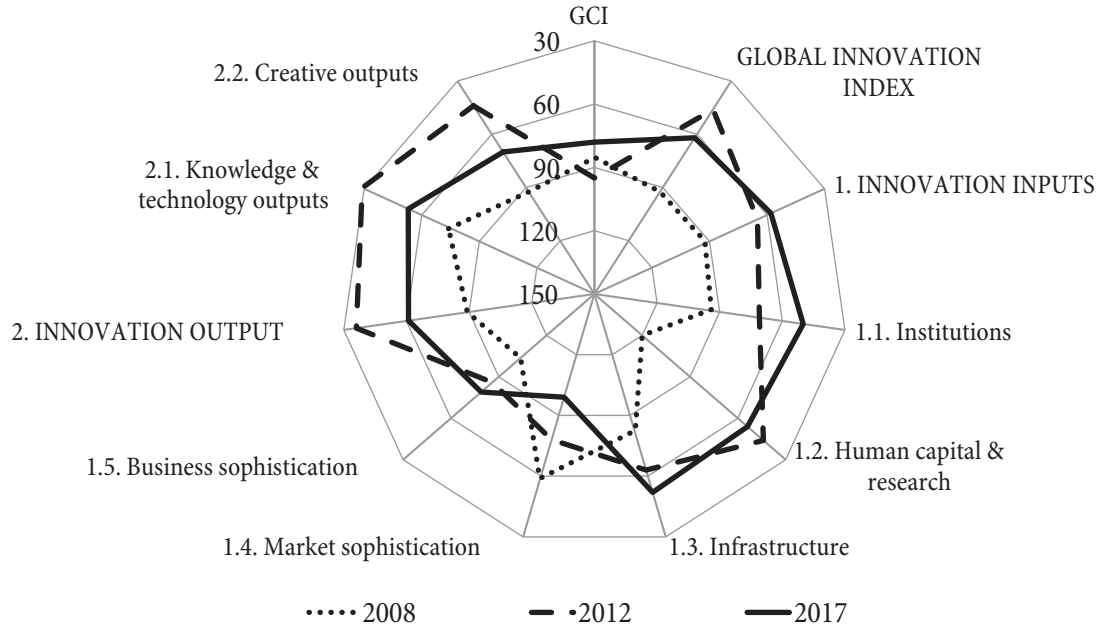
There are still incomplete components in factor conditions, primarily those relating to the development of logistic and administrative structure, which represents a heavy legacy and an obstacle to exponential growth. In order to successfully round off the competitiveness development stage in Serbia, it is crucial to raise the factor conditions from the Porter diamond to the highest efficiency level, significantly intensify the context for firm strategy and rivalry, primarily by reducing market monopolization or, in other words, by strengthening rivalry and corporate structure.

This is clearly shown in Figure 1: there are important advantages in innovation inputs, but there are also disadvantages in creative outputs.

Innovation ecosystem and Canvas matrix

In continuation we will assess the quality of the conditions in the innovation ecosystem using the CANVAS matrix of the innovation ecosystem, based on the ITU methodology [7, p. 19], which enables us to gain insight in the situation in the market, market needs and necessary collaborative

Figure 1: Global Innovation Index (GII)



Source: [27].

processes among market participants in order to establish the ecosystem that will support the development of innovations. In addition, the ecosystem quality was also assessed on the basis of the results of the survey conducted among 18 high-tech IT companies whose outputs include innovative products and solutions[1]. The questionnaire is given in the annex in this paper. The aim of the survey was to determine the basic mainstays of these firms in the development of innovativeness and then identify the bottlenecks that should be eliminated.

