

## FOSTERING RURAL TOURISM DEVELOPMENT – QUADRUPLE HELIX MODEL APPROACH<sup>1</sup>

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### Abstract

*The transformation of traditional rural economies into entrepreneurial economies in the transition countries is a very complex process. The individual entrepreneurial role in the field of rural tourism is the main strength for development. The aim of the research is emphasizing entrepreneurship role in rural tourism development in the national rural area, in the context in which governments, universities and other civic organizations could and should take part in forming solid regional systems for supporting rural tourism development. The synergy between university, government, industry and society in form of quadruple helix model, on different system levels (regional, national, international) could form basis for specific area development. The Quadruple Helix Model addresses new form of knowledge production and sees the university as part of a reciprocal relationship with society, industry and government.*

*Key Words: entrepreneurship, sustainable development, quadruple helix model, rural tourism, innovation system, knowledge management*

*JEL classification: L83, Z32*

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<sup>1</sup> This research is supported by the Ministry of Science and Technological Development of Serbia, as part of the projects: Interdisciplinary Research European integration and social and economic changes in Serbian economy on the way to EU [No. III 47009] and Basic Research Challenges and Prospects of structural changes in Serbia: strategic directions for economic development and harmonization with EU requirements [No. OI 179015].

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## Introduction

Rural tourism is an important segment of multifunctional agriculture, i.e. integral and sustainable rural development, which due to the multiplicative effect tourism, can initiate the fastest diversification of the rural economy. Also, rural tourism provides additional income to residents of rural areas placement of agricultural products in the market in their own yard, as well as placement of home-made products. Rural tourism allows valorization of women's work in rural households, but also the employment of inactive categories of residents. The development of rural tourism would initiate development of agriculture, which would have a favourable impact on the growth of the social product and national income. If an integrated rural tourism product would be well marketed on the foreign tourist market, under the condition that compliance with quality standards in a rural tourism offer should be previously ensured, it would provide also the arrival of guests from abroad. This would make "invisible exports", and the foreign exchange inflow that would be achieved and would have a favourable effect on the state payment balance. The development of rural tourism would also have a social and political significance, given because tourism contributes to getting to know cultures, ways of life, and hence better understanding of different nations (Radović et al., 2012).

Authors differently define the concept of rural tourism but according to the generally accepted definition: "Rural tourism includes a wide range of activities, services and additional content provided by hosts (farmers, peasants) in family farms and estates to attract tourists to their area in order to generate additional income, while respecting the principles of sustainable development and conservation of natural resources" (Muhi, 2013, p.130). Sustainable tourism, in its most pure form, means an economic branch that minimizes the impact on the environment and local culture, simultaneously assisting in earning wages, opening new jobs and protecting local ecosystems. Namely, this is a responsible tourism that is friendly towards the natural and cultural heritage (Riznić, et al., p. 849). Author Supić underlines the significance and influence of sustainable rural and overall development because they are concentrated primarily on the conservation of natural resources and their use, i.e. management, which will enable meeting the needs of present and future generations. Such development, apart from the primary protection of natural resources, is economically cost-effective, technically and technologically viable, as well as socially justified and acceptable (Supić, 2012, p. 373). Rural

tourism is often also defined as tourism that provides "rural environment" to the visitor, offering him a combination of the experience of nature, culture and people of a typically rural character. The essence of rural life makes the full enjoyment of the visitor into an authentic, original and fundamental experiences. Rural tourism returns visitors to nature, the roots, the basic things and supports the return to origin and originality. Rural tourism includes a whole range of activities and services organized by the rural population.

It is based on sustainability principles and offers elements of rural environment and nature, but also represents the traditional hospitality and living values of the local population. What makes rural tourism so unique is the contact with this nature, as well as personal contact with local people. Rural accommodation combines different types of tourism that show rural life, art, culture and heritage in rural areas. World trends indicate that rural tourism is increasingly becoming a wider concept, and that the needs and expectations of domestic and foreign demand are becoming more sophisticated. Therefore, rural tourism is a combination of many different aspects experiencing, sharing and presenting rural life (Domazet, et al., 2018).

