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COMPETITIVENESS AND INNOVATION: THE CASE STUDIES OF SERBIA AND ROMANIA

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Abstract

Non-technological innovation comes from sectors with the capacity of applying knowledge provided by foreign companies and trade partners. Green procurement proved to be an essential factor that stimulates innovation and economic resilience. It is often found in companies in South-Eastern Europe, social responsibility, a high level of competencies, and agile operational management. Romania made critical green procurement and agile management steps to impact productivity with a low footprint on the environment positively. On the other hand, Serbia could not access FP7funds to invest in R&D and eco-innovation, reflected in a low Global Innovation Index Ranking. The paper addresses competitiveness and innovation within the

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case study model of Serbia and Romania, explores similarities and differences, and makes recommendations. Competitiveness and innovation are observed within the context o circular economy.

Keywords: *competitiveness; innovation; South-Eastern Europe; circular economy.*

JEL Classification: O10, M21, Q10

Introduction

The analysis of available official sources and reports were performed based on collected data on innovation and competitiveness of the Republic of Serbia and Romania (Content analysis is a research technique). These data are further compared (comparison method).

The Global Competitiveness Report of the World Economic Forum for 2019 ranked Romania in the 51st place out of 141 countries with an I.G.C. score value of 64.4, moving one place up since the 2018 report when it ranked 52nd with an I.G.C. score of 63.2 [WEF, 2018]. Data used to present ranking and innovation elements are based on 2018 and 2019 WEF GCR because the 2020 WEF Special Edition contained no rankings on the Global Competitiveness Index [Schwab & Zahidi, 2020].

When it comes to the ability to innovate business activities [12th pillar: Innovation capability], Romania ranked 55th of the 141 countries with a 42.3 point score that was subjected to the analysis, according to the source [WEF, 2019] versus the previous year report [WEF, 2018]., when Romania ranked two positions lower [57th] on the same ranking list, maintaining a 39.6point score for innovation. Furthermore, Romania was placed 72nd in business activity dynamism [11th pillar: Business dynamism] in 2019 with 59.7 points [out of 100], which compared to 2018, shows that Romania ranking has improved by eight places having in mind that Romania regarding this pillar was ranked at 64th place with 60.1point scale in 2018, due to the insufficient business dynamism in general. In Romania, most innovation comes from the IT&C sector, which is organised in business clusters that offer informational and consultancy support, especially for SMEs. The young working force has good results in the IT&C sector, sustaining most multinational I.T. companies that set up subsidiaries in Romania [Pantea, 2021]. A sustainable creative economy is based on the competitiveness of companies and human development [Suciu et al., 2018].

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According to the World Economic Forum's GCR for 2019, Serbia ranked 72nd out of 141 countries with the recorded value of the I.G.C. of 60.9 [Schwab, 2019]. Serbia has fallen seven places compared to the results obtained in 2018 [65th rank with 60.9 scores]. According to the FREN analysis, Serbia improved the following indicators compared to 2018: institutions, infrastructure, skills, labour market, financial system, market size, business dynamism, and the ability to innovate. Data used to present ranking and innovation elements are based on WEF GCR for 2018 and 2019, considering that 2020 WEF created Special Edition without rankings on the Global Competitiveness Index [Schwab & Zahidi, 2020].

Speaking of the contributions, the Business Dynamism competitiveness pillar made the most significant positive contribution, increasing 2.2 points in 2019 compared to 2018. The I.G.C. value increase in the level of said pillar resulted from the better assessment made by the entrepreneurs and obtained after a survey had been conducted by the S.E.F. every year to measure the dimensions impossible to include otherwise, says the FREN study. When the Ability to Innovate pillar is concerned, Serbia moved from 39.7 to 40.2 in 2018 and 2019, respectively [Tanasković & Ristić, 2019].

When the ability to innovate business activities is in question that was subjected to the analysis [12th pillar: Innovation capability], the Republic of Serbia ranked 59th of the 141 countries with 40.2 points, according to the source [WEF, 2019]. The same source [WEF, 2019], a report for the previous year, records that, in comparison with the year 2018, Serbia ranked three positions lower [56th] on the same ranking list, with a 39.7 point score for innovation capability. On the other hand, however, Serbia moved up from 59th place in 2018 to 54th place in 2019 with a 63.1point score [out of 100], a rise of five positions because Serbia's 2018 rank was lower due to insufficient business dynamism in general.

