

Macro and Micro Innovativeness of the Western Balkan Countries



Ivana Bilic, Danijela Ciric, Bojan Lalic, and Danijela Gracanin

Abstract Innovativeness has been identified as a key success factor in today's increasingly competitive and complex environment. It is considered to have a key role as a driver of economic growth and essential instrument for business performance improvement of enterprises especially for emerging economies and economies in transition. Innovation readiness offers a possibility of new growth platforms both on macro level when talking about the economic growth as the biggest national issue and micro level when talking about competitiveness and business performances of enterprises. Engaging innovation potential in a way that will keep up with the pace of technological change and changing demands is indispensable in order to increase competitiveness on both levels. The Western Balkan countries are representative examples of economies in transition as they have witnessed significant changes and economic transformations since the beginning of the twenty-first century, and now they are challenged to keep the growth and improve it. Innovativeness has an influential role in responding to this challenge. The objective of this paper is to analyze cross-country differences and portray the situation in the region giving the answer to the following questions: how are Western Balkan countries ranked on world economies' innovation capabilities scoreboards, how is their ranking changing over time, and how do they differ between themselves? In order to answer these questions, comparative cross-country analysis of innovativeness in Western Balkan countries was conducted. The findings build upon the comprehensive and comparable statistical data from public databases including studies on global innovativeness.

Keywords Innovativeness • Innovation • Western Balkan

I. Bilic

Faculty of Economics, University of Split, Split, Croatia

e-mail: ibilic@efst.hr

D. Ciric (✉) • B. Lalic • D. Gracanin

Faculty of Technical Sciences, University of Novi Sad, Novi Sad, Serbia

e-mail: daniijela.ciric@uns.ac.rs; blalic@uns.ac.rs; gracanin@uns.ac.rs

1 Introduction

Innovativeness has been identified as a key success factor in today's increasingly competitive and complex environment. It is considered to have a key role as a driver of economic growth and essential instrument for business performance improvement of enterprises especially for emerging economies and economies in transition. Innovation readiness offers a possibility of new growth platforms both on macro level when talking about the economic growth as the biggest national issue and micro level when talking about competitiveness and business performances of enterprises. Engaging innovation potential in a way that will keep up with the pace of technological change and changing demands is indispensable in order to increase competitiveness on both levels. The Western Balkan countries are representative examples of economies in transition as they have witnessed significant changes and economic transformations since the beginning of the twenty-first century, and now they are challenged to keep the growth and improve it. Innovativeness has an influential role in responding to this challenge. In this paper Western Balkan countries are defined referring to geographical aspects in opposed to common use of this term referring to Southeast European area that includes countries that are not members of the European Union. The objective of this paper is to analyze cross-country differences and portray the situation in the region giving the answer to the following questions: how are Western Balkan countries ranked on world economies' innovation capability scoreboards, how is their ranking changing over time, and how do they differ between themselves? In order to answer these questions, comparative cross-country analysis of innovativeness in Western Balkan countries was conducted. Making this comparative analysis, we got the insight on which country with its innovation-related policies and practices responded best to the challenge of innovation and what are the weaknesses and obstacles in innovation efforts, both in macro and micro environment, that prevent full engagement of innovation potential. Findings are used to indicate the priority areas for improvement. The findings build upon the comprehensive and comparable statistical data from public databases including studies on global innovativeness.

2 Basic Concept of Innovation and Innovativeness

In today's modern society, the concept of innovation and innovativeness has become very important and we could say mandatory. Innovation today is the lifeblood of successful companies and a key driver of economic growth. A clear understanding of what an innovation represents is crucial to assess the innovativeness. The definition of innovation was initially primarily oriented toward the relation between technology and innovation, but in the last 20 years, the wider impact of innovation activity on technical change has been recognized, whereas