In order to achieve the expected effects of rural tourism, it is necessary to plan stimulation and organizational action in the construction of a sustainable rural tourism development. In addition, it is necessary that the rural tourism product be locally controlled, based on authenticity and promotion which highlights the real expectations of using the product. All this would lead to a faster development of rural tourism in our country that is currently located below real opportunities (Gašić, et al., 2015). Our concrete rural reality is inadequate infrastructure, inadequate institutional organisation and communication, lack of financial resources, reduced volume of tourist offer and traffic. Good endeavors and public policy frames are just some of the incentive factors that have influenced the situation in which the rural tourism in the Republic of Serbia is currently located. The fact that 85% of the territory of the Republic of Serbia consists of rural areas, large geographical diversity (lowlands, mountainous regions), wealth of natural and anthropogenic resources, multiethnic population etc. indicates that rural areas could play a more intense role in tourism development and be the key factor in the future economic development of the Republic of Serbia.

A better connection between government, society, scientific and research organizations and businesses at regional levels could remarkably accelerate the emergence of touristic offer in rural areas, and the connection between science, art and technology with new business models and practice could open up new opportunities for the development of social innovations in rural tourism. For these reasons, the establishment of these links will be supported, both in the process of creating new intellectual property, as well as in the different stages of development of new products, services and technologies in rural tourism development.

The conducted research is based on a methodology that enables the perception of the connection and the mutual dependence of the events relevant to the planned research, their movement, change and development (dialectical or synthetic method), as well as the verification of certain theoretical assumptions by comparing them with the concrete economic reality and determining the degree of truthfulness of these assumptions (verification method). The methodology used is based on the analysis and synthesis of processes and phenomena that lie at the basis of national/regional innovation system in the specific field of tourism development.

### **Problems, challenges and opportunities of rural tourism in Serbia**

Rural tourism plays an important role in supporting the development of rural areas as new tourist destinations. Tourism in rural areas can become an important driver for their socio-cultural development and integrated part of economic development of the rural environment in general. Although mainly tourism and recreation are in tourists' focus in rural areas because of the higher interest of visitors for natural environment in rural areas, the culture plays an important role also. According to Nestoroska and Marinoski (2017), —the potentials of tourism development in rural areas are related with the presence of the natural and cultural resources and values that contribute to the characteristics of activities and services which include recreational, cultural, educational and gastronomic components. (Marinoski & Nestoroska, 2017, p. 220-221).

The Strategy for Agriculture and Rural Development of the Republic of Serbia for the period 2014-2020 emphasizes the potential of the rural tourism sector. The need for rural tourism sector development is stressed, but there is no budget for these purposes, nor the guidelines in the further

development of this sector. This document indicates a positive shift in the domain of defining the first outlines of rural development policy based on the EU model of support.

The Tourism Development Strategy of the Republic of Serbia for the period from 2016 to 2025 also highlights the great potential of rural tourism. In this document it is mentioned that in 2014, according to Eurostat, only 506 foreign tourists visited rural tourism facilities of Serbia. The strategy does not include data on rural tourism capacities. The necessity is emphasized in accordance with this Strategy and the Program for the Development of Sustainable Rural Tourism in the Republic of Serbia to support commercial training programs for rural farms interested in rural tourism, various models of partnerships with registered farms that will connect resources, knowledge and skills. Special attention should be paid to the possibility of using incentive programs for financing the development of rural tourism from the IPARD program of the EU, which envisages the use of about 18 million EUR for the development of rural tourism (Domazet, et al., 2018). The realization of the Strategy, as well as the projected allocation rates from the budget for science, research and innovation in the coming years, will depend on the available funds in the budget of the Republic of Serbia and will be planned annually within the established budget limit (*Strategy of Scientific and Technological Development of the Republic of Serbia*, Official gazette of RS, 25/2016).

