A HOLISTIC APPROACH TO INNOVATIONS IN TOURISM

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Abstract: This paper is focused on the importance and influence of the innovations in the time of the fourth industry revolution for the creation of value added in tourism industry. Innovative technology solutions solve problems in a tourist destination, as in the case of the effects of climate change as well as the revival of cultural heritage. New products that are connected with the Internet (e.a. Internet of thinas) and diaital solution services invites small and medium sized firms, and other relevant actors, to apply for funding of co-operative tourism innovation projects. The proposals should primarily focus on the development of innovative products, services and concepts to accelerate the tourism sector. Innovative products and services form the framework of marketing efforts to encourage consumers to decide for the purchase and thus affect the sales success of tourist firms. Innovations that are intended to satisfy the wishes and needs of consumers, based on existing knowledge. Usually it is a technological innovation with features that provide additional solutions compared with the existing ones. Firms want to attract customers who have different needs from the existing customers. The contribution of the paper is mainly conceptual. With the development of the digital innovations (web 2.0., web 3.0., internet, the internet of things) that is central to the new industrial revolution, has led to "Industry 4.0" in tourism. The aim of this paper is to provide answers to RQ1: To present the known theory and practices of innovations in tourism; RQ2: To investigate the changes that will result from Industry 4.0 in tourism.

Keywords: innovations, tourism industry, industry revolution 4.0, digital technologies, internet

JEL Classification: O33, Z33

1. Introduction

The paper deals with the questions about the investments policies in the field of hospitality and indirectly tourism. First, it is necessary to explain the relation between tourism and the hospitality industry. Distinction between hospitality and tourism can be discussed with quantitative (the capacity of each hotel) and qualitative terms (standard of

arrangements, the diversity of services and products, additional services). Hospitality industry is a field within the service industry, and represents the economic benefit for tourism. It is connected to the environment and people traveling. Mass movements of people represent the importance of tourism. In the process of traveling tourists fulfil their needs through the use of hospitality. Thus, it can be said that the hospitality infrastructure represents a precondition for tourism. Thus, the economic effects of tourism reflect through the hospitality industry where technological innovations play a significant role in the creation of the value-added (Ivanović, 2012).

In a global and highly competitive tourism environment runs a tough battle for the favour of the customers and their purchasing power. Hospitality industry needs to ensure its strategic positioning. It is recommended that the hospitality companies grow on the basis of sustainable policies that include economical sustainable growth as well as organic and social perspective. Managers of hospitality companies must therefore be aware of the importance of managing growth, that must be sustainable (viable) and it should not fall into the trap of unsustainable growth (Bertoncelj et al. 2016). Sustainable growth rates are in fact those where companies provide long-term sustainable simultaneous growth in revenue, profits and returns.

Companies that operate under healthy corporate philosophy, follow the mission of creating sustainable value creation. They build their own sustainable development, balanced with the pressures of internal and external environment, mainly in core activities. Finding and creating opportunities for sustainable growth and corporate profitability are at the heart of reflections of every (pro) active management. Many companies do not create value for shareholders and stakeholders, often due to lack of emphasis on basic, core activities of businesses or inadequate diversification (Dominici and Roblek, 2016).

Business growth is derived from the fundamental bonding companies and should be planned and properly managed. The company must have a strategic business plan for sustainable growth, which is an excellent communication tool for the management of change at all levels of management. Under the concept of diversification, it is understood as a growth strategy while introducing new products or services and / or operating in new markets (Lockyer, 2013). Well-used potential of basic and supplementary activities creates market power in the strategic position they can form the basis for expansion into other products/services and geographical areas (Hollensen and Opresnik, 2015).

For the hospitality companies present the key growth projects that are related in creating a new (added) value. Hospitality companies can achieve new value with the transformation of potentials and expertise in institutional skills, by integrating the customer into the business processes, new patents, increased brand awareness, advanced information solutions, using all the available information and strategic alliances, which in the long term increase the yield of the company (Chathoth et al., 2013; FitzPatrick et al., 2013).

First, the hospitality companies shall consider and use their development as a way of internal growth (Murphy, 2013). Its intensity depends on the breadth and quality of the business program offered by the market, organizational structures and processes as a whole and managerial competence of the management team. The companies should be focused on their core business, which is due to rapid technological developments and the rapidly changing needs of customers at all times under severe competitive pressures (Mowforth, and Munt, 2015; Tarí, Heras-Saizarbitoria and Dick, 2014).

