

THE ROLE OF INNOVATION
POLICY IN BUILDING NATIONAL
COMPETITIVENESS: THE EXPERIENCE
OF SLOVENIA AND MONTENEGRO

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Introduction

Maja Bučar and Danijela Vojinović Jačimović

Innovation is becoming increasingly important at both the macro- and microeconomic levels. Today, no enterprise can hope to remain competitive and successful without it. Similarly, if a country wishes to increase its participation in the international value chains and increase its competitiveness, it has to build a supportive and effective innovation ecosystem. A search for the most effective measures and policies is therefore a task of many governments, including those of the Republic of Slovenia and the Republic of Montenegro.

A joint team of researchers from the University of Ljubljana, Faculty of Social Sciences and from the University of Montenegro, Faculty of Economics worked together on a bilateral project *Transfer of Slovenian experience for development of Montenegro National Innovation*

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System with the objective of increased export capabilities. Transferring experience from Slovenia for the development of Montenegro's national innovation system with the objective of increasing export capabilities. The main objective of this bilateral project was to explore the possibilities for transferring experiences of Slovenia in developing a national innovation system (NIS). Slovenia developed its NIS through design of an appropriate research, development and innovation (RDI) policy, application of various support measures to business entities, as well as promotion of entrepreneurship. In spite of ups and downs in RDI policies, Slovenia managed to progress to strong innovator status in the European Innovation Scoreboard, and managed to significantly increase the amount of business investment in RDI. Is there a lesson in this process for Montenegro?

The starting points for our research were the following: both countries had institutionally similar R&D systems in the past, both are small states and thus constrained with limited human and financial resources, and both are trying to integrate as much as possible into the European Research Area (ERA). These similarities suggest there is ample ground for cooperation and that some of the solutions Slovenia developed in designing its NIS could be

of value for Montenegro. While Slovenia has tried many different approaches and created different support institutions to promote entrepreneurship (technology parks, incubators, centres of excellence, centres of competency, etc.), as well as applied different instruments, an assessment of the Slovenian NIS indicates that some of these policies have been successful, but some have not produced the expected results, especially in the field of economic growth and competitiveness. While several research output indicators for Slovenia are above the EU average, innovation outputs in terms of increased high-tech exports or value added are still below expectations. The fact that Slovenia often followed the recommended best practices observed at the EU level makes the country's experience highly relevant for Montenegro.

On the one hand, Slovenia's mistakes can be avoided, and on the other, a more optimal innovation policy can be designed in developing solutions that will be more suitable for a transition export-oriented economy like Montenegro. This can contribute to a smoother transition to a knowledge-based economy/society with a national innovation system that is most appropriate for the capabilities of the country and best supports the business sector and its export drive.

As part of the conducted research, several relevant papers were produced, and therefore a decision was made to collect and present them in a joint publication. We believe that the research work carried out by our team could be of relevance to other readers as well, particularly in other transition economies that are still developing their innovation policies.

The book starts off with a discussion on innovation and its relevance. Several definitions of innovation – from the early Schumpeterian one to a more complex one applied for the Community Innovation Survey – are presented, along with the role of innovation policy. Acknowledging that building innovation capacity is an important task of the government, this chapter calls for responsibility of policy makers in the creation of a stable, supportive and comprehensive innovation environment. Since the EU

has been highly active in the field of innovation for decades now and has a considerable impact on national innovation policies not only in member states, but also in potential candidate countries like Montenegro, a short overview of EU innovation policy is provided. EU policies and policy mixes observed in other member states can provide a valuable input in shaping national policies, but should not be simply copied without adaptation just because they are championed by the European Commission as good practices. The adaptation of policies and measures is where national innovation capability is detrimental. The objective of this project was to relate innovation policy with competitiveness, so a separate chapter addresses the complex issue of the relationship between “innovation” and “competitiveness” from an international perspective by integrating two different pieces of the puzzle: the macroeconomic and the microeconomic one. The most important message of this chapter is that today’s innovation-driven economies draw their comparative advantages from a sophisticated business environment and strong innovation. Their productivity–competitiveness nexus draws on their ability to create high value added, not so much from economies of scale and optimization, but from their idiosyncratic resources and unique knowledge creation through innovation and unique technologies. This should be a guideline for both Slovenian and Montenegrin policy makers.