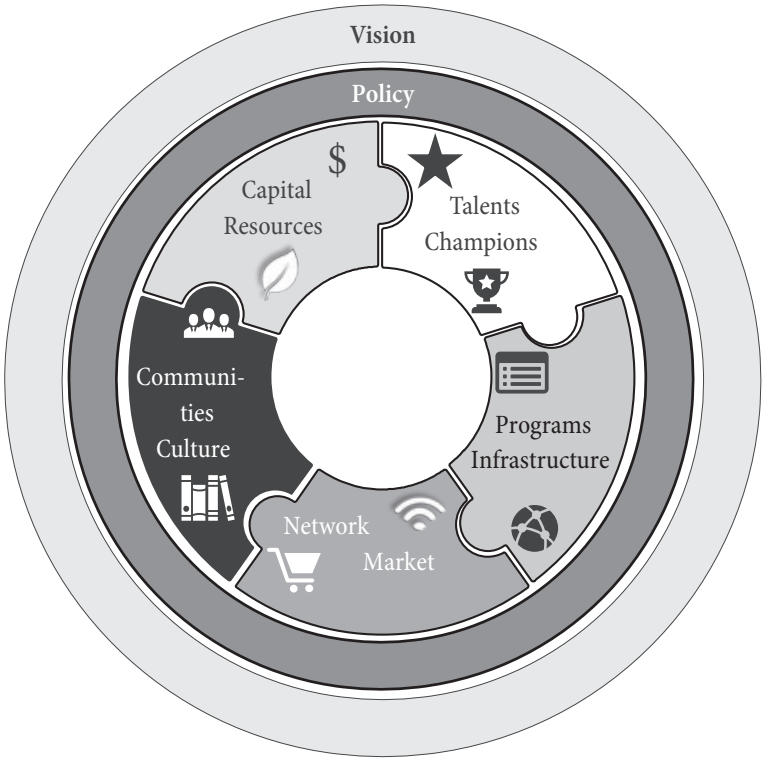
James F. Moore [10] defined the business ecosystem as an economic community supported by a foundation of interacting organizations and individuals – the organisms of the business world. The economic community produces goods and services of value to customers, who are themselves members of the ecosystem. The member organisms also include suppliers, lead producers, competitors, and other stakeholders. Those companies holding leadership roles may change over time, but the function of ecosystem leader is valued by the community because it enables members to move toward shared visions to align their investments and to find mutually supportive roles.

Figure 2 shows the determinants of efficiency in the innovation ecosystem matrix: capital and resources, talents and champions, infrastructure and support programs, market and support networks, culture and communities, policy and regulations, visions and strategy.

According to the ITU methodology, the participants in the innovation ecosystem are: (i) the state sector with a great number of government institutions, (ii) entrepreneurs, whose business model is based on the creation of innovative solutions, (iii) educational and research and development institutions, which contribute to the development of human capital and research in the innovation ecosystem, (iv) support measures, which provide specialized services and expert innovation support, including incubators, accelerators, business associations and mentors, (v) private sector, and (vi) financial institutions, which include banks, seed funds, investors and others who finance innovations in the ecosystem. The description of the role of individual stakeholders and the efficiency of the Serbian ecosystem were obtained on the basis of an analysis of the survey results. Most surveyed companies are domestically owned.

1 The FEFA survey was conducted thanks to the Startit Centre and SAM - Serbian Association of Managers, whose support was of great importance.

Figure 2: Innovation ecosystem and Canvas matrix



Source: Adapted by authors based on ITU-D Innovation.