If the Republic of Serbia wants to harmonize the infrastructure of institutions for social development with the developed countries and become part of the European Research Area by 2020, it certainly needs to gradually increase its investment in research, development and innovation in order to achieve the goal set by the EU's Horizon 2020 Program in the future. The question is whether this strategic goal, in the process of EU accession, will be realized in 2020 or later. Total investments in science, technological development and innovation from all sources will amount to 3% of GDP, and from the budget 1% of GDP will depend on the significant economic growth and available funds in the budget of the Republic of Serbia (*Strategy of Scientific and Technological Development of the Republic of Serbia*, Official gazette of RS, 25/2016). Financing of rural development at individual level has many obstacles and risks, as a result of slow turnover of the capital. At the first place, the banks in Serbia are not willing to fund individual agricultural producers. "Small, family-run farms (that are predominant in Serbia) are in the worst,

unenviable position and they do not actually have the access to the commercial loans” (Pejanović et al., 2013).

### **An innovative approach to rural development as an answer to real needs of rural tourism**

One of the special touristic products according to the the Tourism Development Strategy of the Republic of Serbia is rural tourism. Touristic destinations with rural tourism as one of the key products are: Tourist region Western Serbia, Kragujevac/Pomoravlje, Upper Danube with The Bačka canals, Lower Danube, Central part of Šumadija, Mountain Golija with a wider environment. Divčibare and Valjevo, Niš, Niška Bania. Vlasina, Vranje and Vranjska Spa, Stig and Kuchai Mountains, South Banat, Old mountain, Podrinje, Loznica, Banja Koviljača. In table 1 we can see all tourist destinations and their key values (attractiveness).

Table 1: *Tourist destinations with rural tourism development potential*

| Tourist destinations               | Key values (attractiveness)   |
|------------------------------------|---|
| Tourist region Western Serbia      | Cultural Heritage<br>Natural Resources<br>Rivers, Lakes<br>NP Tara,<br>Zlatibor and Zlatar – RH Centers<br>SRP Uvac<br>Mokra Gora (Šarganska osmica and Drvengrad)<br>Mileševa Monastery  |
| Kragujevac / Pomoravlje            | Cultural heritage<br>Monasteries Ravanica and Manasija<br>Naive painters galleries<br>Monuments of the industrial culture<br>Senjski Rudnik<br>Natural resources (Resavska cave, Waterfall Big beech, Morava,<br>Ravanica and Grza) |
| Upper Danube with the Backa canals | Cultural heritage<br>Natural resources (wetland habitats, flora and fauna)<br>SRP Gornje Podunavlje<br>Danube with the Backa canals<br>Small towns and farms  |
| Lower Danube                       | Cultural heritage<br>Natural resources<br>Danube<br>NP Djerdap  |
| Central part of Šumadija           | Cultural heritage   |

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|--|--|
|  | Natural resources<br>Bukovica Spa<br>Oplenac<br>Mount Rudnik   |
| Mountain Golija with a wider environment | Cultural Heritage<br>Natural Resources<br>Reservats "Man and Biosphere", "Golija"<br>Uvac and Uvac Lake                |
| Divčibare and Valjevo                    | Cultural heritage<br>Natural resources   |
| Niš, Niška Banja                         | Cultural heritage<br>Natural resources<br>Niška Banja  |
| Vlasina, Vranje and Vranjska Spa         | Cultural heritage<br>Natural resources<br>Vlasinsko Lake<br>Vranjska Banja<br>Small towns                              |
| Stig and Kuchai Mountains                | Cultural heritage<br>Natural resources<br>Danube<br>Mountains<br>The spa towns<br>Speleological objects<br>Small towns |
| South Banat                              | Natural resources<br>Deliblat sandstone<br>Belockrvan lakes<br>Danube<br>Small towns                                   |
| Old mountain                             | Cultural heritage<br>Natural resources<br>Old mountain<br>Small towns  |
| Podrinje Loznica, Banja Koviljača        | Cultural heritage<br>Natural resources<br>Drina<br>Gučevo, Cer, Vlašić<br>Banja Koviljača                              |

Source: *Tourism Development Strategy of the Republic of Serbia 2016 – 2025*

Tourism, and especially rural tourism activities are vital to AP Vojvodina economy. Tourism is an economic branch of Vojvodina with a perspective to become one of the key backbones of its development and significant revenue, with the areas of Southeast and Central Europe as the primary market (Pejanović & Njegovan, 2011)