In the modern operating systems where people are the key creators and performers, the evolutionary laws are valid, independently of the degree of automation and computerization (Pfeffer and Sutton, 2013). Irrespectively of the forms of business systems, we encourage thinking about new opportunities towards the sustainable development of companies (Epstein and Buhovac 2014; Senge, 2014). Old paradigms and patterns of behaviour that were effective in the previous system are no longer appropriate.

Source of creating new value in the situation of the "innovation" economy becomes creativity, leverage for the creation of the winning factors in the market innovation and intuition (Kuula, Putkiranta and Toivanen, 2012). Developing skills, professional attitude towards work and conquest of modern Information and Communication Technologies (ICT) have become a stable basis for creativity and innovation processes as a way of increasing efficiency and effectiveness (Bisson, Stephenson and Vigurie, 2010; Kaplan and Mikes, 2012).

The innovative environments are a challenge of our time, leaders are increasingly concerned about the working environment and rules and less for the processes (Roblek et al., 2013). Only the effective use of intellectual resources allows continuous improvements. Therefore, the behaviour of business systems at all levels of leadership, management and implementation of changes to what is necessary to provide creative employees who are involved in the processes of strategic thinking and are able to compare values creativity and innovation. (Botha, Kourie and Snyman, 2014; North and Kumta, 2014). A human thus becomes the most important resource that must be managed effectively.

A characteristic of the present time is the innovation entrepreneurship, based on research and development, deregulation, increased funding with venture capital and international protection of intellectual property (Gummesson, 2014).

Innovation is a key lever for the emergence of economic trends and the impact on the dynamics of business cycles (Schumpeter, 1939). The ratio between the innovation and dynamism of economic development is known as a period of the long wave (Mensch, 1979; Freeman, 1984; Tylecote, 1992; Perez, 2002).

This period is characterized by profitable investments in research and development, which is the main part of the commercial success of the product. Keynes (Lawlor and Keynes, 2006) and Schumpeter agree that the decision to invest in economic patterns plays a key role. Keynes and his adherents emphasize in particular the role of investment as one of the most dynamic and volatile components of aggregate demand. Schumpeter and his followers believe that the nature of the investment is as important as the creation of economic trends. Freeman Schumpeter's economic theory was developed on the argument that the adverse economic environments due to lower margins and general pessimistic atmosphere investments decreased, while economic expansion offers opportunities for the development of new technological breakthroughs. Economic innovation system includes the critical factors, such as social capital and innovation as well as reverse innovation vice versa the globalization.

Innovative products and services framework of marketing is trying to encourage consumers to opt for the purchase and thus effect on the sales success of companies. Innovation is intended to ensure that the wishes and needs of consumers are based on the existing knowledge.

Usually it is going for the technological innovation with features that provide additional solutions compared with the existing ones. Companies want to acquire customers who have different needs from the existing or additional customers.

2. Innovativeness of Entrepreneurship Sector in Eastern European countries

Saving and decrease of government investment in research and development, education systems and infrastructure are leading to the deterioration of the national innovation system, and the final result is the reduction of economic growth. In micro and small enterprises, the success of innovation activities depends largely on innovation strategies, free cash flow, the development phase of business and relationship management to innovation (Bertoncelj et al., 2016).

Following, table 1 and figure 1 presents six innovativeness indexes (scored from 1 to 7); these form the 12th pillar named Innovation in the The Global Competitiveness Report 2015–2016.

Table 1: Innovativeness indexes for nine South European countries

	AL	BIH	BG	CRO	MK	MNE	RO	SRB	SLO
Capacity for innovation	3.6	3.0	3.8	3.3	3.6	3.7	4.0	3.1	4.4
Quality of scientific research institutions	2.3	3.1	3.7	4.0	3.8	3.9	3.7	3.8	4.8
Company spending on R&D	2.9	2.5	3.1	3.1	3.1	3.3	2.9	2.4	3.7
University-industry collaboration in R&D	2.3	4.3	3.0	3.4	3.9	3.7	3.6	3.2	4.0
Government procurement of advanced tech products	3.8	2.4	3.1	2.7	3.2	3.9	2.9	2.8	2.7
Availability of scientists and engineers	3.2	3.1	3.7	3.9	4.0	3.8	4.1	3.8	4.1

Source: The Global Competiveness Report 2015 – 2016 (2015).