The changing approach to innovation, as reflected in the first part of the book, is explored in more detail in the subsequent chapters. Increasing attention is being given to non-technical innovation, especially in the service sector. Here, both countries have significant unexplored potential, since the measures of traditional innovation policy were focused on technical innovation resulting from R&D in natural and technical sciences. With servitization of economies, non-technical innovation can be of high relevance in building the competitiveness of service sectors like tourism. Different types of innovation are presented that define modern innovation ecosystems and business practice, pointing to the complementary nature of these types of innovation. The main features of such innovation

bear important implications for the shaping of innovation policy. Furthermore, some possible instruments for supporting innovation in services that can be of relevance for Montenegro are also proposed.

Upon initial joint research on innovation policies and competitive advantages, the research team has come to a conclusion that an important pillar of Montenegro's economy was tourism, so a more detailed analysis of innovation trends in tourism was carried out. More than in any other sector, the effect of non-technological innovation strategies on firms' technological innovation needs to be identified. Furthermore, more than any other sector, tourism requires the interconnection of new technologies and human resources because tourists want to enjoy the new atmosphere created with the help of modern tools, but their overall impression will still depend on the interaction with the people who provide the services. This chapter presents some of the good practices observed across the EU, including the Slovenian example of the Bank of Tourism Potentials.

A special chapter is devoted to a detailed description of Slovenia's innovation policy. Especially after the country's EU accession, RDI policy gained more attention and with structural funds also more funding. Various instruments were developed to build a comprehensive national innovation system, some more successful than others. Particular attention is given in this chapter to the instrument that was very important for developing human resources in RDI: funding for junior researchers. Moreover, chapter presents the impact of smart specialization on innovation policy. Among the important messages that can be transferred to Montenegro, as well as other transition countries, is the need to develop a stable, coordinated and transparent national innovation system with clear mid- and long-term priorities, which remains a challenge for Slovenian policy makers. In addition to the general experience with RDI policy, a special chapter is dedicated to the discussion of the Slovenian agricultural sector and the role of innovation in its development, which still lags behind.

The next chapter covers the basic elements of Montenegro's innovation policy and practice. Unfortunately, research infrastructure in Montenegro is outdated, with very few laboratories or research institutes that meet European standards. Financial investment in research remains limited and modest. The government has developed a Strategy for Scientific Research Activities (2016–2020), and committed to increasing investment in research and development. Over the past ten years, Montenegro has established quality assurance systems that meet European standards, strengthened regional cooperation in research, increased opportunities for cooperation between research institutes and the private sector, and improved the legal framework. This could be the basis for improved innovation in the future.

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Based on the latest data of the National Tourism Organization of Montenegro, direct and indirect travel and tourism account for about 22% of GDP. Moreover, the tourism sector also has the biggest potential for future income generation in the country. According to a report by the World Travel & Tourism Council, Montenegro is among the top ten countries according to growth forecasts for the tourism industry in the next ten years, based on statistical data for 184 countries. When it comes to investments in tourism, the same institution ranks Montenegro among the top eight destinations for the next ten-year period. It is expected that in 2026, tourism revenues will be around €1 billion and the total contribution of tourism to GDP will be around 30 per cent. But future development is faced with limitations and challenges. These facts set the framework for the research team to focus more closely on innovation potential in the tourism sector. Each author contributed his/her own research and view on the topic.

The book further features a brief overview of the legal framework for innovation in the tourism sector of Montenegro, as well as the theoretical frameworks of organizational, marketing and financial innovations in tourism. The analysis of organizational, marketing and financial innovations of the actors in Montenegro's tourism industry and the review of the current situation are provided in a

separate chapter. It is clear to the research team that quality tourism depends on the attractiveness of the destination throughout the year. In order for our destinations to overcome the problem of seasonality or concentration of tourists in particular months of the year, the focus of the Montenegrin and Slovenian tourism industry should be on innovations and creating new tourism products, introducing new business models in the tourism industry that include marketing, organizational and financial innovations. Through examples of innovation in tourism in European countries, this chapter provides guidelines for the future innovative behaviour of Montenegro's tourism.

The importance of innovation in the agricultural sector in Montenegro received special attention in our study, with a focus on rural tourism. Agriculture and rural development represent two of the four main drivers of development, but because of the small scale of production, agricultural products can mainly be marketed through the tourism industry. The dominant use of traditional production methods will soon make the country unable to satisfy the rising tourism demand. The popularity of rural tourism is on the rise, despite the insufficient supply and the need for improvement in many directions. Therefore, non-technological innovations in agricultural production and rural tourism offer are imperative for the near future.