In order to further develop rural tourism, active involvement of social, political and other institutions and individuals is necessary. Also, for the adequate evaluation of cultural and historical heritage, increased efforts on restoring numerous sites and facilities, which can increase the commitment of the local community to its local area, customs and heritage, are required. Development of rural tourism in Vojvodina must be based on the principles of sustainable development. If a destination decides that rural tourism is a development tool of that place, they must carefully plan and manage this development, which will not only satisfy the needs of tourists but should also ensure the sustainable development of the local community (Njegovan, et al., 2015)

One of the ways of fostering rural tourism proposed by Development strategy Tourism of the republic Serbia 2016 – 2025 is public-private partnership (PPP). Public-private partnership is a widely applied model in modern tourism and it is already in use in almost all countries. The need for a strong partnership between the public and the private sector is more important today than ever before. It is about the maximum synergy of interest between partners, PPP should be developed wherever possible. The role of the state is basically changing tourism, because the state becomes a partner. The state, in principle, is not a good manager and therefore finds an interest in partnering with the private sector. There are known to be successful PPPs examples where the public sector, for example, gives land, gives space for cultural reconstruction monuments to manage the private sector. In the decision-making process based on consultations and active cooperation between public and private sector. This process requires constant mutual communication (Development strategy Tourism of the republic Serbia 2016 – 2025, p. 26).

Policy makers are becoming increasingly aware that rural development policy is needed for at least three reasons. First: rural areas face major challenges that undermine territorial cohesion within countries. Second: rural areas often have an economic potential that is largely unused or can be better used for the benefit of rural population and overall national development. Third: no sectoral policy or market forces are unable to fully respond to the heterogeneity of the challenges and potentials of rural areas and to deal with all positive and negative external factors (Đorđević Milošević & Milovanović, 2012). Many researchers point out that "there is a need for a new paradigm of rural development". Its main characteristics should focus on the territories, rather than on the sectors and increase investments, rather than subsidies. There are objectives such

as equalization of conditions living in rural and urban areas, increasing farm incomes, the competitiveness of households should be complemented by the competitiveness of rural areas, the valorisation of local resources, exploitation of unused resources. Key actors for implementing such a paradigm are not more than national governments and farmers, but all levels of government (supranational, national, regional and local), various local actors (public, private, non-governmental organizations).

Stimulating the young people to stay and work in Serbia. The role of Government is great, because it can stimulate the young people at the higher level (encouraging entrepreneurship, self-employment). The unemployment problem of the brain drain costs, also, would be much smaller, thereby, the old problem of negative population, growth rate present for decades, will significantly be decreased (Vucenov, S., Djuran (Jesic), J., 2012).

### **Building a sustainable rural tourism development approach in Quadruple helix model constellation**

By facilitating the strengthening of complementary links on the university-economy-state-society relationship, and clearly defined functions in the Quadruple helix model, we enable: (1) facilitated cooperation between universities and businesses for better satisfaction of mutual needs and greater contribution to state support for a stronger knowledge economy; (2) developing a suitable environment for the development of academic entrepreneurship, the use of knowledge, innovation and achievement in all areas of science, research and application of knowledge; (3) Encouraging and applying the experience of good practice in this type of compatible cooperation between knowledge institutions, economic structures, state institutions and society. The concept of an innovative knowledge society requires a more intensive approach of science to market needs, as well as a kind of "mixing" of the market into the world of science through the necessity of systemic commercialization of knowledge through innovation. Such organized synergy and synergy between state institutions, scientific and research organizations (universities and R&D institutes), economies and societies, in an institutional and functional sense, is at the heart of building efficient and sustainable national / regional innovation systems, that is stimulation of innovative activity and application results of this activity in practice (Jesic, p. 36, 2016).

The tourism sector is generally held to be of vital economic importance to local and regional communities. At the same time, earlier research has questioned the innovative potential and capacity in the industry, especially where small businesses are concerned (Hjalager, 2002). Small tourism enterprises are usually not seen as capable of radical innovation, instead relying on traditional products and services, delivered and marketed by established technologies and channels, manned by a low-educated and less-creative workforce (Thomas, et al., 2011).