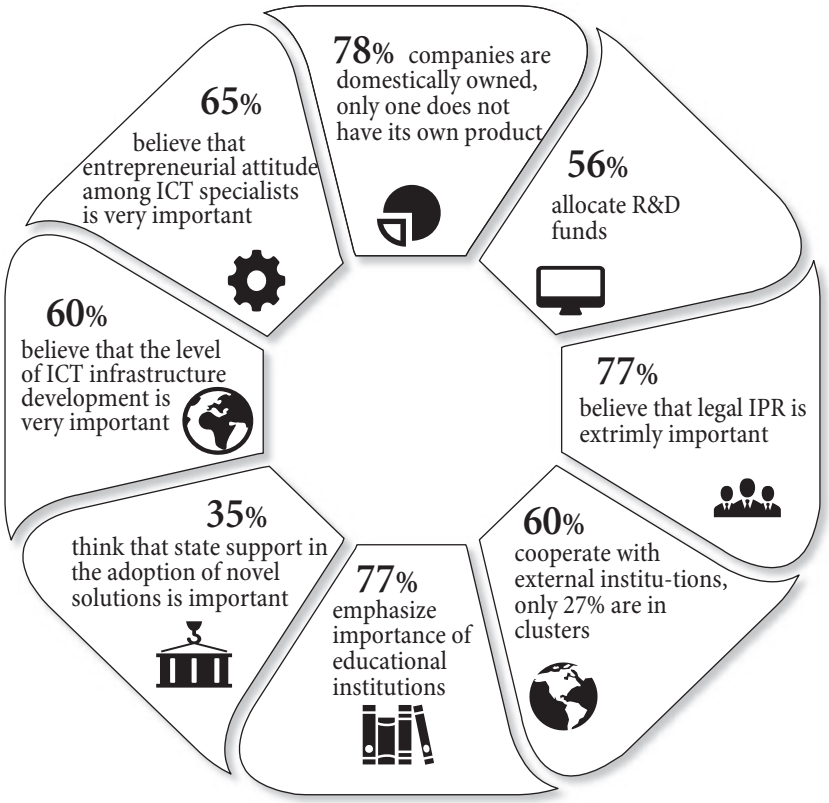
The greatest importance to the development of innovations is attached by the surveyed companies to the role of both the private and public sectors in the gradual and committed building of the innovation ecosystem. At the same time, they consider the availability of personnel, allocation of funds for research and development, and development of entrepreneurial culture as an important component of development.

Visions and strategies. The vision and strategies of support are necessary for forming the knowledge and expectations of all stakeholders concerning the lines of development. In Serbia, initiatives are being launched to support the development and establishment of an efficient ecosystem. The Digital Serbia Initiative is conducted by a group of leading IT companies with a view to building and strengthening of all parts of an efficient and digital high-tech innovation ecosystem.

The state adopted the Strategy for e-Government Development [21, p. 1] that was expected to spur the development of information society at all levels. The significance of its role in the implementation of this strategy was also confirmed by the survey results. In fact, 44% of all surveyed firms hold that the state initiative for raising awareness about digitization development is important for market transformation. Serbia also adopted the Strategy for the Development of Information Technology Industry for the Period 2017-2020 [20, p. 1] with a view to spurring the development of this sector. Bearing in mind the importance of educational and R&D institutions in the process of creating an innovation ecosystem, the Strategy for the Scientific and Technological Development of the Republic of Serbia for the Period 2016-2010 – Research for Innovation was also adopted [22, p. 1]. This Strategy anticipates the measures and programs for raising excellence in science and research, thus improving the economy. Although these initiatives exist, it is also necessary to implement them in such a way as to maximize the value for all interested parties in the innovation ecosystem.

Infrastructure and support programs. Innovation infrastructure is an important component of the development of an efficient ecosystem, which was also confirmed by about 60% surveyed companies. One significant

Figure 3: FEFA survey results



Source: FEFA survey, 2018.

innovation support program, which is initiated by the state is the Innovation Fund. It encourages the formation of new companies and the development of existing ones, promotes the transfer of technology from the academic to the commercial sector, and provides financial support to innovative projects, which are jointly developed by scientific research institutions and SMEs. In addition to the Innovation Fund, transfer of knowledge, development of new technologies and innovation commercialization in the partnership of the Government, University of Belgrade and City of Belgrade, there is also the Science-Technology Park in Belgrade.

Apart from "hard" infrastructure in Serbia, there is also "soft" infrastructure. Thanks to the existence of isolated islands of excellence, "soft" infrastructure was emerging parallel to it. Such infrastructure supports the development of innovations and start-ups in Serbia. It has also been supported by hubs, garages, accelerators, training and mentoring programs with the aim of upholding innovative ideas, from formation to implementation, development, and commercialization. Such initiatives empower the start-up community. According to the survey, companies agree that the initiatives launched in the previous period were of utmost importance for support to innovations and the start-up community.