technical change increased technological opportunities, with positive impacts on productivity, employment, and wealth creation (Aralica et al. 2008). In the literature (Schumpeter 1934; Myers and Marquis 1969; Drucker 2006; Trott 2012; Schilling 2013), there are countless different definitions of innovation, and they are evolving over time as business and technology advance and innovation opportunities continue to emerge. In order to obtain a better understanding and explanation of the phenomenon of innovation, listed below are some commonly used definitions. Basically innovation is typically understood as the introduction of something new. Based on the work by Schumpeter (1934), innovation has been defined as the first introduction of a new product, process, method, or system. But innovation is more than the generation of creative ideas. Innovation is defined broadly and can encompass the use of products, services, processes, methods, organization, and relationship or interconnections. The key requirement to be categorized as an innovation is that it requires the use of something completely new or vastly improved to the organization (Wingate 2015). Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service. It is capable of being presented as a discipline, capable of being learned, and capable of being practiced (Drucker 2006). According to Myers and Marquis (Myers and Marquis 1969), innovation is not a single action but a total process of interrelated subprocesses. It is not just the conception of a new idea, nor the invention of a new device, nor the development of a new market. The process is all these things acting in an integrated fashion. Innovation is a process through which the nation creates and transforms new knowledge and technologies into useful products, services, and processes for national and global markets—leading to both value creation for stakeholders and higher standards of living (Milbergs and Vonortas 2005). It is therefore possible to summarize that according to these definitions innovations do not cover only technical and technological changes and improvements but in particular practical application and particularly originate from research (Urbancova 2013) and must be understood in the widest possible sense: as a new product, new production process, new production technologies, improved management methods, enhanced performance, workforce qualification improvement, and so on. Majority of existing research conceptualized innovativeness as the degree to which an individual adopts an innovation relatively earlier than others (Midgley and Dowling 1978). Innovativeness on macro level refers to the country's ability to respond to challenges of innovation through factors that enhance innovation readiness including innovation-related policies and practices that promote long-term growth and create framework conditions for innovations and to produce and commercialize goods and services by using new knowledge and skills (Furman et al. 2002). When talking about innovativeness on micro level, it could be defined as a willingness and capability of an organization to undertake all necessary steps to implement and to produce different types of innovation continuously (Galunic and Rodan, n.d.). The ability to innovate is generally accepted as a critical success factor to growth and future performance of organizations.

3 Innovation and Innovativeness as a Main Source of Competitive Advantage

Innovation and competitive advantage are the words that describe different concepts, but they are highly interrelated. Innovation is increasingly seen as the key to unlocking competitive advantage, as much for country competitiveness in the world economy as for organizations' competitiveness in the field.

Konishi (INSEAD & WIPO, n.d.) pointed that in recent years, with the advancement of the knowledge economy, the world has witnessed the power of innovation and its various constituents in revolutionizing the business and economic landscape and how it empowers individuals, communities, and countries with profound impact on business, politics, and society. The ability to innovate is a precondition of successful usage of new resources, technology, and knowledge (Borocki et al. 2013). On macro level Porter (1990) explains the national competitiveness as the country's ability to create innovation with the aim of achieving or maintaining competitive advantage compared to other countries. The capacities to undertake scientific and applied industrial research; to transfer, adapt, and assimilate new technologies into economic structures; and to diffuse them into society are critical to national competitiveness and growth (World Bank Country Paper Series 2013). On a micro level, organizations are invited to continuously deliver innovation in order to maintain existing and to develop new competitive advantage in a way that will keep up with the pace of technological change, changing demands, and expectations. For different organizations innovation could create the ability to allocate a significant portion of market share or to create an entirely new market opportunity. On national macro level, government shapes the context, institutional structure, and environment for innovation while innovations are created on micro level. Therefore, more than ever, in the current global economic situation, policy makers and business leaders recognize the need to create an enabling environment to support the adoption of innovation and spread their benefits across all sectors of society. The importance of innovation readiness, especially at the national level, has achieved prominence on the public policy agenda, with the realization that the right policies, inputs, and enabling environment can help countries fulfill their national potential and enable a better quality of life for their citizens according to the Global Innovation Report (INSEAD & WIPO, n.d.). The twenty-first century is based on knowledge, information, and innovative economy (Urbancova 2013).

4 Measuring Innovativeness

Innovation tends to be considered as a major driver of both economic growth and competitiveness of companies and industries (Aralica et al. 2008), and along with the current imperative for innovation comes the necessity for it to be adequately measured in order to boost innovation performances both on macro and micro level.