1. Literature review

In Romania, territorial clusters can be found: "knowledge-intensive hubs, technology-intensive platforms, diversified agglomerations, industrial production zones, and structurally challenged regions" – each of them in need of differentiated policy interventions. The knowledge-intensive hubs of Bucharest, Cluj-Napoca, Timisoara, Iasi and Ilfov are the most innovative, determining regional growth, and directly contacting top-European research networks. FP7 funds were accessed primarily by private enterprises showing that innovation in Romanian enterprises directly correlates with the R&D system [Jana, 2021].

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In Romania, another positive influence on innovation and working force creativity is tight cooperation between universities – private sector and public sector, facilitating "communication, research, innovation, and technology". Consequently, in Romania, a legal framework that facilitates standardisation and regulation of this cooperation was set up.

Regulation is one important criterion that sustains competition in the Romanian market, which can be observed in different innovations integrated into enterprises' products, processes, and technology. Furthermore, green procurement sustained in Romania depends on the market participants' level of knowledge and skills [Busu & Busu, 2021].

Romania made essential steps in the innovation field. Some urban agglomeration centres demonstrate a high level of creativity due to knowledge-intensive hubs [Bucharest, Cluj, Timisoara, Iasi and Ilfov] and the tight relationship between business and universities. The young generation performs highly when creating knowledge with outstanding productivity refers to exports of medium and high-tech [Pantea, 2021]. They finance their innovation with R&D funding, FDI, ESIF funds, etc.

From the beginning of the introduction of CE within the European Union, the Republic of Serbia has been closely following and accepting the recommendations regarding adopting the circular economy. In February 2016, changes and additions to the law in environmental protection had made space for introducing the circular economy. In this way, environmental infrastructure becomes a generator of waste management efficiency and energy recovery. When it comes to the Republic of Serbia, on the way to the full implementation of CE, the necessity of changing the business model of domestic industries in terms of promoting an environmentally sustainable way of doing business has been emphasised for some time. At the same time, the CE implementation strategy must be adopted as a priority goal for the development of the economy of the Republic of Serbia.

In 2018, the G.D.P. of the Republic of Serbia increased by 4.4%, and in 2019 by 4.2% due to foreign direct investment and domestic consumption. However, due to the outbreak of the COVID-19 pandemic, those projections in 2020 have been significantly reduced. Due to all the above, Serbia has entered an economic recession that caused a 4% drop in G.D.P. in 2020 [Statistical Office of the Republic of Serbia, 2018].

The latest report on Serbia's competitiveness for 2020 [SME Competitiveness Outlook 2020] provides forecasts of the impact of the SARS-CoV-2 virus

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pandemic on small businesses [SME Competitiveness Outlook 2020]. The report for Serbia indicates that the most significant disturbances are in the production of machines, plastics, and rubber, in which the so-called linear business models have been applied. Therefore, Serbia decreased exports of industrial raw materials by 3% [Official Gazette of R. Serbia, 2020].

2. Innovation and Competitiveness of the observed countries

The dynamism of innovation acceptance based on two components [Innovation Capability and Business Dynamism] in Romania is shown in Figure 1.

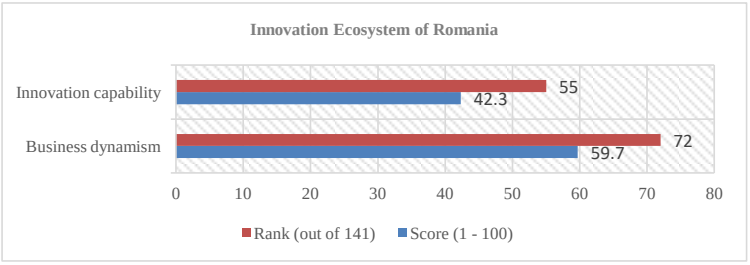

Fig. 1. The dynamism of innovation acceptance in Romania, 2019 [Calculation based on WEF, 2019]

The business dynamism element's administrative requirements are measured based on four components: Cost of Starting a Business, Time to Start a Business, Insolvency Recovery Rate, and Insolvency Regulatory Framework for Romania, as shown below in [Table 1] and [Figure 2].