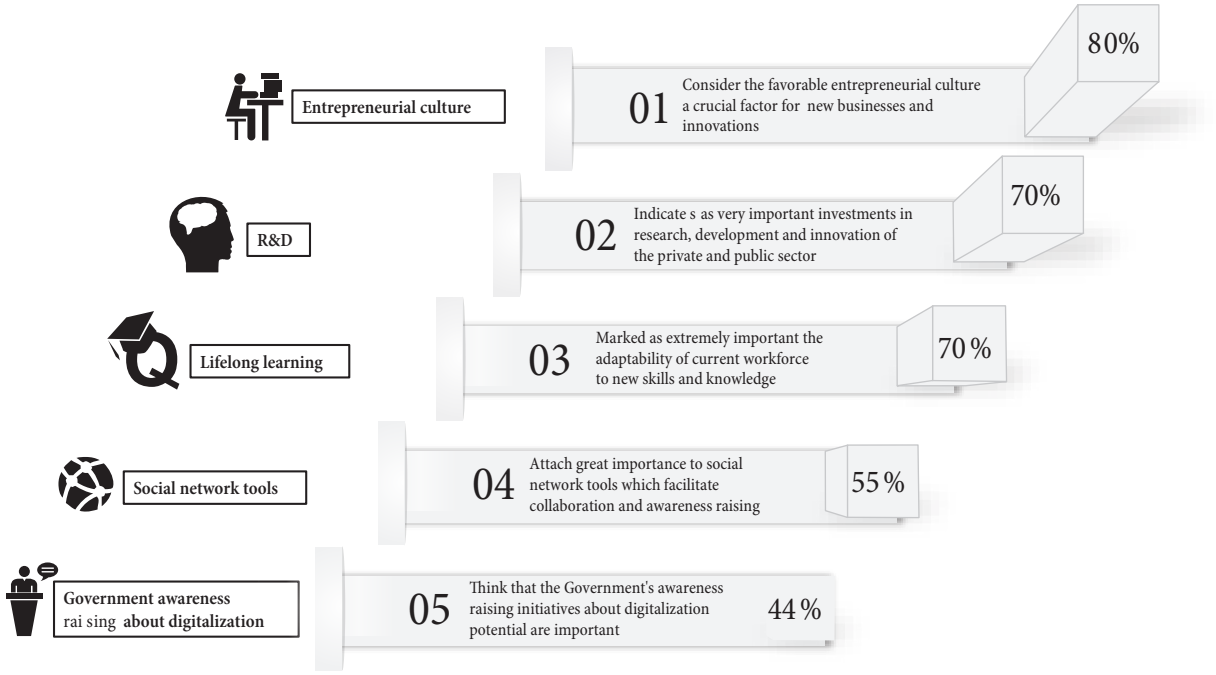
Regulations and policies. Regulation frameworks and policies are important components, which contribute to the efficiency of an innovation ecosystem. According to the Doing Business report published by the World Bank, Serbia significantly improved its ranking in 2017, and now ranks 43rd. Although the situation improved in most areas and remained unchanged in some of them, there is still room for improving the efficiency of the business environment. One such area is tax payment. According to NALED's research [3, p. 6], fiscal and parafiscal burdens pose one of the major obstacles to starting a business. According to the WEF, this also includes access to finance, complicated bureaucratic procedures and corruption. In order to empower the innovation ecosystem, it is necessary to improve the protection of intellectual property rights. More than 70% of surveyed companies hold that this kind of security is extremely important for encouraging innovativeness. It is assumed that research and development investments would also be increased (at present, half of the surveyed companies does not earmark funds for those purposes).

Talents and champions. According to the Human Development Index (HDI), Serbia ranks 66th in the world. In the region, it only ranks better than Albania and FYR Macedonia [26, p. 199]. The ability of the country to retain or attract talent is at an extremely low level. According to the indicators, Serbia was ranked above the 130th place in the group of 137 countries. Human capital provides an important basis for the development of innovative ideas and products. It is also one of the crucial drivers of the development of an innovation system. This has also been confirmed by our survey – about 90% of surveyed companies hold that the accessibility of personnel with necessary technical and creative skills is the crucial factor of knowledge and skills. At the same time, nearly 80% of surveyed companies hold that the accessibility of educational institutions provides a basis for learning knowledge and skills that are of utmost importance for the emerging sectors.