Table 1 Evolution of innovation metrics by generation (Milbergs and Vonortas 2005)

First generation	Second generation	Third generation	Fourth generation
Input indicators	Output indicators	Innovation indicators	Process indicators
(1950s–1960s)	(1970s–1980s)	(1990s)	(2000 + emerging focus)
• R&D	• Patents	• Innovation surveys	• Knowledge
• Expenditures	• Publications	• Indexing	• Intangibles
• S&T personnel	• Products	• Benchmarking innovation capacity	• Networks
• Capital	• Quality		• Demand
• Tech intensity	• Change		• Clusters
			• Management techniques
			• Risk/return
			• System dynamics

Innovation as a wide concept has many dimensions making it hard to have a clear picture on how it could be measured with acknowledgment of all aspects. There is no one-size-fits-all solution. Numerous studies on innovation characteristics of countries and regions are conducted in the last years. The traditional approach of expressing innovativeness is based on parameters such as the number of patent, papers published in scientific journals per million residents, and share of research and development activity costs in gross domestic product. However, how the prevailing understanding is that innovation is multidimensional phenomena, currently, for assessing innovation, complex models based on dozens of parameters are used. Using this complex model and on the basis of innovative features, world economies are ranked in several different annual reports (Tekic et al. 2012) (Table 1).

Countries are ranked according to their innovativeness through different defined methodologies and adopted measures, such as the Global Innovation Index (GII) developed by INSEAD in 2007, the Global Competitiveness Report developed by the World Economic Forum, Innovation Union Scoreboard developed by the European Commission, and Intelligence Unit developed by Economist. On the other side for companies and organizations, there are numerous consultants or governments that developed different measurement frameworks and models for measuring innovativeness.

The findings in this paper build upon the comprehensive and comparable statistical date from public Global Innovation Index database, as the most frequently used indicator of the achieved level of innovativeness at the global level and a leading reference on innovation.

4.1 *Global Innovation Index*

Recognizing the key role of innovation for growth and development of each country, the Confederation of Indian Industry together with INSEAD (Business School for the World) and Canon India has developed a Global Innovation Index (Global Innovation Index—GII). In its eighth edition, it is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO). GII reports rank world economies' innovation capabilities and results. Recognizing the key role of innovation as a driver of economic growth and prosperity and the need for a broad horizontal vision of innovation applicable to developed and emerging economies, the GII includes indicators that go beyond the traditional measures of innovation such as the level of research and development (Kilic et al. 2015).

A country's readiness is linked to its ability to garner the best from leading-edge technologies, expanded human capacities, better organizational and operational capabilities, and improved institutional performance. This report brings together indicators to measure innovation performance, which takes into account all and more of the above factors in the form of the Global Innovation Index (GII). Using this framework, the world's best- and worst-performing economies are ranked on their innovation capabilities, which provide insights into the strengths and weaknesses of countries in innovation-related policies and practices. The Global Innovation Index (GII) relies on two subindices, the innovation input subindex and the innovation output subindex, each built around pillars. Five input pillars capture elements of the national economy that enable innovative activities: (1) institutions, (2) human capital and research, (3) infrastructure, (4) market sophistication, and (5) business sophistication. Two output pillars capture actual evidence of innovation outputs: (6) knowledge and technology outputs and (7) creative outputs. Each pillar is divided into sub-pillars, and each sub-pillar is composed of individual indicators (79 in total). Sub-pillar scores are calculated as the weighted average of individual indicators; pillar scores are calculated as the weighted average of sub-pillar scores. For this eighth edition, the Global Innovation Index 2015 (GII) covers 141 economies, accounting for 95.1% of the world's population and 98.6% of the world's gross domestic product (Fig. 1).

5 **Innovativeness in the WBC Region**

For the Western Balkan countries, the transition from socialism to capitalism and democracy was less smooth than in other parts of emerging Europe. But once the war ended and peace returned, these countries comprehensively rebuild and reform their economies. Reform process was not uniform across the region, as starting positions differed, and has not been completed yet. Innovativeness has been identified as a key precondition of economic growth (Siegel et al. 2003) especially for emerging economies and economies in transition like WBC. In Table 2 we present