The positive components contained in the administrative requirements for business dynamism in Romania in 2019 are as follows: the "Insolvency regulatory framework" – Romania ranking at the excellent 17th place, also for "Cost of Starting a Business" Romania is at 9th place, but regarding the "Insolvency Recovery Rate," Romania is at 75th place [WEF, 2019], meaning that most of the companies when ending in insolvency cannot recover anymore, because they have neither governmental support nor financial and business consultancy.

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Table 1. Business Dynamism element's administrative requirements for Romania

Components of Administrative requirements	Score [1 - 100]	Rank [out of 141]
Cost of starting a business	99,8	9
Time to start a business	65,3	123
Insolvency recovery rate	38,5	75
Insolvency regulatory framework	81,3	17

Source: Calculation based on [WEF, 2019]

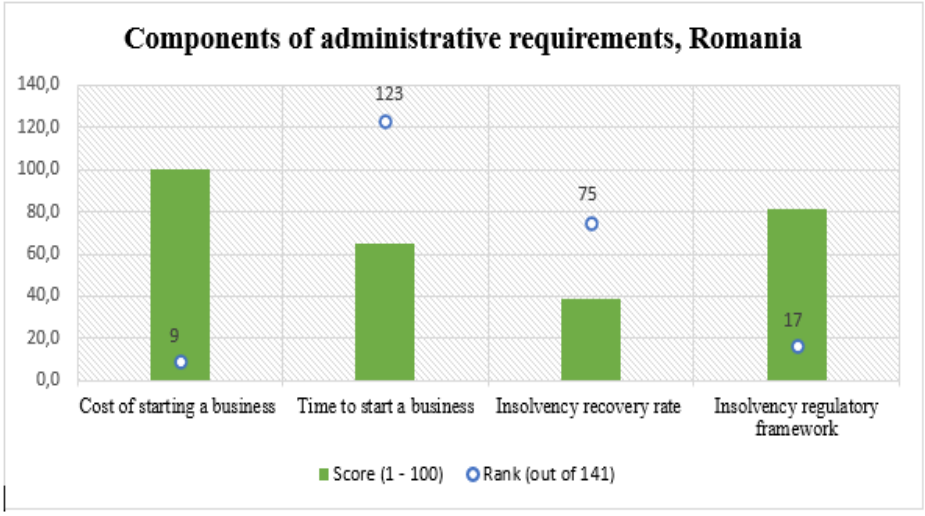

Fig. 2. The components of the administrative requirements in the framework of business dynamism for Romania [Calculations based on WEF, 2019]

The harmful component contained in the administrative requirements for business dynamism in Romania is the "Time to Start a Business" component. As a result, Romania is ranked 123rd among the 141 countries included in the survey. Regarding the years of education, Romania's available workforce spent on average 11.0 years on education, this fact leading Romania to the relatively good 46th place of the 141 countries included in the survey and subjected to observation. When the

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school life expectancy terms are concerned, Romania is 69th with 14.3 years of school life expectancy. [Table 2]. Romania ranks 133rd regarding the ease of finding the skilled workforce; it ranks at 89th place of future workforce skills; ultimately, it is the 53rd in the category of the digital skills at disposal to that very same workforce [WEF, 2019].

Table 2. The business capacity of the workforce in Romania

The selected components of skills in Romania	Value	Score [1–100]	Rank among the countries [1 to 141]
Current workforce [0 -100]	-	59.1	63
* Mean years of schooling [years]	11.0	73.2	46
Future workforce [0 - 100]	-	65.9	82
* School life expectancy [years]	14.3	79.2	69
Skills for the future workforce [0 - 100]	-	52.6	89

Source: [WEF, 2019]

The dynamism of innovation acceptance based on two components [Innovation Capability and Business Dynamism] in Serbia is shown in Figure 5. When the Global Innovation Index Ranking [Sopjani et al., 2020], [INSEAD & WIPO, 2014] is considered, Serbia ranked 101st, whereas it was 67th in 2013. However, according to the said statistics, Serbia's innovation acceptance dynamism became notably better meanwhile.