Capital. More than 75% of companies hold that access to public financing represents important support for the growth of companies. Equal importance is attached to investments in R&D and innovation by the private sector. The initiatives for financial support for start-up firms that create innovative solutions and products in Serbia are at the emerging stage. So far, the following firms have been established:

- ICT HUB Venture [4] – a private investment fund focused on early-stage technology start-ups in the SEE region and providing up to €30,000 investment;
- Start Labs [24] – the first Serbian accelerator providing up to €50,000 seed investment for innovative entrepreneurs;
- Serbian Business Angels Network [9] (established as early as 2009) is one of the first organizations of this type; it was modeled after such organizations in the Silicon Valley; this network consists of exceptional individuals who invest their capital and knowledge in firms with high development potential;
- The government provides financial support to innovative companies through the Innovation Fund according to the following two programs: (i) early-

Figure 4: FEFA survey results on knowledge and entrepreneurship



Source: FEFA survey, 2018.

stage program [5, p. 3], which is intended for emerging companies that develop technology innovations (the Fund covers 85% of the project budget that cannot exceed €80,000) and (ii) innovation co-financing program [6, p. 3], which is intended for existing firms that develop technology innovations (the Fund covers 60-70% of the project budget that cannot exceed € 300,000).

Despite the presence of the mentioned initiatives in Serbia, it is important to improve this segment of the ecosystem in order to intensify innovativeness development.

Market and market networks. The market and market networks are an important determinant of the success of an innovation ecosystem. Almost 60% of surveyed companies cooperate with external institutions for the purposes of achieving common goals, but only 27% of them are members of the cluster. If innovations emerge and develop in an ecosystem, it is necessary to implement successful commercialization strategies for innovative products and services through cooperation with market participants.

Serbia is a medium-sized country in terms of both its population (7.04 million) and GDP (37.7 billion US dollars). As for the size of the domestic market, Serbia ranks 74th out of 137 countries. Apart from satisfying the domestic demand, Serbian firms are mostly oriented to export markets. The import-export coverage in Serbia is about 78% (Statistical Office of the Republic of Serbia).

Small and medium-sized enterprises account for 66% of the total number of employees and 30% of gross value added in Serbia [19, p. 2], which is not sufficient to ensure the high flexibility and adaptability of the economy. According to the Herfindahl-Hirschman Index (HHI), the structure of almost every fifth sector in Serbia is monopolistic or oligopolistic [25, p. 13]. Therefore, it is very important to increase the participation of SMEs.

As its initiative to support the development of SMEs in Serbia, the Government adopted the strategy for support to the development of small and medium-sized enterprises, entrepreneurship and competitiveness for the period 2015-2020 [23, p. 1]. It was aimed at building the long-term competitiveness of the economy on the basis of entrepreneurial initiatives, knowledge, and application of new technologies and innovativeness. In addition to the strategies sending a signal to ecosystem participants that there is a clear vision about the competitiveness-related development of the economy, Serbia also has the networks of public actors aimed at supporting the development of

the private sector, establishing links with foreign markets, and developing new ideas and solutions. Apart from the mentioned Fund and the Science Technology Park in Belgrade, there are also the chamber systems headed by the Chamber of Commerce and Industry of Serbia, regional development agencies and Development Agency of Serbia, offices for the youth, and other initiatives at the local and regional levels.

Culture and community. In Serbia, there is increasing awareness about the need for the development of innovativeness and entrepreneurship. About 80% of companies hold that the development of entrepreneurial culture is very significant for the development of new businesses and innovations. The initiatives launched by the government, IT community and civil sector exert influence on the promotion and development of an innovation system as one of the most significant mainstays of economic and social development.