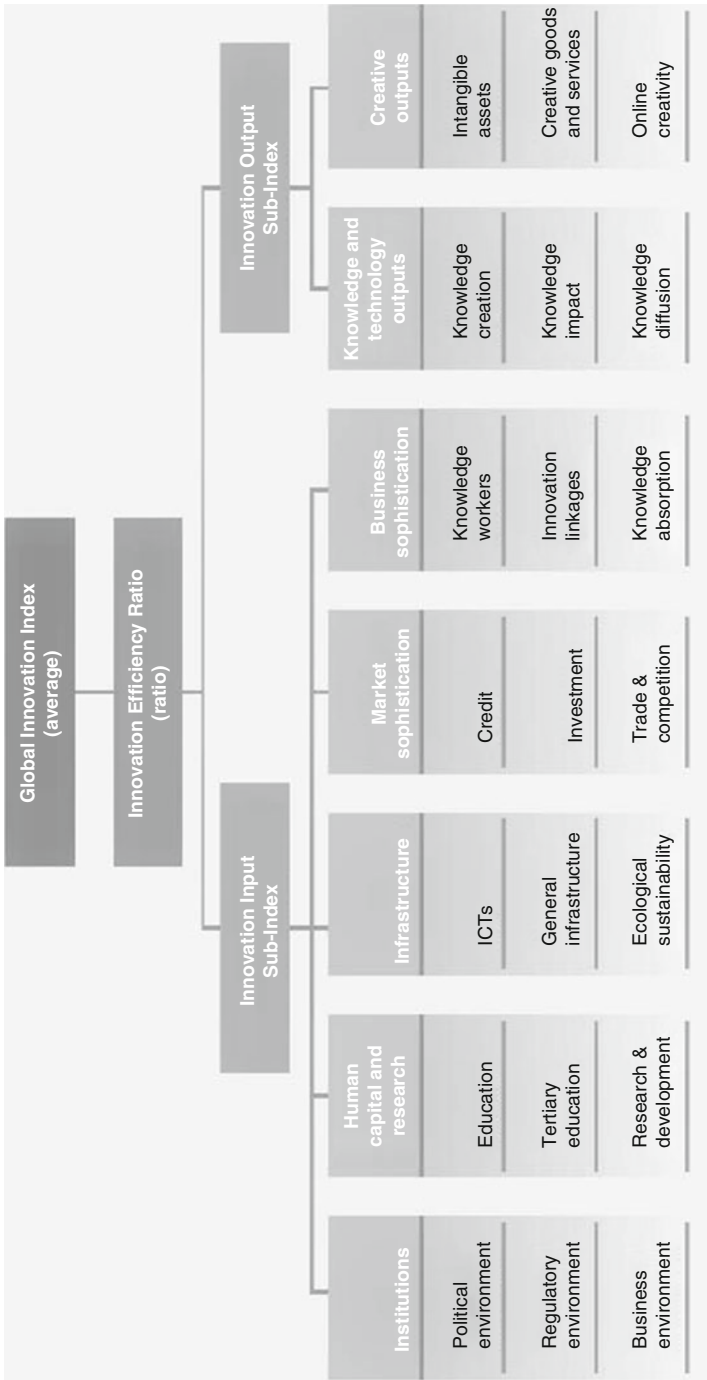


Fig. 1 The Global Innovation Index, INSEAD & WIPO (2015)

Table 2 Global Innovation Index rankings 2007–2015

Global Innovation Index rankings			
	Top 5 countries	WBC overall rankings	WBC rankings in Europe
2007	1. USA	55. Croatia	30. Croatia
	2. Germany	87. FYROM	38. FYROM
	3. United Kingdom	89. Bosnia and Herzegovina	40. Bosnia and Herzegovina
	4. Japan	100. Albania	42. Albania
	5. France		
2009–2010	1. USA	62. Croatia	31. Croatia
	2. Germany	71. Montenegro	34. Montenegro
	3. Sweden	89. FYROM	37. FYROM
	4. United Kingdom	92. Serbia	38. Serbia
	5. Singapore	107. Bosnia and Herzegovina	40. Bosnia and Herzegovina
		121. Albania	43. Albania
2009–2010	1. Iceland	45. Croatia	26. Croatia
	2. Sweden	59. Montenegro	31. Montenegro
	3. Hong Kong, China	77. FYROM	33. FYROM
	4. Switzerland	81. Albania	34. Albania
	5. Denmark	101. Serbia	36. Serbia
		116. Bosnia and Herzegovina	37. Bosnia and Herzegovina
2011	1. Switzerland	44. Croatia	29. Croatia
	2. Sweden	55. Serbia	31. Serbia
	3. Singapore	67. FYROM	36. FYROM
	4. Hong Kong, China	76. Bosnia and Herzegovina	39. Bosnia and Herzegovina
	5. Finland	80. Albania	40. Albania
2012	1. Switzerland	42. Croatia	26. Croatia
	2. Sweden	45. Montenegro	29. Montenegro
	3. Singapore	46. Serbia	30. Serbia
	4. Finland	62. FYROM	34. FYROM
	5. United Kingdom	72. Bosnia and Herzegovina	37. Bosnia and Herzegovina
		90. Albania	39. Albania
2013	1. Switzerland	37. Croatia	25. Croatia
	2. Sweden	44. Montenegro	38. Montenegro
	3. United Kingdom	51. FYROM	32. FYROM
	4. Netherlands	54. Serbia	33. Serbia
	5. USA	65. Bosnia and Herzegovina	36. Bosnia and Herzegovina
		93. Albania	39. Albania