Table 1, figure 1 as well as the information from The Global Competitiveness Report 2015–2016 (2015) show that Albania, Bosnia and Herzegovina, Bulgaria, Macedonia, Montenegro and Serbia are efficiency driven. Croatia and Romania are in transition from the efficiency driven into innovation driven. Slovenia is the only country in the region that is innovation driven.

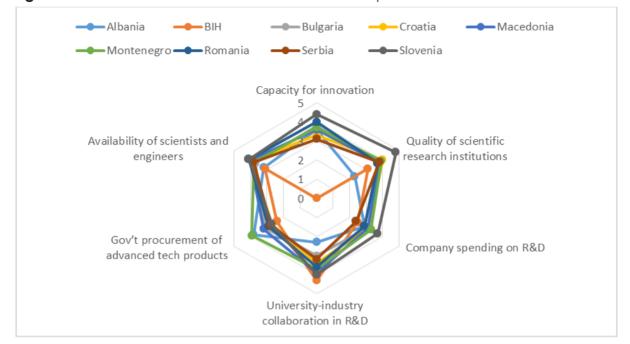


Figure 1: Innovativeness indexes for nine South European countries

Source: The Global Competiveness Report 2015 – 2016 (2015).

Figure 2 presents the most problematic factors that influence on development of a more innovative business environment in all nine countries. Respondents were asked to select from the list of factors five most problematic ones for doing business in their country and to rank them between 1 (most problematic) and 5 (the least problematic). The score corresponds to the responses weighted according to their rankings (The Global Competiveness Report 2015–2016, 2015).

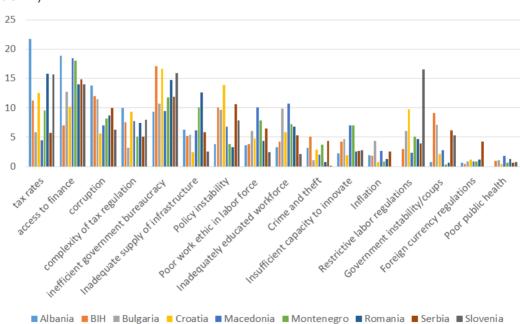


Figure 2: The most problematic factors for innovative environment development by the country

Source: Authors' analysis according to data available from The Global Competiveness Report 2015 – 2016 (2015)

From the Pareto diagram (figure 3) it can be estimated which factors influence the most on development of a more innovative business environment in all nine countries.

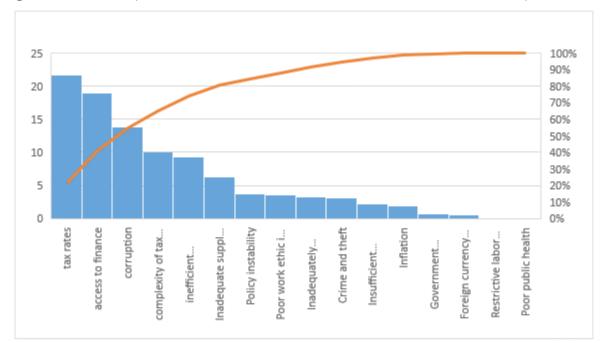


Figure 3: The most problematic factors for innovative environment development

Source: Authors' analysis according to data available from The Global Competiveness Report 2015 – 2016 (2015).

It is visible from figure 3 that higher tax rates, complexity of a tax regulation, access to finance, endemic corruption and inefficient government bureaucracy contribute mostly to all nine countries poor business environment. All countries need to continue with the implementation of structural reforms. Governments have to increase the flexibility of their labour markets, develop the financial sector, and reduce red tape, which is reported as one of the most problematic factors for developing the business environment in South European Region (The Global Competiveness Report 2015 -2016, 2015).

3. The paradigms of the Innovations in Tourism and Hospitality Industry

In the 21st century innovation represents one of the key factors in ensuring competitive advantages in the field of tourism and hospitality industry. Only through innovative solutions tourism will continue to contribute to further sustainable regional development, which is reflected in the performance multiplier effect from tourism related industries (Haxton, 2015; Sloan, Legrand, and Chen, 2013). For tourism it is important that it is closely related to a number of other sectors and thus can generate positive externalities.