In the creation and development of innovativeness culture, an important role is played by both the government and the civil sector. The survey shows that even 65% of companies hold that the existence of the entrepreneurial spirit among ICT experts is very important, while 61% of them attach the same importance to the existence of the entrepreneurial spirit in the research sector. The organization of forums, festivals and educational workshops, as well as the general formation of the community, rallied around this issue have a favorable impact on the creation of the network of the interested parties.

Conclusion

This research was conducted in order to present the innovation ecosystem in Serbia. To this end, we identified the main steps in its development and, on the basis of the survey of 18 high-tech IT companies, presented the most important conclusions that can guide further work on the improvement of this area. It can be concluded in general that there is increasing awareness about the importance of innovations development in Serbia. For their more intensive development, however, it is necessary to additionally upgrade the innovation ecosystem. In order to achieve this goal, it is extremely important to have an efficient legislative framework, improve access to financing, implement the initiatives that raise awareness about innovations and digitization, investments in research and development, and innovations by the private and public sectors, create an efficient ICT infrastructure, and allocate funds for innovations through institutions such as the Innovation Fund. In addition, for the efficient development of the innovation system, it is crucial to ensure personnel accessibility, cooperation with educational and research and development institutions, as well as the accessibility of educational institutions that provide the basis of knowledge for the emerging sectors. The creation of an efficient innovation ecosystem that will connect all stakeholders in order to achieve the common goal is a prerequisite for the improvement of competitiveness at the micro and macro levels.

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Nebojša Savić

teaches Economics and Competitiveness and is an MOC affiliate faculty member of the Harvard Business School Institute for Strategy and Competitiveness. He is President of the Council of the Governor of the National Bank of Serbia. He has more than thirty years of experience in company restructuring and institution building toward a market economy. Dr Savić was a member of top expert teams advising on economic reform policies in Serbia. He was a member of the Serbian National Competitiveness Council (2008-2012), and previously served as President of the Yugoslav Economists Association and Editor-in-Chief of the Economic Barometer, leading monthly business cycle publication on the Yugoslav economy. He was a member of the Board of Directors of Alpha Bank Serbia (2006-2012) and President of the Board of Directors of Komercijalna banka, Serbia (2003-2005). He holds a PhD and an MA degree from the Faculty of Economics, University of Belgrade. Dr Savić has authored seven books (including Savić, N. and Pitić, G., Eurotransition – Challenges and Opportunities, 1999) and more than fifty articles.

Goran Pitić

is Professor of Macroeconomics and Digital Economy at FEFA Faculty, and President of the Board of Directors of Societe Generale Serbia. He is a member of the Board of Metalac Holding Gornji Milanovac. Dr Pitić holds a PhD from the Faculty of Economics, University of Belgrade, and two MA degrees – from the Belgrade Faculty of Economics, and from the University of Toronto, Department of Economics. As a British Council Scholar, he attended a one-year Quantitative Development Economics Program at the University of Warwick. From October 2000 to March 2004, he held the position of Minister of International Economic Relations in the first democratic Government of the Republic of Serbia. He is President of the Board of Directors of the Association of Serbian Banks, President of the Fair Competition Alliance at NALED, member of the Board of the Foreign Investors Council in Serbia, member of the Presidency of the Serbian Association of Economists, member of the Association of Corporate Directors.

Jelisaveta Lazarević

is Teaching Demonstrator at FEFA in Belgrade, Serbia, teaching courses in Competitiveness and Capital Market since 2017. In addition, she has also been working as Research Assistant for Sector Analysis at the Centre for Advanced Economic Studies (CEVES) since February 2016. She worked on a World Bank project for the needs of the Serbian Ministry of Economy aimed at raising the competitiveness of the economy, internationalizing company's operations and increasing employment. During her studies, she gained practical experience at the Deloitte and Innovation Fund. During her internship at Deloitte, she gained knowledge about transfer pricing and learned about the arm's length method. During her internship at the Serbian Innovation Fund, she gained experience in Serbian economics, especially in business conditions concerning startups. She also improved her negotiating and arranging project experience by participating in the meetings between the Fund and the World Bank on the project to support research, innovation and technology transfer in Serbia. Ms. Lazarević obtained her Bachelor's Degree and Master's Degree from FEFA.