(continued)

Table 2 (continued)

Global Innovation Index rankings			
	Top 5 countries	WBC overall rankings	WBC rankings in Europe
2014	1. Switzerland	42. Croatia	26. Croatia
	2. United Kingdom	59. Montenegro	34. Montenegro
	3. Sweden	60. FYROM	35. FYROM
	4. Finland	67. Serbia	37. Serbia
	5. Netherland	81. Bosnia and Herzegovina	38. Bosnia and Herzegovina
		94. Albania	39. Albania
2015	1. Switzerland	40. Croatia	27. Croatia
	2. United Kingdom	41. Montenegro	28. Montenegro
	3. Sweden	56. FYROM	35. FYROM
	4. Netherland	63. Serbia	36. Serbia
	5. USA	79. Bosnia and Herzegovina	38. Bosnia and Herzegovina
		87. Albania	39. Albania

how Western Balkan countries are ranked on world economies' innovation capability scoreboards, how their ranking is changing over time, and how they differ between themselves in order to analyze cross-country differences using the data presented in the Global Innovation Report from 2007 to 2015 (INSEAD & WIPO).

Countries like Switzerland, Sweden, the Netherlands, the USA, and the UK are innovation leaders. They have a strong knowledge-based economy in which business and the public sector in an equal way invest in development of innovation. They are characterized by excellent infrastructure, political stability, strong research and development sector with good international connections, a large number of global companies, a wide and constantly upgraded base of talented workforce, and investments in the IT sector (Tekic et al. 2012). When we look at the Western Balkan countries, we can conclude that their positions are changing over the past 8 years in overall world scale ranking. Albania and Bosnia and Herzegovina had ups and downs during the past 8 years, but it could be concluded that there has been some progress in this field when we compare rankings up to this year, but not significantly, as both countries are going back and forward during the past few years. Serbia, FYROM, and Montenegro make more significant progress when we compare rankings up to 2015, and Croatia is holding a similar position since 2009–2010. It is obvious that Croatia, followed by Montenegro, in previous years is much ahead of Bosnia and Herzegovina and Albania.

But when we look at the WBC rankings in the European region, we can conclude that WBC are modest in terms of innovative performances and are lagging behind leading countries. They do not differ so much between themselves; they follow one another in rankings and are at the end of the European list. Croatia is the only WBC country that stands out in ranking, but still it is far behind European leaders. Clearly, we can notice that Croatia is a leading country in WBC region, and this is not surprising as it must be taken into account that she is the only EU member

state. In accession to EU process, Croatia has undertaken several steps to make research and innovation systems more competitive and have a greater impact on the national economy.

Since 2000, the nation’s science system has gradually recovered and become more competitive thanks to the substantial efforts of the Croatian government to reform the science and higher education sectors according to European Union (EU) standards and in line with EU policies (World Bank Country Paper Series 2013). In Fig. 2 and Table 2, we can see a comparison of WBC countries according to innovation input and output subindices and their pillars which captures elements of the national economy that enable innovative activities on the input side and actual evidence of innovation outputs on the output side.

We can see that on the input side there is not much imbalance, but when we analyze innovation outputs, they are on the lower level in Bosnia and Herzegovina and Albania in comparison to other WBC countries. In Fig. 3 we compared in detail