The latest research results obtained in a study dealing with the subject matters of innovation, the activity, and the size of the Serbian enterprises from 2016 to 2018, are presented in Table 3. Research study refers to innovative business entities as all those business entities which introduced innovation in a product or a process in the period of observation or those which had either already renounced or had not yet completed their innovations.

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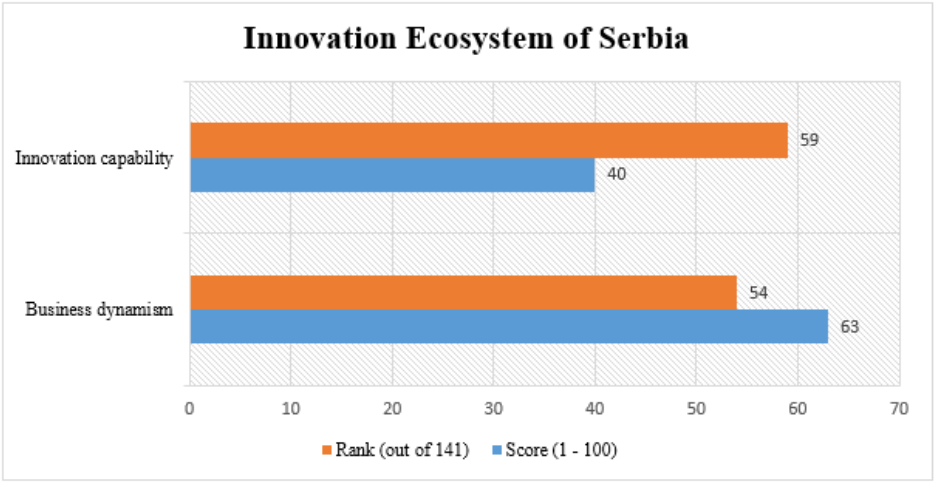

Fig. 3. The dynamism of innovation acceptance in the Republic of Serbia, 2019 [Calculation based on WEF, 2019]

Table 3. Business entities by innovation, activity, and size [Statistical Office of the Republic of Serbia, 2018]

	Total	Enterprises - innovators	The enterprises that did not introduce innovations	The share of innovators in %
Total	19011	9546	9466	50.21
Small enterprises	15878	7566	8312	47.65
Medium-sized enterprises	2544	1573	971	61.83
Large enterprises	589	407	182	69.10
Manufacturing enterprises	5039	2854	2185	56.64
Service enterprises	13972	6692	7281	47.90

Due to its significance and vivid impact on sustainability, CE is constantly receiving enormous attention from researchers, policymakers, and entrepreneurs [Sopjani et al., 2020]. The focal point of the initial research study is the enterprises having applied but a few of said innovations at least once [they account for 50.2%]. Interestingly, the size of an enterprise is a significant variable necessary to define

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an innovative activity. Over 69% of the significant business entities, around 62% of those medium-sized, and 47% of the small ones can be considered innovative enterprises. Ultimately, the enterprises dealing with manufacturing are innovative to a greater extent in comparison with the others [almost 57% of them implemented innovation in comparison with the enterprises rendering services [almost 48% innovative]] according to the Statistical Office of the Republic of Serbia [Statistical Office of the Republic of Serbia, 2018].

The healthy competitiveness evident in developed economies is generated by the concentration of Serbia's different industrial business entities in the market. Conversely, reduced business dynamism results from lower competitiveness, which is confirmed in Figure 6. The business dynamism element's administrative requirements are measured based on four components: Cost of starting a business, time to start a business, Insolvency recovery rate, and Insolvency regulatory framework for Serbia, shown in the following Table 4 and Figure 4.

Table 4. Business Dynamism Element Administrative requirements for Serbia

Components of Administrative requirements	Score [1 - 100]	Rank [out of 141]
Cost of starting a business	98,9	45
Time to start a business	95,0	27
Insolvency recovery rate	37,1	78
Insolvency regulatory framework	84,4	14

Source: Calculation based on [Schwab, 2019]

The positive components contained in the administrative requirements for business dynamism in the Republic of Serbia in 2019 are as follows: the "Time to Start a Business" component – Serbia ranking 27th of the 141 countries included in the survey, and the "Insolvency Regulatory Framework" – Serbia ranking in the excellent 14th place. There are incredibly high "Costs of Starting New Business Activities", especially those in the industrial sector, irrespective of Serbia ranking one place higher than in the year 2018. No change in the position was recorded with the "Insolvency Recovery Rate" [WEF, 2019], [WEF, 2018].

