

INNOVATION SYSTEMS OF THE WESTERN BALKAN COUNTRIES AND REGIONAL COOPERATION NEEDS IN FOSTERING INNOVATION

INOVACIJSKI SUSTAVI ZEMALJA ZAPADNOG BALKANA I REGIONALNA INOVACIJSKA SURADNJA U POTICANJU INOVACIJA

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Abstract: *The paper aims to present the factors for fostering regional innovation cooperation and science-industry links in the Western Balkan Countries (WBC) which are identified by the survey based analysis of attitudes of researchers and entrepreneurs in the region. The comparison of the selected components of the innovation systems of the WBC are also briefly presented to illustrate their differences and similarities with a view of a carrying out a regional innovation strategy.*

Key words: *Western Balkan Countries, regional innovation system, innovation capacities, regional innovation cooperation*

Sažetak: *U radu se nastoji ukazati na faktore poticanja regionalne inovacijske suradnje i povezivanja znanosti i industrije u zemljama Zapadnog Balkana (WBC), koji su identificirani na temelju analize stavova istraživača i poduzetnika u regiji dobivenih anketom. Također je ukratko prikazana usporedba odabranih komponenti inovacijskog sustava u WBC kako bi se ukazalo na njihove sličnosti i razlike, a u cilju izrade regionalne inovacijske strategije.*

Ključne riječi: *Zapadni Balkan, regionalni inovacijski sustav, inovacijski kapaciteti, regionalna inovacijska suradnja*



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1. Introduction

After two decades of transition to market economy the Western Balkan Countries (WBC) still lags behind the European member states in living standards and overall economic and technological development. It is commonly perceived that the present economic model is outdated and based on wrong factors of growth like defensive inter-sectoral restructuring (dismiss of workers or early retirement), domestic market consumption and low-cost foreign direct investments (FDI) [1]. Therefore, it should be abandoned in favour of new techno-economic paradigm – knowledge economy - which is based on the appropriation of knowledge and includes innovation, research, education and information and communication technologies (ICT) as the main productive factors. The knowledge economy in WBC as technology followers is not necessarily equalised with the cutting edge research and “new to the world” innovation. Instead, the application of new technologies in the standard sectors of low and medium technology level, new management tools and governance models could have much greater effect on their economy revitalisation [2].

The establishment of the efficient national innovation systems and innovation cooperation of WBC at the regional level [3].could have a significant progressive impact on national innovation capacities and the resultant economic growth. This paper will present some selected results of the comparative analysis of innovation capacities of the WBC and then the factors for fostering regional innovation cooperation and science –industry links which are made in order to serve as a background analysis for the regional innovation strategy. The incentives for regional innovation strategy and related analyses are components of the WBC-INCO.NET project which is financed by the European Commission within FP7 and includes 26 partners from 16 countries. The project is coordinated by the Centre for Social Innovation, Vienna, Austria.

2. Some common features of the national innovation systems of WBC

This part of the analysis is based on the desk research, open questionnaires with innovation experts and mapping of the innovation systems [4]. The strength of research lies, therefore, in the use of methodological triangulation by combining quantitative (on line survey) and qualitative approach (mapping the innovation systems) which enabled the comparison of innovation systems with the proposed actions for regional cooperation by experts. The weakness of the methodology and research concerns limitation of the results collected by on line survey on the non-representative sample of innovation experts and lack of precise data of administrative obstacles.

Following the systemic model of innovation system [5] the analysis compare the three components of the national innovation systems, i.e. supporting measures and institutions in research sector, business innovation and research-based innovation

(Figure 1). In addition, the governance of innovation and research systems is also analysed.