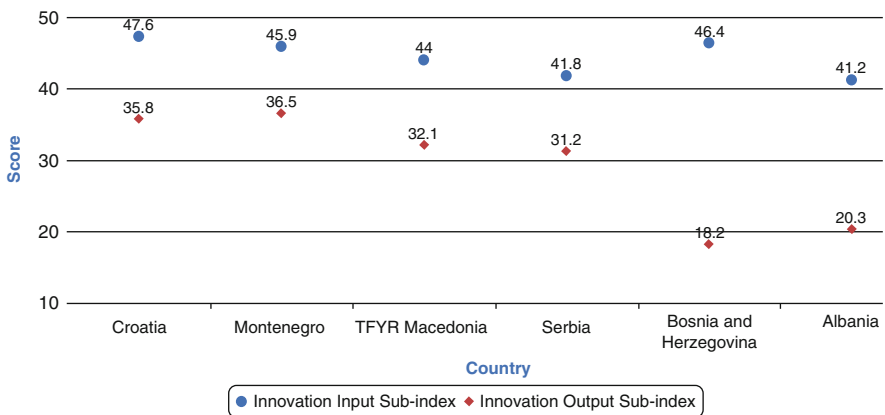


Fig. 2 Comparison of input subindex and output subindex scores in WBC, GII 2015

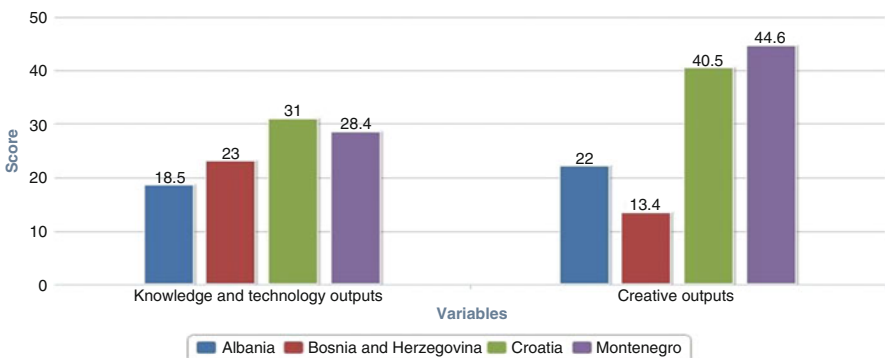


Fig. 3 Comparison of output subindex scores in Albania, Bosnia and Herzegovina, Croatia, and Montenegro, GII 2015

Table 3 Comparison of pillars/sub-pillars of GII in WBC, 2015

Index	Pillar/sub-pillar/indicator name	Albania	Bosnia and Herzegovina	Serbia	FYROM	Montenegro	Croatia
1.	Institutions	60.1	59.6	62.2	67.7	69.5	71.8
1.1	Political environment	49.0	42.1	50.2	47.3	60.9	69.7
1.2	Regulatory environment	58.5	71.0	71.1	69.8	71.1	71.5
1.3	Business environment	72.7	65.7	65.2	86.1	76.6	74.1
2.	Human capital and research	21.8	39.9	30.1	32.7	35.9	36.9
2.1	Education	38.0	89.6	35.3	66.2	54.3	58.1
2.2	Tertiary education	25.7	27.6	40.8	28.9	47.3	37.5
2.3	Research and development (R&D)	1.7	2.6	14.0	3.0	6.2	15.1
3.	Infrastructure	39.0	30.9	42.6	31.4	39.3	44.6
3.1	Information and communication technologies (ICT)	44.2	36.3	49.0	38.4	53.2	52.3
3.2	General infrastructure	26.8	24.9	30.3	16.3	27.5	26.4
3.3	Ecological sustainability	46.0	31.4	48.4	39.6	37.2	55.1
4.	Market sophistication	59.1	61.6	43.9	52.3	51.0	47.1
4.1	Credit	35.8	35.4	31.1	39.1	38.3	26.5
4.2	Investment	72.5	54.2	34.6	34.3	45.2	34.8
4.3	Trade and competition	69.0	95.3	66.1	83.4	69.5	80.0
5.	Business sophistication	26.2	40.1	30.2	35.9	34.0	37.9
5.1	Knowledge workers	22.9	33.6	30.9	40.0	35.1	49.7
5.2	Innovation linkages	19.7	62.2	21.1	31.8	29.0	26.5
5.3	Knowledge absorption	36.0	24.5	38.7	35.8	38.0	37.6
6.	Knowledge and technology outputs	18.5	23.0	27.7	26.3	28.4	31.0
6.1	Knowledge creation	2.9	5.0	21.1	9.6	13.5	20.7
6.2	Knowledge impact	26.0	38.8	29.9	40.1	48.6	46.0
6.3	Knowledge diffusion	26.8	25.2	32.1	29.0	23.3	26.2
7.	Creative outputs	22.0	13.4	34.6	37.9	44.6	40.5

(continued)

Table 3 (continued)

Index	Pillar/sub-pillar/indicator name	Albania	Bosnia and Herzegovina	Serbia	FYROM	Montenegro	Croatia
7.1	Intangible assets	29.6	9.9	38.0	48.9	48.1	47.4
7.2	Creative goods and services	19.5	6.9	33.3	27.3	28.8	34.6
7.3	Creation of online content	9.2	26.9	29.0	26.5	53.3	32.7
A	Innovation input Subindex	41.2	46.4	41.8	44.0	45.9	47.6
B	Innovation output subindex	20.3	18.2	31.2	32.1	36.5	35.8