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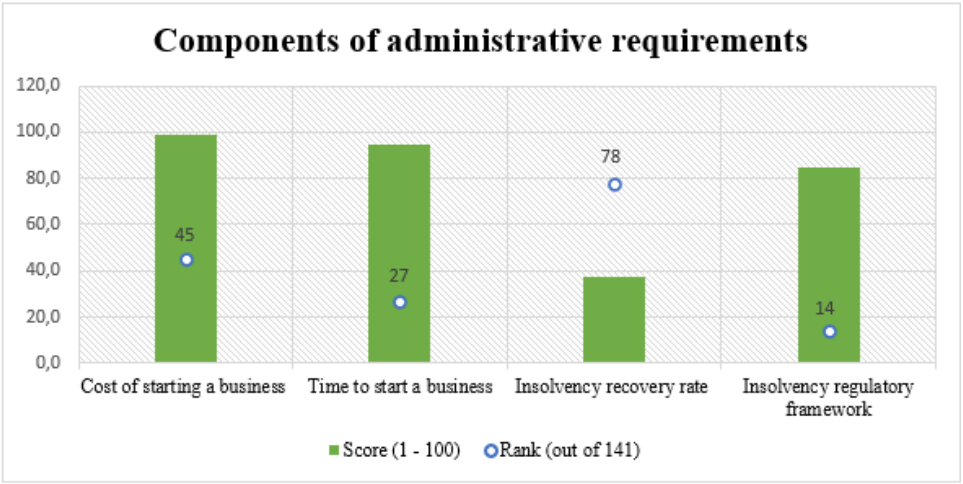

Fig. 4. The components of the administrative requirements in the framework of business dynamism for Serbia [Calculation based on [WEF, 2019]]

Table 5. The business capacity of the workforce in the Republic of Serbia

The selected components of skills in Serbia	Value	Score [1–100]	Rank among the countries [1 to 141]
Current workforce [0 -100]	-	62.4	50
* Mean years of schooling [years]	11.1	74.2	43
Future workforce [0 - 100]	-	74	53
* School life expectancy [years]	14.8	82	59
Skills for the future workforce [0 - 100]	-	65.9	49

Source: [WEF, 2019]

Regarding the years of education, the available workforce of the Republic of Serbia spent on average 11.1 years on education, this fact leading Serbia to the relatively good 43rd place of the 141 countries included in the survey and subjected to observation. When the school life expectancy terms are concerned, Serbia ranked in the first half of the countries included in the survey, which tells us that

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Serbia has a good source of the workforce [Table 8]. Additionally, the following further conclusions about the exact analysis of the 141 countries included in the survey are worth mentioning: the Republic of Serbia ranks 51st in finding the skilled workforce; it ranks 65th in the set of knowledge and skills the workforce has; ultimately, it is 77th when speaking about the digital skills at disposal to that very same workforce [WEF, 2019].