Tourism development requires moderate investment and has quick and immediate impact on regional economic growth especially in less developed regions (Seckelmann, 2002). Tourism tends to distribute development away from the industrial centres and towards undeveloped regions (Williams and Shaw, 1991). Less developed or rural regions have more intrinsic motivation to adjust the industrial structure: wider productivity disparities between industries and relatively low industrial switching cost (Alkier, Milojica and Roblek, 2015).

All nine south European countries are influenced by different sociological, cultural, political and economic characteristics. Their economies were influenced by the socialist economic system from 1945 to 1990. The former socialist economy in its economic doctrine was not aware of the concept of innovation. The consequences of socialist economy are still visible in a high level of centralisation, lack of proper regional policies and institutions and top-down planning approach employed for a long period (Alkier, Milojica and Roblek, 2015).

The tourism sector provides countless development opportunities for lower and middle income south European countries and has a significant positive impact on their GDP and national economies (table 2). The data in table 2 show that investments in tourism are an important factor for the economic growth. Countries with higher level of investment in 2014 (Croatia, Montenegro and Slovenia) have the highest GDP total contribution of tourism.

Table 2: Key facts about the importance of tourism for regional development - comparison of the nine south European countries

Country	GDP direct contribution %		GDP total contribution %		Employment: direct contribution %		Employment total contribution %		Visitors exports %		Investment %	
	2014	2025	2014	2025	2014	2025	2014	2025	2014	2025	2014	2025
AL	5.9	6.2	21	21.8	5.3	5.8	19.2	20.4	30.4	24.2	4.3	4.5
BIH	2.5	3.0	9.3	11.0	3.0	3.8	10.7	13.1	13.0	13.2	4.7	6.6
BG	3.7	3.9	13.1	12.9	3.4	4.3	12.1	12.9	12.3	9.6	6.1	5.8
CRO	12.5	16.8	28.3	36.2	13.6	16.3	30.2	35.3	43.7	48.3	10.2	10.4
MK	1.4	1.4	5.2	5.7	1.3	1.4	4.7	5.2	5.6	4.2	2.2	2.6
MNE	9.5	14.8	20.0	31.9	8.6	13.4	18.5	29.6	54.3	51.6	30.1	53.2
RO	1.6	1.6	4.8	5.1	2.4	2.5	5.5	5.9	2.5	2.6	7.3	7.6
SRB	2.1	5.2	6.1	7.2	2.6	3.2	6.4	7.5	6.5	7.0	4.4	4.2
SLO	3.5	3.8	12.7	13.8	3.9	4.5	13.0	14.6	8.0	8.8	9.4	10.0
Europe	3.4	3.6	9.2	9.8	3.6	4.1	9.0	9.9	5.6	5.8	4.7	5.0
World	3.1	3.3	9.8	10.5	3.6	3.9	9.4	10.7	5.7	5.6	4.3	4.9

Source: Travel & Tourism: Economic impact 2015 (editions: Albania, BIH, Bulgaria, Croatia, Macedonia, Montenegro, Romania, Serbia, Slovenia).

The analysis of statistical data in table 2 indicates that for all nine countries tourism and travel industry represents an important segment of the economy. All countries have undergone a transition from socialism to a market economy system at the end of the 20th and in the beginning of the 21st century, after which tourism companies slowly started to reposition themselves. All nine countries are registering an increase in the number of international tourism arrivals and the total contribution of tourism industry to the GDP. According to these positive results, it can be agreed that all destinations have been effective in attracting tourists, but they fail to improve their competitiveness and therefore better transformation of tourism opportunities into economic benefits.

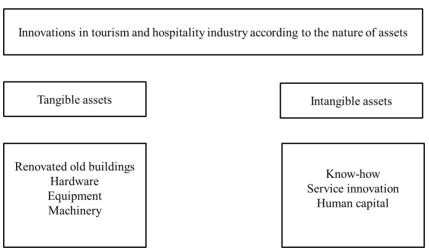
Innovation in the tourism sector includes the introduction of advanced technological solutions with a view to the implementation and promotion of tourism products and services. These solutions are used throughout the tourism sector, which covers the transportation, mobility, cultural heritage, hotels and other hospitality suppliers and promotion of destinations (Pechlaner and Innerhofer, 2016).