The concluding chapter features policy recommendations developed by the research team. These were also included in a *Policy brief* addressed at Montenegrin policy makers at the research and development ministry as well as in the ministry of economy. The team clearly indicates that potential for further development of the country, based on increased non-technological innovation, lies in progressive development of sustainable tourism.

The role of innovation
and innovation policy in
economic development

Miloš Rajković

The development of innovation theory started with Joseph Schumpeter, one of the greatest economists of the 20th century. He posited that economic development was mostly determined by non-economic factors. These factors are related to the institutional structure of society, in which entrepreneurs have the key role. An entrepreneur, who is not only a manager but also a unique and specific person who takes over the risks that come new products and new technologies, is the one who realizes the process of innovation, which is crucial to economic development. The most important factor of economic growth is the combination of five elements that represent innovation: new products, new production technologies, opening of new markets, introduction of new resources and raw materials, and new organization of economic activity (Schumpeter, 1939).

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Peter Drucker (1985: 19) defines innovation as “a specific tool of entrepreneurs, i.e. the means by which they exploit change as an opportunity for a different business or a different service”. In the broadest sense, innovation is a new approach or a new way of solving problems or tasks in different fields of human activities (art, science, economy, law, management, etc.). In the narrow sense, innovation is a new way of solving problems or tasks in economy (technique, production, organization, marketing, etc.). A new solution is a relative thing – it can be related to applying other people’s knowledge (experience), i.e. already known solutions that have not been applied in that particular environment before. Inventions are innovations that represent absolute novelties, i.e. new solutions whose usage has not been registered anywhere (Drucker, 1985).

Innovations as an important factor of economic success can be considered from the microeconomic and the macroeconomic perspective. Macroeconomic success is a result of the microeconomic concept of applying innovations in enterprises. From the microeconomic point of view, innovations can be considered as processes that increase the added value of a company, for example by increasing sales or reducing costs (Greenhalgh and Rogers, 2010).

Innovation does not refer only to creating new values, but also to changing old enterprises and activities. The turbulent and dynamic process of creating companies or changing them is definitely an important source of renewal and economic growth. If we consider innovation as one side of a coin, change is certainly the other side of that coin, since these two notions are inseparable. The tendency of innovation towards constant renewal is true – both at the level of a company and the level of the entire economy (Atkinson and Ezell, 2014).

Modern economy is characterized by continuous and dynamic change. Innovations are positive changes that are based on the process of implementing new ideas in order to achieve better results, either at company level or at the level of the economy as a whole. However, it is necessary to emphasize that the concept of change cannot be equated with the notion of innovation, as every change does not necessarily bring about the improvement of certain processes in the economy. There are numerous empirical studies that explore how innovation influences economic development.

Cameron (1998) analysed the existing literature on the above mentioned problem, and concluded that, in most of the empirical studies carried out at the level of companies, industry and countries, there is a significant positive link between innovation and the extent to which output is expressed. His analysis yielded the following conclusions: (1) innovations contribute significantly to growth, (2) there is a significant spillover effect of innovations between countries, enterprises and industries, which means that other enterprises and other countries also benefit from innovations even though they were not the ones to initiate them, and (3) there is a tendency to localize the overflow of innovations in the sense that industries are prone to clustering, and barriers to transfer of knowledge between countries emerge.

An important factor in the development of innovation is the knowledge behind the innovative activities. In the modern global economic environment, imbued with information and communication technology as a new basic infrastructure condition for the

establishment of national, regional and global connections, intellectual capital has become the factor that contributes to increasing the efficiency of using natural and manmade resources, human resources and information within and between national economies. The new infrastructure allows knowledge to arrive at the right time in the right place – that is, it has the task to connect the scattered global knowledge. Intellectual capital destroys the barriers of ignorance. It becomes and remains the most important resource of the new economy, and the most important factor without which economic, technological, social or overall progress is impossible. The knowledge economy is being formed and expanded as a unique, unlimited and independent production factor which cannot be substituted by other resources. Such knowledge turns into economic goods and income in most economic activities, and not only in those directly related to advanced technologies. In the knowledge economy, innovations are no longer reserved for new products and technologies, but are also valid for new ways of organizing the relationship with customers. Such knowledge also contributes to increased competitiveness of enterprises and the entire economy, and thus enables sustainable economic growth and development. The knowledge economy is characterized by a higher degree of risk due to constant change, i.e. the emergence of new knowledge and innovations, which mean the current material and non-material elements and factors of production are losing value. In order to make the adaptation to permanent change more successful for creating of the knowledge economy, the state has to ensure the protection of social freedom, a high-quality educational system, a suitable institutional environment and a balance between state control and market freedom.