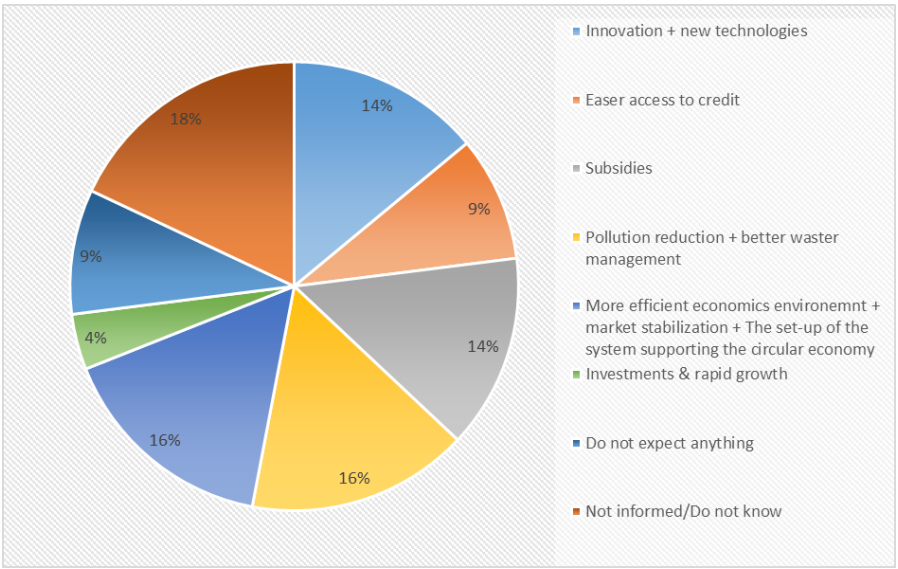

Fig. 6. A statistical overview of the expectations of the strategy of industrial development in the Republic of Serbia for the period from 2021 until 2030 [Official Gazette of R. Serbia, 2020].

Due to the current pandemic, the E.U. provides direct support to the Western Balkans region. In synergy with the European Investment Bank, it has allocated more than 3.3 billion Euros to support this part of Europe. This assistance will mainly target small and medium-sized enterprises, innovative projects, agriculture, rural and tourism enterprises, and those firms run by young people and women [Ec.europa.eu, 2021]. This financial assistance for the Western Balkans countries should be paid successively in the period from 2021-2027, and a significant increase in grants and financial guarantees for the countries of this region is

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envisaged [Ec.europa.eu [2021]. E.U. assistance mainly refers to the circular economy, clean and digital economies, so understandably, the Republic of Serbia's government will prioritise the same areas in the coming period. This assumes that the circular economy and the environment laws would be among the main pillars in implementing the new measures.

Having drawn up a *Roadmap to a circular economy*, Serbia has become the first of the Western Balkans countries to be recognised for drafting a strategic document containing clear plans and goals for sustainable CE-based production. In addition to this document, the report of ex-ante analysis of effects for the CE sphere was made. According to the guidelines, it is conducted as a mandatory initial part before developing the Program for Circular Economy [Ekologija, 2021].

Serbia has announced an improvement of the present packaging waste management system. It plans to make investments in the manufacturer's comprehensive responsibility system and introduce the deposit system. The shifting from the production and consumption linear model to the circular model has institutionally been recognised. In connection with that, a few quality projects have been launched, intended for solving partial problems society has been faced with. A broad platform and synchronous activities, however, are missing in all disciplines of interest. The situation is no better when promoting the circular economy concept in the civil sector; closer cooperation with business entities and academic institutions are concerned. There is a need to promote circular culture and remove the regulatory barriers preventing the economy from developing. . It is critical to emphasise that Serbia will not be admitted to the European Union unless and until it changes its approach to resource management; CE implementation represents a unique opportunity for accelerated accession to this community [Bucea-Manea Tonis et al., 2021].

Conclusion

A comparison between the two countries: one supported the EU [Romania] and the other without assistance [Serbia] evolved differently. In Romania, although business dynamism is deficient [rank: 72 from 141], the innovation capability is rather good [rank: 55 of 141], The innovation capability is due to young upper skilled generation and EU support in developing knowledge and technology-intensive hubs, clusters, based on FP7funds. Due to these funds, Romania made critical green procurement and agile management steps to positively impact productivity with a low environmental footprint [Schwab, 2019], [Song et al.,

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2020]. Furthermore, the innovation is grounded by solid cooperation between universities – private sector – public sector. These facts are reflected in I.G.C. rank, too [51 of 141].

In Serbia, the situation is inversed: although the business dynamism is higher [rank: 54 from 141], the innovation capability is slightly lower [rank: 59 from 141]. Serbia could not access FP7 funds to invest in R&D and eco-innovation, reflected in a low Global Innovation Index Ranking. The analysis of competitiveness and innovation in the CE field in Serbia shows that the circular economy would automatically move the country from manufacturing to an innovative industry with a higher value of finished products—implying a much faster transition from manufacturing to services. Numerous connections would be made with foreign companies and potential investors, making Serbia more competitive in offering circular economy products and services. The latter would imply automatic access to various financial sources, significantly assisting innovation processes and enhancing relations with countries that promote CE through cooperation programs. All of the previous would inevitably result in technological and educational independence and a narrowing of the economic divide between Serbia and other advanced economies in the region and beyond.

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