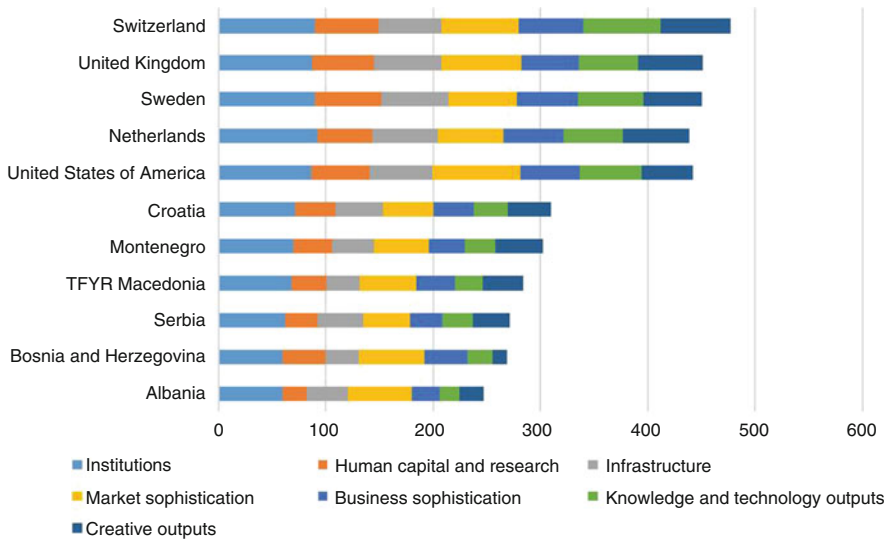


Fig. 4 Comparison of input and output pillars of GII between five top ranked countries and WBC, 2015

two output pillars: (1) knowledge and technology outputs and (2) creative outputs of Croatia and Montenegro as region leaders according to GII with Bosnia and Herzegovina and Albania.

It could be seen that knowledge and technology outputs (knowledge creation, knowledge impact, knowledge diffusion) are much behind Croatia and Montenegro but not as much as it is obvious when looking to creative outputs (intangible assets, creative goods and services, online creativity) where Bosnia and Herzegovina and Albania stay much behind Croatia and Montenegro even though their input index does not differ much.

Analysing Table 3 we can identify some weaknesses that are shared through all six countries in WB: human capital and research which is a consequence of a really low score in research and development and also infrastructure with low scores in general infrastructure, business sophistication where it could be identified that innovation linkage is a weak point, knowledge and technology outputs with low levels of knowledge creation and diffusion, and creative outputs which are on highly low levels in Albania and Bosnia and Herzegovina.

We compared WBC in order to see where differences and gaps exist but in which domains WBC are lagging behind innovation leaders the most. In Fig. 4 we made a comparison of input and output pillars between five top ranked countries and WBC in order to get some closer view into this matter. It could be concluded that WBC are obviously, as it was expected, behind world leaders when we talk about institutions, human capital, and even infrastructure, but when we come to market and business sophistication, the difference is getting bigger and the gap between the

Western Balkans and world innovation leaders is most obvious and widest in knowledge, technology, and creative outputs.

6 Conclusion

Today, one of the most important lessons learnt is about the extraordinary capacity of innovation to drive growth since it can play a critical role not only in facilitating countries' recovery but also in sustaining national competitiveness in the medium to long term (INSEAD & WIPO). Strengthening innovativeness is the key prerequisite of economic growth. Competitive advantage is created at the microeconomic level, while the role of the government is to shape the context, institutional structure, and environment on macro level that encourages organizations to gain competitive advantage. Establishing and implementing an effective research and innovation policy is important for WBC hoping to be competitive and develop the economy in a sustainable way. Countries have effect major reforms in the legislative and business environment, design policies and strategies to promote the creation of a knowledge-based economy. Progress over the last decades has been evident in WBC, but it is necessary to increase investment in research and innovation substantially while introducing innovation systems—the research base, educational sector, public institutions, private sector, and linkages across them—into more forceful, coherent, and competitive systems. Creating the right framework conditions and offering adequate incentives to actors are prerequisites for stimulating new ideas, their transfer to industry, and private sector investment in risky and long-term projects related to innovation (World Bank Country Paper Series 2013). If the Western Balkan Countries do not emulate such efforts, they will stay disadvantaged compared to majority of European countries with respect to innovativeness. All observed aspects are specific to each country politics, and every single local environment with its social and cultural characteristics is different and needs to be considered as such. Global Innovation Index is not perfect, and these rankings are based on GII set of indicators and modes of analysis. Ranking could be changed across the years due to improved or worsening performance on the basis of the previous framework, due to adjustments to the GII framework and inclusion of additional countries/economies. Each ranking reflects the relative positioning of that particular country/economy on the basis of the conceptual framework, the data coverage, and the sample of economies that change from one year to another.