When reviewing possible ways of supporting and enhancing innovative work, Hjalager points at the importance of regulatory and infrastructural changes, organisations concerned with collecting and disseminating knowledge, and technological developments (Hjalager, 2002). Furthermore, Thomas et al. (2011) and Skoglund (2011) point at the widened possibilities for inter-firm collaboration and shared marketing channels opened up as a result of information and communication technologies being adopted by small firms. Many of these aspects require interaction between firms, but also with governmental agencies providing regulations and support and academic institutions providing practical knowledge.

Following this reasoning, interactions between the four helices in the project were designed based on pre-conceived notions of what each helix could contribute to achieve project targets. As the practicalities of the Triple Helix model are well documented in literature, the contributions of each of these three helices have been specified from the start. Public sector organisations were expected to contribute with financial resources, policy making, innovation system support and business advisory services. The academic sector provided technologies related to products and services (in this case ICT-based solutions to increase the visibility of tourism firms to their customers), and knowledge on innovation systems, business clusters and other forms of collaborative practices. Academia also provided training and education, as well as access to business incubators and research spin-offs. The small firms were to run and develop their businesses, using the support structures provided by the two first helices. By introducing the civil sector in the guise of NGOs, the project aimed at improving the relations between the other helices and establishing regional and transnational business collaborations, such as alliances, co-branded destination services and industry clusters.

By promoting an innovation system where marginalised groups play central roles, the Quadruple Helix model provides an interesting example of how to bridge the gender gap of entrepreneurship and innovation in future innovation systems initiatives. These experiences can guide future policy programs on regional growth and innovation when aspiring to create more inclusive ways of "doing entrepreneurship". At the same time, there are also several problematic and unresolved aspects of the case studied that relates back also to other earlier studies of innovation systems and entrepreneurship beyond traditional notions of Triple Helix (Lindberg, et al., 2012). One such aspect is the consequences of the regionalisation of innovation system concepts that tend to make weak and under-developed regions subject to the same policies as highly competitive nations and industry clusters. The Quadruple Helix model is a response to the calls for civil society involvement and emphasis in weak regions (Cornett, 2009), but is of course also a more accurate description of the collaboration patterns in prosperous regions who often tend to have well developed 'third sectors'.

In addition to fulfilling its traditional functions, each of the main elements "assumes the role of the other" creating such new synergetic effects - sinteraction. In economies with the applied triple / quadruple spiral model. the qualifving workforce has increased. the industrv and service sector is based on knowledge and driven by innovations, with the technology-intensive role of universities and scientific-research organizations. These new ways of interdisciplinary knowledge creation are basically modelling and building national innovation systems, which is of particular importance in contemporary conditions of competitiveness on the international scene. The principle of complementarity in helix models, similar to those of natural sciences, reflects interaction, complementing the relation of constituent elements that together contribute to the integrity of a particular phenomenon. In conditions where the global economy faces the challenges of unemployment, poor or negative economic growth, increased needs for health services, rapidly growing digital business models, unsustainable environmental changes, etc., it is noticed that universities, businesses, state institutions and the society as a whole is working together to solve all the current and future challenges (Penezic & Djuran, 2013).

The proposal of a practical policy measure on structural changes in Serbia would clarify the concept of regional innovation systems, the role and importance of RIS within the national innovation system, the goals and

tasks of each individual RIS on the territory of the RS. Also, by following the policies for managing regional innovation systems in the EU, as well as comparing the results of RS regional innovation systems, we strive to strengthen innovation through the systemic pathway, creating fundamental regional systems. A positive step, made by the establishment of 5 statistical regions, in the Law on Regional Development ("Official Gazette of the Republic of Serbia", No. 51/2009 and 30/2010) was adopted by the Assembly of Serbia in 2010 for the purpose of harmonization with the countries of the European Union and other European countries using NUTS standards. By this approach, the level of the state is defined as one statistical level. For NUTS level 1, it is not determined whether it will be made by Serbia as a whole or three areas (2 autonomous provinces and the so-called territory of Serbia outside the territory of the autonomous provinces). The division of Serbia into 7 statistical regions is divided at NUTS level 2. NUTS 3 would be the current administrative environment (although this unit level requires a population of at least 150,000, and some districts do not meet this requirement). The lower level of the LAU would be the territories of cities and municipalities. This organization of space is accompanied by appropriate codification of territorial units. For level NUTS 1 code will be RS0, and for level NUTS 2 will be RS01, RS02... RS07. By properly monitoring and directing regional development and fostering the regional innovation of each individual region based on sustained regional innovation systems and building innovation infrastructure, we will contribute to raising the level of competitiveness of the national economy (Jesic, p. 302, 2016).