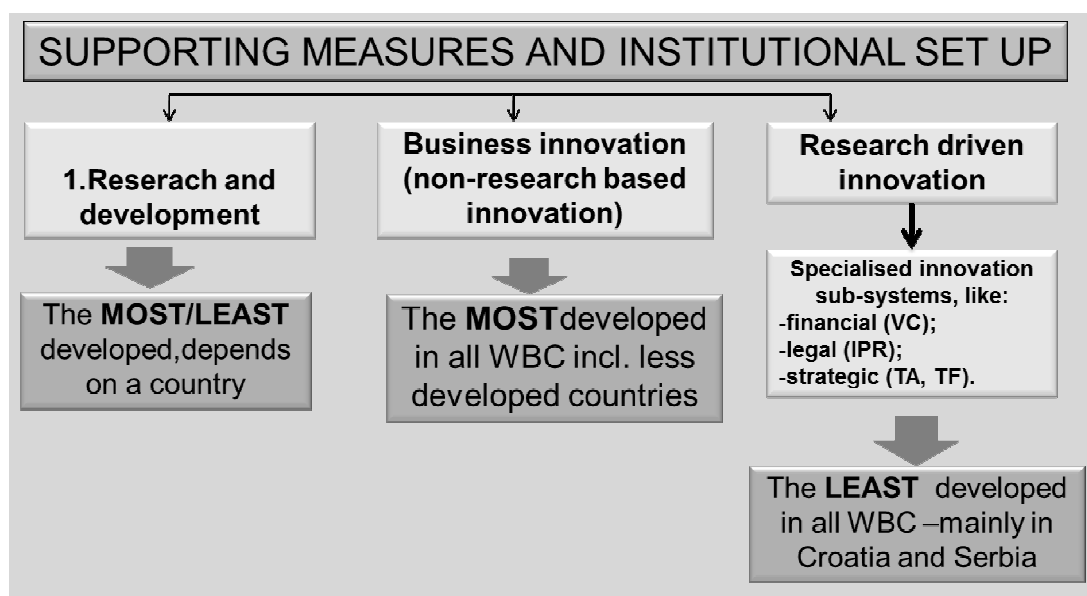


Figure 1. Critical subsystems of innovation system in WBCs

The public R&D sector, with universities playing a leading role in research and development subsystem in all the WBC, but the level of their development and maturity significantly differs. The most developed systems are in Croatia and Serbia which are presently faced with the needs of various reforms towards greater efficiency and business needs. Research system in Kosovo UN Res.1244, are in the phase of infancy while Albania undertook a comprehensive reform of the scientific research system in 2006 towards European model and created important strategic documents. Croatia and Serbia can only be compared with the EU in terms of investment in R&D since they invested in 2009 more than 0.8% of GDP in R&D each while GERD in other countries was about or below 0.2% of GDP.

The most developed innovation subsystem refers to entrepreneurship and enterprise policy due to the adoption of the European Charter for Small Enterprises by all WBCs in 2003 and its methods of implementation and monitoring of measures. Entrepreneurship infrastructure is dominated by the business centres and clusters, the institutions which are easiest to set up and to close down. It is necessary to put in place a system of monitoring and evaluation of infrastructural institutions since there is a lack of evidence of their functionality and efficiency. The same applies to supporting measures and strategies to avoid mismatch between desires and outcomes. The least developed subsystem is the one devoted to the research-based innovation (science-industry cooperation and commercialization of research results) since innovation in the WBC are not science based. Research is a residual of their present economic models and not a vital element of development. Therefore, the stress of innovation policy should be on upgrading of technological capabilities of companies since industrial revitalisation could be more efficient than programmes for research commercialisation.

A tentative classification of countries according the level of maturity of the innovation subsystems are presented in the Table 1.

	Research system	Entrepreneurship and SMES (non-research based innovation)		Research based innovations	
		Programmes	Institutions	Programmes	Institutions
Croatia	Complex	Complex	Complex	Complex	Complex
Serbia	Complex	Complex	Complex	Moderate	Moderate
FYR Macedonia	Familiar	Moderate	Familiar	Beginner	Moderate
B&H	Moderate	Familiar	Familiar	Beginner	Moderate
Montenegro	Familiar	Beginner	Moderate	Beginner	Beginner
Albania	Beginner	Beginner	Beginner	Beginner	Beginner
Kosovo UN Res.1244	Infancy	Infancy	Infancy	Infancy	Infancy

Table 1. A tentative categorization of WBC by the maturity of innovation infrastructure and programmes

All WBC suffers from the lack of leadership and vision in developing NIS. There is a “flood” of formally produced strategic documents which mainly follows the European intentions and priorities. Uncritical “europeanization” of strategies and policy documents dominates while analytical studies of technological competences (technology assessments; technology foresights) are missing.