It should be noted that the development of innovation in the field of tourism should arise from perception of innovation, which has to strain the corporate sector and government regulation, which should be aimed at promoting innovation environments, tax exemptions and financial incentives (Kahn and Kawasaki, 2014).

Innovative solutions in the field of tourism include the creation or improvement of existing conceptual solutions in the areas of transport, hotel and other services, the development of new destinations, the use of Information and Communication Technologies, new forms of management and organizational activities (strategic alliances and networking and the development of tourism businesses) (lordache, 2015). Inter-regional spill over effects occur through various channels such as technology, knowledge, investment, human capital and competition (Yang and Fik, 2014). Tourism may also generate demand-side spill overs (Yang and Wong, 2012). It should be noted that government policy is important in channelling spill over effect.

Innovations in tourism and hospitality can be divided with regard to the structure of investment (figure 2) and innovations that enable sustainable growth or classified as (i) technological or non-technological innovations, (ii) product or process innovation, (iv) organizational or market innovation, or "ad hoc" innovation (nature of the innovation), (v) radical, incremental or architectural innovation (innovation and intensity of discontinuity).

Figure 3: Innovations in tourism and hospitality industry according to the nature of assets



Source: Authors' analysis

The following chapters are focused on the importance of the development of information and communication technology solutions and influence of the innovations on the value added model in tourism and hospitality industry.

4. Characteristics of the Entrepreneurial Investments in Innovativeness of Information and Communication Technologies in Tourism and Hospitality

The development of the Information and Communication Technologies (ICT) in the second decade of the 21st century has enabled the creation of strong mutually cooperating web communities, which are peers sharing digital products and information.

The growth of small technology companies is extremely important for youth employment and development of the environment, so young technology companies are developing digital platforms and software and technological solutions that have a significant impact on changes in the marketing chain in tourism and hospitality industry. However, it is necessary to be aware that the rate of development of technological solutions depends on the development of both entrepreneurial culture and information society in each country. Table 3 presents the estimated ability of technological readiness of each analyzed country.

Table 3: Technological readiness

Factors of the technological readiness	AL	BIH	BG	CRO	MK	MNE	RO	SRB	SLO
Availability of latest technologies	3.9	4.2	4.6	5.0	5.0	4.6	4.6	4.9	5.5
Firm-level technology absorption	4.1	4.4	4,4	4.6	4.2	4.4	4.4	4.7	4.9
FDI and technology transfer	4.5	3.3	4,4	3.8	4.4	4.0	4.7	4.2	4.1
Individuals using Internet %	60.1	60.8	55.5	68.6	68.1	61.0	54.1	54.3	71.6
Fixed-broadband Internet subscriptions/100 pop.	6.6	14.1	20,7	23.0	16.2	15.2	18.5	12.7	26.6
Int'l Internet bandwidth, kb/s per user	26.1	43.0	138.3	58.0	41.8	77.0	153.8	28.9	121.1
Mobile-broadband subscriptions/100 pop.	30.9	27.8	66.4	68.5	47.7	31.0	49.4	12.7	46.7

Source: The Global Competiveness Report 2015 – 2016 (2015).

Gaps are wide on technological readiness, with the Slovenian outperforming followed by Croatia and Romania in ICT adoption and innovation, with less promising trends in Albania and Bosnia and Herzegovina (table 3).

To achieve new technological solutions and consequently regional tourism development, governments of all nine countries should prepare concept of economy development according to the German phenomenon Industry 4.0., which is based on the implementation in industry, the human environment and scientific research. For all nine countries it is important that the German government stimulates the political-economic initiative to help industrial manufacturing keep its competitive edge against the labor-cost advantages of developing countries and resurgence in U.S. manufacturing (Weber, 2015). The European Union has therefore decided to encourage research into the field of smart technologies. The research program Horizon 2020 offers funding programs for research and development projects such as smart cities and communities' information, strategic roles of smart cities for tackling energy and mobility challenges, analyzing the potential for wide-scale roll-out of integrated smart cities and communities' solutions, etc., (European Commission, 2015). The role of Industry 4.0 in tourism and hospitality is increasing competitiveness through smart

equipment, making use of information about customer characteristics, resources, energetic efficiency and urban production – smart destinations/smart cities (Hecks and Rogers, 2014).