References

- Aralica, Z., Račić, D., & Radić, D. (2008). Innovation propensity in Croatian enterprises: Results of the community innovation survey. *South East European Journal of Economics and*

- Business*, 3(1), 77–88. Available at: <http://www.degruyter.com/view/j/jeb.2008.3.issue-1/v10033-008-0008-6/v10033-008-0008-6.xml>
- Borocki, J., Orcik, A., & Cvijic, M. (2013). Measuring organizational innovativeness. In *Challenges for the future – engineering management*. Faculty of Technical Sciences (Novi Sad, Serbia), Fraunhofer IAO (Stuttgart, Germany) and DAAAM International (Vienna, Austria).
- Drucker, P. (2006). *Innovation and Entrepreneurship*. New York City: Harper Business.
- Furman, J., Porter, M., & Stern, S. (2002). The determinants of national innovative capacity. *Research Policy*, 31, 899–933.
- Galunic, D., & Rodan, S. (n.d.). Resource recombinations in the firm: Knowledge structures and the potential for Schumpeterian innovation. *Strategic Management Journal*, 19, 1193–1201.
- INSEAD & WIPO. (n.d.). Global Innovation Index, Available at: <https://www.globalinnovationindex.org/content/page/past-reports/>
- Kilic, K., et al. (2015). Innovativeness, operations priorities and corporate performance: An analysis based on a taxonomy of innovativeness. *Journal of Engineering and Technology Management*, 35, 115–133. Available at: <http://linkinghub.elsevier.com/retrieve/pii/S0923474814000526>
- Midgley, D., & Dowling, G. (1978). Innovativeness: The concept and its measurement. *Journal of Consumer Research*, 4(4), 229–242.
- Milbergs, E., & Vonortas, N. (2005). Innovation metrics: Measurement to insight. In *White paper of national innovation initiative, 21st century innovation working group, IBM corporation*. Available at: <http://www.innovationmanagement.se/wp-content/uploads/pdf/Innovation-Metrics-NII.pdf>
- Myers, S., & Marquis, D. (1969). *Successful industrial innovation: A study of factors underlying innovation in selected firms* (pp. 69–17). Washington, DC: National Science Foundation.
- Porter, M. (1990). *The competitive advantage of nations*. Boston: Harvard Business Review.
- Schilling, M. (2013). *Strategic management of technological innovation* (4th ed.). New York, NY: McGraw-Hill Education.
- Schumpeter, J. A. (1934). *The theory of economic development*. Cambridge, MA: Harvard University Press.
- Siegel, D., Waldman, D., & Link, A. (2003). Assessing the impact of organizational practices on the relative productivity of university technology transfer offices: An exploratory study. *Research Policy*, 32(1), 27–48.
- Tekic, Z., Borocki, J., & Cosic, I. (2012). O inovativnosti Srbije i regiona. In *Inovacije i preduzetništvo: alati za uspeh na tržištu EU* (pp. 15–31). Belgrade: Fakultet za ekonomiju, finansije i administraciju, Univerzitet Singidunum.
- Trott, P. (2012). *Innovation management and new product development* (5th ed.). Edinburgh Gate, UK: Pearson Education Limited.
- Urbancova, H. (2013). Competitive advantage achievement through innovation and knowledge. *Journal of Competitiveness*, 5(1), 82–96. Available at: <http://www.cjournal.cz/index.php?hid=clanek&cid=127>, <http://library.gcu.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=90596323&site=ehost-live&scope=site>
- Wingate. (2015). *Project management for research and development-guiding innovation for positive R&D outcomes*. Boca Raton: CRC Press.
- World Bank Country Paper Series. (2013). *Western Balkans regional R&D strategy for innovation*. Available at: <http://www.worldbank.org/content/dam/Worldbank/document/eca/Western-Balkans-R&D-Croatia.pdf>