Towards the end of the last century, the concept of rural development is gaining in importance in both developed and developing countries, including Serbia. The view of the socioeconomic development policy in general is drastically changed. The focus is not only on overcoming regional disparities and differences between urban and rural development, but also on the coordination of the development of agriculture and other activities and services in rural areas, in order to ensure a better quality of life and improve the living standard of the population by the rational use of resources and their preservation for future generations. This integral approach is today the basis of all development policies of the EU states, where Serbia is seeking membership.

For example, LEADER (A guide to the implementation of the LEADER approach for the development of rural communities, 2017) is one of the

proven effective approaches to rural development based on the mobilization of local communities' own potential for their development. The LEADER approach focuses on "HOW", more than "WHAT" needs to be done. In this sense, it involves the formation of multisectoral local partnerships, i.e. local action groups (LAGs) in a specific rural area with a unique identity. LAGs manage development in accordance with the specific needs of the local population / territory – through decision making, design of local rural development strategy (LSRR), allocation of financial resources and implementation projects. The LEADER is not a new model of rural development, since it was introduced in the countries of the European Union (EU) for the first time in 1991 as The Community Initiative Program, funded by the Structural Funds, and was intended for innovative pilot projects that encourage rural development.

Since 2007, the LEADER has become an integral part of the Rural Policy, i.e. the Common Agricultural Policy of the European Union (ZAP), with the total budget of 2.5-5% (approximately 2.5-5 billion €) of the total resources of the European Agricultural Fund for rural development (EAFRD). The LEADER has since become an integral part of the National Rural Development Programs of EU Member States, within which the LEADER stands out from 2.3-11.3% of the funds. The implementation of Local Rural Development Strategies is among the 10th most important measures of the European Agricultural Fund for Rural Development, for which 4% of the total budget is allocated.

### **Conclusions**

In recent decades the primary agricultural production in Serbia was in a permanent unfavorable economic situation, which is reflected in the "price scissors", which are open at the expense of primary agricultural products, as well as the disparity of income, but also in other ways, all of which have unfavorable impact on agricultural producers (Pejanović, 2013). Global challenges in the information and digital sphere, health care, environmental protection and all areas affected by disturbing forces can be reversed in the chances of economic growth, implementation and joint complementary action of the main elements of the fourfold helix model. As such, a fourfold helix model can create a better way of coordination to improve productivity, production volume and innovation. A positive attitude towards the use of knowledge and innovation can be created by several economic, state and financial institutions interested in

investing in innovation, especially in the MESP sector (Jesic, p. 303, 2016).

Both the Triple Helix (TH) concept and the Quadruple Helix (QH) approach are grounded on the idea that innovation is the outcome of an interactive process involving different spheres of actors, each contributing according to its 'institutional' function in society. Traditional protagonists of the TH are University (UNI), Industry (IND), and Government (GOV). Civil society (CIV) is the additional sphere included in the QH. Contribution to innovation is envisaged in terms of sharing of knowledge and transfer of know-how, with the helices models assigning and formalising a precise role to each sphere in supporting economic growth through innovation. As society becomes more and more interactive, the role of knowledge as well as the number and scope of spheres to be included in the innovation-generating process have been increasing over time (European Union and Committee of the Regions, 2016, p. 5).

More than 10 years after the Gibbons' contribution on knowledge production and the definition of the Triple Helix model, Carayannis and Campbell (2009) introduced a third, more complex, mode for producing knowledge (Mode 3) which had a higher number of interconnections and actors involved. 'Mode 3' entails the learning processes and dynamics of *Mode 2* while integrating them with a bottom-up approach including civil society: "*The Mode 3 Knowledge Production System architecture focuses on and leverages higher order learning processes and dynamics that allow for both top-down government, university, and industry policies and practices and bottom-up civil society and grassroots movements, initiatives and priorities to interact and engage with each other toward a more intelligent, effective, and efficient synthesis*" (Carayannis & Campbell, 2009). In parallel, the concept of Quadruple Helix was developed by maintaining the interaction of the spheres of the TH (UNI, IND, and GOV) and by formalising the role of civil society (e.g. Yawson, 2009).