5. Influence of Innovations on the Value Added Model in Tourism and Hospitality Industry

ICT innovation factors are changing customer behavior and the traditionally structured tourism supply chain, which is now forced to adopt a comprehensive infrastructure based on a more flexible organizational structure in order to implement on-demand marketing and technological innovations.

Information technology is becoming an important factor in companies' business models. With platforms like Airbnb the information technologies are competing with the hotel industry. Hotel managers need to be aware of the influence of ICT, including social media platforms that create opportunities for improvement of the entire value chain of the hospitality industry. New technologies create value added in terms of financial benefits and intangible assets such as improved networking, communication and customer services.

ICT innovations have to enable connection between a customer and a service provider. The process begins with customer expectations about the technology abilities that influenced on customer satisfaction which is reflected in customer retention (Roblek, 2015).

In regard to Industry 4.0, one cannot be thinking only about robotics and the automation of production, because it is a digitization of business processes as a whole; it involves the adoption of a contract over the procurement of materials and how the product "gets" through production and is finally delivered to the customer. In this area, we expect automating processes that will require a certain automaticity of the workers. People will still have to use their brains. Added value will be found in new products and new solutions - handling figures are not productive work (Kane et al., 2015; Schlechtendahl et al., 2015). Kagermann (2014) defined the Internet of Things and the Internet of service as parts of the manufacturing process that has ignited the fourth industrial revolution. The IoT includes "things" and "objects" like Radio-Frequency Identification (RFID), sensors that will send storage, processing and analysis information, and smart phones which interact with each other and cooperate with smart components (Dutton, 2014).

What can be done for regional technological entrepreneurship development and consequently for the tourism development is shown in the figure 4, which presents the innovation of a sensor in traveler's luggage by using the Barcet model that reflects a more synthetic vision of innovation for tourism and regional development (Barcet, 1996).

Application of the Barcet model For whom? What? How? With what? Why? Process innovation Innovations percieved needs: Product innovation The control of the Resource innovations baggage, Luggage control RFID Chip for respectively, more ΙoΤ luggage efficient handling of the baggage Innovation in customer relations (RFID chip) 3 Demand for services ← Supply for services →

A sensor in travellers' luggage (IoT) – case for the tourism industry innovation –

Figure 4: Barcet innovation model for a sensor in traveller's luggage

Source: Authors' adaptation of the Barcet model (1996)

Figure 4 shows the present (and future) importance of new technologies in enabling for tourism and hospitality industry to meet new tourist demand. RFID-chips will replace bar codes, and will play a large part in the upcoming wave of technology implementation at airports, and other service providers in the tourism industry. The present model is suitable for the tourism industry and includes all steps of organizational changes because all objects can be potentially connected and networked. This mode is coming to the step that "smartness economy" is going to change the way of creating value added (steps from 2 to 4 in the figure 4). The sources of services are changing, but all service process is accessible via the internet.

One of the most important roles of the IoT is changing the environment and launching new strategic choices. It is going for a new expression of the relations between customers and producers. The relation will include also the manufacturer of the product (e.g. chip) and multiple partners who will ensure the development of built-in components and software. This cooperation is influencing the rebuilding of the knowledge value chain (Porter and Heppelmann, 2014).

On the demand side customers will increase their awareness in regard to the importance of the quality and reliability of the acquired and given information and technical condition of the products and services. This will affect the accumulation and analysis of information in real time and consequently influence coming guidelines of value creation for the customers. It is opening a question of how will the customers adapt the new IoT and control over their private life? (Roblek, Štok and Meško, 2016).

6. Discussion and conclusion

The growing interest in development of the ICT and an increasing number of organizations which develop and adopt the new ICT into their business leads to the value added of society as a whole. The main challenge in an innovative country

towards the transition countries is equitable economic growth which is not being understood as an innovation only from an economic, but also from a social and environmental dimension. Countries and tourist organizations should be aware that only the investment in new innovative concepts or institutional, governance and organizational innovation are increasingly regarded as the markets and societies that move towards societal progress.

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