Many theories and new approaches to innovation have been developed in the recent years. Open innovation has been defined as a paradigm that opens up the innovation process, connecting external inputs with internal innovations (Chesbrough, 2003; Chesbrough et al., 2014). The open innovation paradigm can be understood as the antithesis of the traditional vertical integration

model, in which internal innovation activities lead to internally developed products and services that are then distributed by the firm. Open innovation has become the new paradigm for organizing innovation. It assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to the market, as they look to advance their innovations. Open innovation processes combine internal and external ideas together into platforms, architectures and systems. Open innovation processes utilize business models to define the requirements for these architectures and systems. These business models access both external and internal ideas to create value while defining internal mechanism to claim some portion of that value (Chesbrough, 2012).

Chesbrough (2003) identifies two core types of open innovation: outside-in and inside-out open innovation. Outside-in open innovation consist of increasing the company's own knowledge base through the integration providers, customers and external knowledge sourcing with the objective of increasing the company's innovativeness. Inside-out open innovations mean benefiting from bringing concepts and ideas to the outside environment. Gassman et al. (2010) further defined a third type of open innovation linking outside-in and inside-out open innovation processes into a coupled process by enabling partnerships between complementary parties to achieve co-creation through alliances, cooperation and joint ventures. Their view on coupled, collaborative open innovation makes a strong connection between open innovation and inter-organizational collaboration.

Nieto and Santamaria (2010) define an inter-firm alliance as a close and deliberate collaborative relationship between independent firms and/or institutions to perform business activities. Faems et al. (2005) confirm a positive relationship between inter-firm collaboration and innovative performance. Baum et al. (2000) find that the diversity of a firm's alliance network positively influences the innovative performance of the firm. Chesbrough et al. (2006) also argue that an abundance of external knowledge renders the search for knowledge more profitable. Du et al. (2014) define

various additional drivers of success of collaborative innovation and R&D partnerships, such as access and leveraging external complementary resources, as well as reduction of innovation costs and risks.

The concept of a national system of innovation provided a new approach to innovation. The national innovation system framework suggests that the research system's ultimate goal is innovation, and that the system is part of a larger system composed of sectors like government, universities and industry and their environments. According to Nelson (1993) a national innovation system "is a set of institutions whose interactions determine the innovative performance of national firms" (Nelson, 1993: 4). For Lundvall (1992: 2), it "is constituted by elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge". These elements are firms, public laboratories and universities, financial institutions, the education system, etc.

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Gibbons et al. (1994) introduce two modes of knowledge production. Mode 1 is meant to summarize in a single phrase the cognitive and social norms that must be followed in production, legitimation, and diffusion of knowledge in this way. Its cognitive and social norms determine what shall count as significant problems, who shall be allowed to practice science and what constitutes good service. The forms of practice that adhere to these rules are by definition scientific, while those that violate them are not. It is partly for these reasons that, whereas in mode 1 it is conventional to speak of science and scientist, it is necessary to use a more general term knowledge and practitioners when describing mode 2. In mode 2, knowledge results from a broader range of consideration. Such knowledge is intended to be useful to someone, whether in industry or government or society more generally, and this imperative is present from the beginning. Knowledge production in mode 2 is the outcome of a process in which supply and demand factors operate, but the sources of supply are increasingly diverse, as are the demands for differentiated forms of specialist knowledge.

Knowledge production becomes diffused throughout society. This is why we also speak of socially distributed knowledge (*ibid.*).

Nonlinear models of innovation upgrade linear models by taking interactive and recursive terms into account. These nonlinear terms can be expected to change the causal relations between the input and output. The rules of production in the observed systems, for example, can be expected to change with further development of input/output relations. Thus the unit of operation may be transformed, as is typical when a pilot plant in a particular industry is scaled up to a production facility (Etzkowitz and Leydesdorff, 2000).

In a knowledge-based society, university has an equal role as the government and industry. Its influence from the sphere of the secondary actor was transferred to the area of primary influence on the array of innovations in economic development. Companies are no longer the most important factor of development. Cooperation among universities, governments and industry leads to the creation of business and innovation centres that influence the development of innovations and technological improvements. The university, the industry and the government are mutually equal, independent and created by the triple helix society. The university has a special potential for economic development and innovation, both because of the research potential and also because of the base of students, who always offer new ideas. Innovations are too important for development to be left to individual researchers.