The scientific infrastructure is outdated while the level of investments in research and innovation both from public and private resources is too small to have a meaningful impact in development. Therefore, it is necessary to put in place appropriate policy mix based on national competences. Finally, it is necessary to improve statistical systems for R&D, innovation and entrepreneurship.

3. Factors of regional innovation cooperation and science-industry links

This analysis is based on the surveys of attitudes of researchers and entrepreneurs in the region carried out by on-line questionnaires. Researchers were asked about their opinion for two periods: the present and the future in 2030.

3.1. Factors which should be improved to progress regional innovation cooperation

Among other questions about the regional innovation cooperation, respondents were asked to estimate the importance of improvement of various factors for fostering regional cooperation. Factors were divided in five groups (Figure 2) among which the

“state and local administrative regulations” and fiscal and financial obstacles” and recognised as the most critical for regional cooperation.

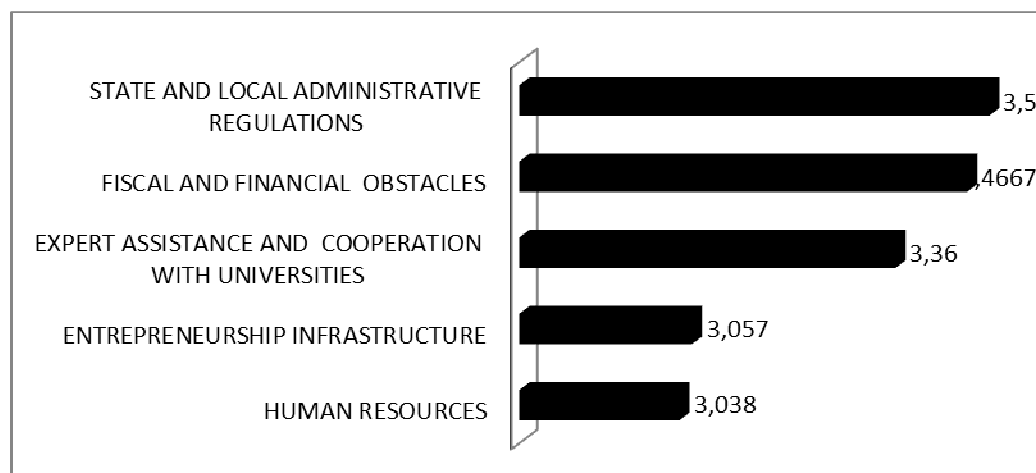


Figure 2: Factors that need improvements to foster regional innovation cooperation

The detailed analysis of the factors reveals that “removing administrative burdens for regional cooperation” appears as the most important factor that needs improvement for fostering regional innovation cooperation for both researchers and entrepreneurs. Unlike researchers, entrepreneurs emphasise also the need to improve “common measures against corruption” and as well as the “subsidies and programmes for financing innovation at the regional level” (Figure 3). Both groups perceive science-university cooperation as critical factor of regional cooperation. Researchers believe that in the future, the human resources, i.e. availability of scientists and engineers in the region and quality of the technical universities will have the decisive role. They also recognised the importance of the region’s communications infrastructure such as telephone, wireless, high-speed internet, etc.