As they further explain the essence of Helix logic, Leydesdorff and Zawdie authors emphasize that while a national innovation system is an institutional program focused on creating wealth on a national or regional basis, the relationships between the main factors in the Triple Helix / Quadruple Helix model provide a model of structure and dynamics in the basis the functioning of the innovation system at different levels. Hence, the connection and mutual dialogue in the theoretical and practical sense

(inter) of a national / regional innovation system with helix models can result in useful and useful theoretical and practical facts and findings. (Jesic, p. 45, 2016)

The fourth helix is hereafter referred to with the term ‘civil society’ and is defined as follows:

‘A collective entity formed by individual users living on a territory and interacting with university, industry and government as customers, citizens or members of a community in order to contribute to build new innovation paths which are able to promote the socio-economic growth of the territory. Civil society demands that innovations are made according to its needs, releases feedback on products and services (and on their innovation value), and provides its own contribution in terms of knowledge, inventiveness and creativity. Civil society is constantly interacting with the other three helices as a result of enabling technologies for information and communication which make social inclusion possible in real time and at low cost.’ (European Union and Committee of the Regions, 2016, p. 18).

This model in field of rural tourism development underlines the regional level in which each actor maintains the independence of its own sphere and enhances the performance of the other.

### References

1. A guide to the implementation of the LEADER approach for the development of rural communities, (2017). <http://www.rra-bp.rs/uploads/Prirucnik%20LEADER%20finalni.pdf>
2. Carayannis E. G., Campbell D.F.J., (2009). ‘Mode 3’ and ‘Quadruple Helix’: toward a 21st century fractal innovation ecosystem. *International Journal of Technology Management*, No. 46, Vol.3–4:201–234.
3. Cornett, A. P. (2009). Aims and strategies in regional innovation and growth policy: a Danish perspective. *Entrepreneurship and Regional Development*, No. 21, Vol. 4:399–420.
4. Domazet, S., Ješić, J., Vukadinović., S., (2018). European union mechanisms for the development of the tourism sector in rural areas, *Treći tematski zbornik radova međunarodnog značaja: Savremeni menadžment alati i ekonomija turističkog sektora današnjice*, Udruženja

ekonomista i menadžera Balkana i Fakulteta za turizam i hotelijerstvo, Ohrid, (ISBN: 978-86-80194-14-1).

5. Đorđević Milošević, S., Milovanović, J. (2012). Održivi turizam u funkciji ruralnog razvoja Mala poljoprivredna gazdinstva i ruralni turizam u Srbiji, Univerzitet Singidunum, Beograd Agroznanje, Vršac FAO, Budimpešta.

6. European Union and the Committee of the Regions (2016). Using the Quadruple Helix Approach to Accelerate the Transfer of Research and Innovation Results to Regional Growth.

7. Gašić, M., Perić, G., Ivanović, V. (2015). Development of rural tourism in the Republic of Serbia, BizInfo Journal Year 2015, Vol. 6, No. 2:71-81

8. Government of The Republic of Serbia, Strategy for Agriculture and Rural Development of the Republic of Serbia for the period 2014-2024, <http://uap.gov.rs/wp-content/uploads/2016/05/STRATEGIJA-2014-2020.pdf> pp. 42

9. Government of The Republic of Serbia, Strategy of Scientific and Technological Development of the Republic of Serbia, Official gazette of RS, 25/2016

10. Government of The Republic of Serbia, Tourism Development Strategy of the Republic of Serbia for the period from 2016 to 2025, Belgrade, 2018, <http://mtt.gov.rs/download/3/strategija.pdf>.

11. Hjalager, A. M., (2002). Repairing innovation defectiveness in tourism. *Tourism Management*, No. 23, 465–474.

12. Jesic. J. (2016). Ouadruple helix model as a basis of national innovation system, doctoral thesis, Educons Univerzitet, Novi Sad.