The Triple Helix model comprises three basic elements (Etzkowitz and Leydesdorff, 1995):

- a more prominent role for the university in innovation in a knowledge-based society, on par with industry and government;
- stronger relationships among the three major institutional spheres, in which innovation policy is increasingly an outcome of interactions among the spheres rather than a prescription from the government or an internal development within industry;

- in addition to fulfilling their basic functions, each institutional sphere also “takes the role of the other”, operating on a y axis of their new role as well as an x axis of their traditional function. Functional integration, as well as differentiation among institutions, takes place through interaction among the spheres.

The Triple Helix concept arose from an analysis of the university–industry double helix, and the realization that government was an essential part of the innovation equation, even when it was either suppressed for ideological reasons or given too great a weight due to political exigencies.

An innovation ecosystem models the economic rather than the energy dynamics of the relationships that are formed between actors or entities whose functional goal is to enable technology development and innovation. In this context, the actors would include the material sources (funds, equipment, facilities, etc.) and the human capital that make up the institutional entities participating in the ecosystem (e.g. universities, colleges of engineering, business schools, business firms, venture capitalists, industry or university research institutes, policy makers). The innovation ecosystem comprises two distinct, but largely separate economies: the research economy, which is driven by fundamental research, and the commercial economy, which is driven by the marketplace. An innovation ecosystem is said to be thriving and healthy when resources invested in the research economy, either through private, government or direct business investment, are subsequently replenished by innovation-induced profit increases in the commercial economy. At that point, the two economies – the research and the commercial – exist in a balanced equilibrium and the innovation ecosystem is deemed to be healthy (Jackson, 2015).

Today, innovation policy occupies an important place and no one questions its significance. It is particularly important for small countries because it represents an effective way of adapting to global economic and technological changes. Innovation policy implies that the state creates an open and competitive business

environment for businesses and individuals who want to enter a business undertaking and take over the related risks. It is necessary to provide additional financial incentives within the economic sectors that are important for the state.

Factors that determine the success of an innovation policy relate to its alignment with the economy's level of development and the economic policy in general, its resilience against different political circumstances, flexibility to adapt to new changes, and strategic choices of domestic producers.

Countries with leading positions in the development of innovation policies went through a three-step process. First, they recognize the need for a systematic approach to innovation. Second, they were dedicated to the need for innovation within the political system, and they imposed an inspiring vision and strategy of activity with clearly articulated aims and ambitions. These aims and the game plan for their achievement are explained in the national innovation strategies of these countries. In the end, these countries made the difficult decisions necessary not only for implementing the institutional reforms that encourage innovation strategies but also for adequate financing (Atkinson and Ezell, 2014).

An indicator that may be suitable for measuring the effect of an innovation policy is the improvement of the economy's innovation capacity. The innovation capacity of a national economy is its ability to use the existing knowledge and create new knowledge. In order to show its comprehensive role, the innovation capacity of the economy needs synergy with the developed national system for innovation, i.e. with the network of institutions involved in the application of innovations.

Porter and Stern (2003) outline the following determinants that define the structure of an economy's innovation capacity:

- the innovation infrastructure of the economy,
- an innovative ambience in national industrial clusters, and
- links between the common innovation infrastructure and specific clusters.

Each of these determinants can be described and measured to a certain extent with a set of indicators, which enables the modeling of the innovation capacity of an economy. Monitoring how the value of the three components of the national economy's capacity changes over a certain period of time makes it possible to assess the effectiveness of the development policy, from the micro level of the company, through the sector level to the level of the national economy (Semenčenko, 2009). The innovation infrastructure of an economy consists of a series of interconnected factors that stimulate innovation across various areas of the economy, including a set of human and financial resources dedicated to scientific and technological progress, the development of broader public economic policies in terms of innovation activities, and the inherited level of technological development. The basis for the common innovation infrastructure of a nation are its engineering and scientific human resources dealing with the issue of innovation. This basis also includes investments in basic research institutions that promote fundamental understanding and emphasize the importance of commercial valorization of technology. State funding remains the most important source of investment for any research aimed at pushing the boundaries further.

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Innovation policy is closely related to numerous measures of other macroeconomic policies, which at first glance may not have any direct link to the dynamics of innovation in the economy (e.g. market regulation policy, tax policy, infrastructure development policy). This way, innovation policy can achieve comprehensiveness and coherence, and it becomes a more important factor in promoting and supporting innovative activities of individual economic subjects.

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