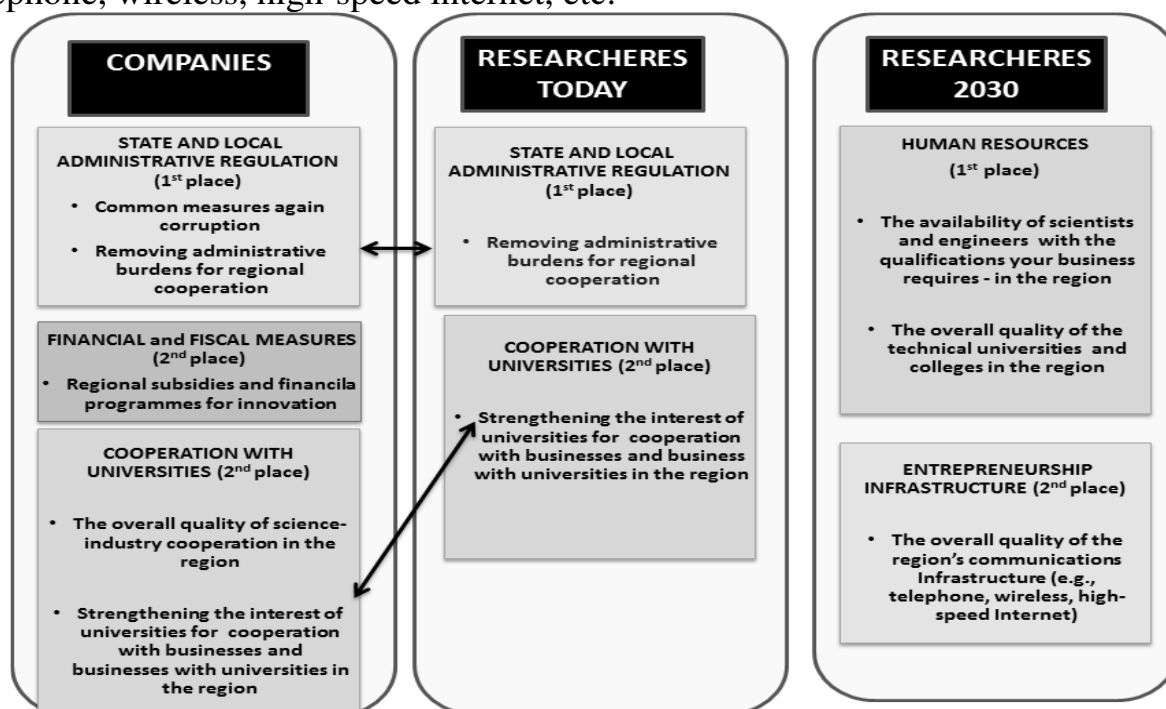


Figure 3. Most important actions for improving regional innovation cooperation

3.2. Most important actions for improving regional innovation cooperation

Researchers and entrepreneurs differ significantly when comes to the most important actions for improving regional innovation cooperation (Table 2). The three actions

	Companies	Researchers - today	Researchers in 2030
Regional venture capital fund	1	6	11
Regional financing programme for innovation	2	4	6
Regional initiatives for large infrastructural projects	3	8	3
Common large scale technology programmes	4	12	9
Joint regional approach towards int. funding org.(WB, EU)	5	10	7
Harmonisation and opening of the government's procurements markets	6	5	5
Strengthening regional innovation clusters in selected sectors	7	11	12
Common apprentice programmes of young experts	8	7	10
Common educational programmes for technical skills, innovation management,	9	9	8
Common mobility programmes	10	3	1
Consistent legal framework for FDI in theregion	10	1	2
Opening and liberalisation of the service market within the WB region	12	2	4

Table 2. Most important actions for fostering science-industry cooperation (rank order)

which are the most important for researchers are the least important for entrepreneurs: common mobility programmes, legal framework for facilitating foreign direct investments and liberalisation and opening of the service market. By contrast, companies prefer funding and financial support for improving regional innovation cooperation that includes also the creation of the regional venture capital fund. Despite the differences, both the groups recognised the need for developing regional initiatives for large infrastructural projects which might be sufficiently large and capital intensive to demand cooperation of several WBC, such as ICT, transportations, energy resources, clean technologies, etc.