13. Lindberg, M., Lindgren, M., Packendorff, J. (2012). Quadruple Helix as a Way to Bridge the Gender Gap in Entrepreneurship: The Case of an Innovation System Project in the Baltic Sea Region, *Journal of knowledge economy*, Springer.

14. MacGregor, S. P., Marques-Gou, P., Simon-Villar, A. (2010). Gauging readiness for the Quadruple Helix: a study of 16 European organizations, *Journal of Knowledge Economy*, No. 1, Vol. 3:173–190.
15. Marinovski, N., Nestoroska, I. (2017). Development of selective rural tourism products as factor for competitiveness, *The Second International Scientific Conference, Tourism in function of development of the Republic of Serbia tourism product as a factor of competitiveness of the Serbian economy and experiences of other countries*, pp. 218-233.
16. Muhi, B. (2013). Ruralni turizam kao komponenta integralnog i održivog razvoja sela u Vojvodini, *Zbornik matice srpske za društvene nauke*, Novi Sad.
17. Njegovan, Z., Demirović, D., Radović, G. (2015). Upravljanje održivim razvojem ruralnog turizma u vojvodini, *Škola biznisa, Viša poslovna škola*, Novi Sad.
18. Pejanović, R. (2013). *Ogledi iz agrarne i ruralne ekonomije*, Poljoprivredni fakultet, Novi Sad.
19. Pejanović, R., Njegovan, Z. (2011). *Ruralni razvoj i lokalni ekonomski razvoj AP Vojvodine*, monografija, Univerzitet u Novom Sadu, Poljoprivredni fakultet, Novi Sad.
20. Pejanović R., Njegovan Z., Maksimović G. (2013). *Ekonomika poljoprivrede, agrarna politika i ruralni razvoj*, Društvo agrarnih ekonomista Balkana, Beograd.
21. Penezic, N., Djuran (Jesic), J., (2013). Model trostruke spirale (the triple helix model) kao osnova nacionalnog inovacionog sistema, *Zbornik univerziteta Edukons za društvene nauke*, 4. Knjiga, Sremska Kamenica: Univerzitet Edukons, pp. 151-165.
22. Radović, G., Pejanović, R., Njegovan, Z. (2012). Značaj i uloga integrisanog ruralnog turističkog proizvoda u Republici Srbiji. U: J. Petrović-Vujačić (ur.), *Međunarodni skup: Ekonomski vidici – tematski broj: Privredni preobražaj Srbije – mogućnosti i ograničenja*, Vrdnik (pp. 577–591). Beograd: Društvo ekonomista Beograda.

23. Riznić, D., Alagić, S., Stojanović, G., Održivi razvoj i adaptacija privrede na ekološke probleme, Naučno - stručno društvo za zaštitu životne sredine Srbije – Ecologica.
24. Skoglund A (2011). Empowering women's entrepreneurship to establish bottom-up innovation systems. The case of cycling tourism in Norrtälje Region. *Quadruple helix reports 2011:5*. Norrtälje: Quadruple Helix Central Baltic.
25. Supić, D. (2012). Evolucija ruralnog razvoja EU i analiza ruralne politike Srbije, Poslovna ekonomija, Sremska Kamenica.
26. Thomas R, Shaw G, Page S. J. (2011). Understanding small firms in tourism: a perspective on research trends and challenges, *Tourism Management*, No. 32:963–976.
27. Vucenov, S., Djuran (Jesic), J. (2012). Institutional prerequisites of employment policy and functioning of labour market, *Managing Structural Changes Trends and Requirements*, pg. 444-458, Chapter 24, Faculty of Economics of the University of Coimbra, Coimbra, Portugal. (ISBN: 978-972-9344-06-0; COBISS.SR-ID 1024514192)
28. Yawson R. M. (2009). The Ecological System of Innovation: A New Architectural Framework for a Functional Evidence-Based Platform for Science and Innovation Policy, *The Future of Innovation Proceedings of the XXIV ISPIM 2009 Conference*, Vienna, Austria, June 21–24, 2009.