3.3. Most important actions for fostering science-industry cooperation

Researches and entrepreneurs agree that the two most important actions for fostering science-industry cooperation are /1/ more funding for collaborative research between universities and businesses and /2/ more funding for knowledge/technology transfer activities and expert consultations. They differ significantly regarding the business/technical advising services of universities which is recognised by

researchers as one of the most important factor while it is the least important for companies (Table 3).

	Companies	Researchers - Today	Researchers in 2030
More funding for collaborative research between universities and businesses	1	1	2
More funding for knowledge/technology transfer and expert consultations	2	2	1
Greater understanding by researchers of the needs of business companies and industry	3	6	8
Development of local partnership/inclusion of universities in clusters or business associations	4	9	9
Greater understanding by researchers of intellectual property rights (IPR) and its implications	5	6	10
Easy access to professional technology transfer officers (or similar staff)	7	11	6
Establishing of university incubators or science parks	8	10	9
Financial incentives for university staff which cooperate with companies	9	8	11
Better mobility (exchange) of researchers between universities and industry	10	5	5
Organization of specialized training courses by universities for the needs of industrial sectors and companies	11	4	4
Creation of specialised large-scale programmes for cooperation of companies and research institutions (e.g. technology platforms)	12	7	7
Introduction of regular business/technical advising services at universities for the needs of businesses	13	3	3

Table 3. Most important actions for fostering science-industry cooperation (rank order)

4. Conclusions

The analyses reveal that WBC, despite the significant differences in overall economic development and maturity of the innovation systems, shares many similarities regarding business and technology development. The similarities as well as spatial proximity naturally orient WBC towards mutual cooperation and make the initiative for regional innovation system reasonable. Furthermore, the regional market for innovation and research consists of more than 23 million of people which provides economy of scale, value chain connections and concentration of research and technological potentials.

The survey of researchers' and entrepreneurs' attitudes point out the following actions for regional innovation cooperation:

- Identify and remove state and local administrative burdens and procedures for regional cooperation,
- Initiate an exercise in mapping the technologies and research with commercial potentials within WB region to identify common thematic (sectoral) programme;
- Improve science-industry cooperation at regional level by:
 - more funding for collaborative research between universities and businesses;
 - more funding for knowledge/technology transfer activities and expert consultations;
- Initiate financial instruments for fostering innovations at the regional level that includes:
 - Regional venture capital fund;
 - Common supporting programmes for financing regional innovation cooperation;
- Initiate large infrastructural projects on regional level which can involve several WBC into the same programmes of innovation cooperation and development;
- Improve mobility of personnel at regional and sectoral level;
- Improve legal framework for fostering FDI;
- Open and liberate of service market for R&D.

Since the precise data about administrative obstacles to regional cooperation are missing, it could be recommended that further studies should involve identification of the administrative burdens and procedures in order to remove them and facilitate regional innovation cooperation. The need to improve science-industry cooperation as the critical factor of innovation development calls for establishing of the different supporting programmes and policy instruments for science-industry collaboration and technology transfer. Some models will be proposed within the subsequent task of the WBC-INC.NET project based on the identification of good practices in innovation policies in the WBC and EU member states.

With regard to joint actions to be taken for better regional innovation cooperation, there are substantial differences between entrepreneurs and researchers. The three actions least important for industry are among the four most important for researchers, as follows:

1. mobility of personnel;
2. legal framework for fostering direct foreign investments (FDI);
3. opening and liberalisation of service market (probably for R&D services).

Entrepreneurs, contrast to researchers, perceive the establishing of the regional venture capital fund and regional financing programme for innovation as substantial for regional innovation cooperation.

Despite the above differences, both parties recognised the lack of infrastructural projects for fostering regional innovation cooperation. We may conclude that there is a need to identify, create and implement infrastructural projects that are sufficiently large and capital intensive to demand cooperation of several WBC: ICT, transportations, energy resources, clean technologies, etc.

5. Literature

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