

ICT READINESS AS A FACTOR OF COMPETITIVENESS OF SERBIAN TOURISM¹

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Abstract

Technological development has an important impact on tourism industry and numerous studies show significance of ICT as a factor of tourism competitiveness. World Economic Forum also recognizes this influence and includes it in the Travel & Tourism Competitiveness Index (TTCI) as the P5 pillar: ICT readiness⁴. In this paper, we focused our analysis on each sub-pillar of P5 in order to conclude whether its influence on Serbian tourism competitiveness is limiting, encouraging or neutral and what are the most important areas for improvements. The conclusions in this paper are based on sub-pillars benchmark analysis of Serbia and the competing countries. The country sample consists of countries with similar resources and attraction base indicating the potential of development of prospective competitive tourism products (Hungary, Czech Republic, Slovenia, Slovakia, Romania and Bulgaria).

Key Words: *tourism, Serbia, competitiveness, TTCI, ICT, ICT readiness*
JEL: *L83, O33*

Introduction

Travel and tourism is one of the key sectors contributing to the global economic growth. In 2016, travel and tourism directly contributed with estimated 2.3 trillion USD and created 109 million jobs worldwide. Including its induced effects, travel and tourism creates 1 in 10 of all jobs and has a share of 10.2% of the world's GDP (WTTC, 2017).

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4 ICT readiness – reflecting the level of networked infrastructure and access to ICTs.

International tourist arrivals reached a total of 1.235 million in 2016, confirming the seventh consecutive year of sustained growth (UNWTO, 2017), despite increasing and unpredictable challenges posed by terrorist attacks, political instability, natural disasters and health pandemics. It is expected that travel and tourism sector will remain strong and resilient, but will require commitment of governments and destinations in terms of sustained infrastructure investments (WTTC, 2017).

Tourism destination can be perceived as “a physical space in which a tourist spends at least one overnight” (UNWTO, 2007). In addition to various actors that deliver products and services within a destination, following elements shape destination appeal: attractions, public and private amenities, accessibility, human resources, image and character and price (UNWTO, 2007).

Growing international competition has transformed tourism into global business, which affects both supply and demand of tourism (Smeral, 1998). On the supply side, the presence of large multinational companies, such as hotel chains, tour operators and investment funds in developing countries is evident; decreased air travel costs have made destinations more accessible and the use of information and communication technology (ICTs or digital technology) enabled access to global markets to each tourist destination and individual business entities. On the demand side, increasing incomes, demographic changes and accessibility to new destinations and tourist sites fueled higher demand for tourism (Vanhove, 1998).

The goal of this paper is to explore the role and impact of ICT on the tourism competitiveness in Serbia. First section of this paper is dedicated to competitiveness framework as an introduction to tourism destination, its elements and multidimensional strengths. This section also includes description of significant competitiveness areas and distinction between technological and governance dimensions as a factors of tourism competitiveness, which is a core of the analysis in this paper. Second section is dedicated to the relationship between ICT and tourism value chain. It covers links in a simple values chain and the presentation of main stakeholders in tourism value-chain and simplified typology of tourism-value chain actors. This section also includes explanation about the impact of new technological (digital) revolution on tourism and its competitiveness. The need for measuring quality of ICT infrastructure resulted with several indices and methodologies which are presented in

the third section. Focus has been put on Travel and Tourism Competitiveness Index (TTCI) developed by the World Economic Forum (WEF). Forth section analyzes competitiveness of the Serbian tourism measured by TTCI index. At the first part of this section we conducted descriptive time analysis, while at the second part we compared the values of indicators for Serbia with the values for selected countries in order to explore the impact of ICT readiness on overall tourism competitiveness in Serbia.

Competitiveness framework

Tourism destination can be perceived as “a physical space in which a tourist spends at least one overnight” (UNWTO, 2007). In addition to various actors that deliver products and services within a destination, following elements shape destination appeal: attractions, public and private amenities, accessibility, human resources, image and character and price (UNWTO, 2007). All these elements are joined together to deliver attractiveness and unique experience to visitors, as the essence of a tourist destination.

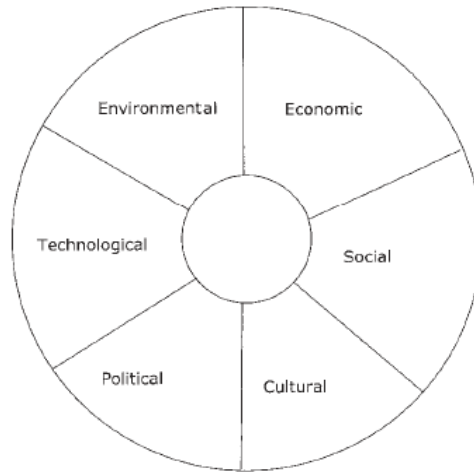
The span of tourist destinations can go from a place (village, town, city) and a region (for example, Western Serbia) to a country, or even a continent. The key is in the attractiveness and market perception of the regions.

One of the most comprehensive definitions of destination competitiveness is proposed by Ritchie and Crouch (2003): “what makes a tourism destination truly competitive is its ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences, and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations”.

In other words, tourism competitiveness can be defined as the capacity of achieving economic profitability, as well as a social balance and environmental protection – to a degree higher than the average in this economic sector (which consists of public and private companies, with the aim of improving the profitability of their investments). A tourism destination is competitive once it performs within the framework of attractive sectors and where investments achieve a higher return (a higher ROI) in relation to other destinations.

Ability of a tourism destination to compete at the global tourism market, besides economic performance, includes social, cultural, political, technological and environmental dimensions (Ritchie & Crouch, 2003) as presented in Figure 1.

Figure 1: *The multidimensional strengths of a tourism destination*



Source: *Ritchie & Crouch, 2003, 2*

Depending on adopted framework⁵, following competitiveness areas can be identified:

1. Geographic area / clusters (destinations) – the scope of a comprehensive destination that can be managed – primarily in the domains of its development and destination marketing. This refers to a region that is recognized and can compete at both domestic and international markets.
2. Tourist companies and rivalry – this area relates to the size and structure of the market, as well as the state of accommodation facilities, the level of competition among companies, the degree of their cooperation (mutual and with the public sector), the level of development of accompanying regulations, the level of activities within the destination, etc.
3. State of demand – characteristics of demand, its social and economic level, motivation to travel, behavior and habits, clients' satisfaction, tourism image of the area, degree of protection of consumers, etc.

⁵ For this paper, adapted Porter's Diamond Model is used, based on the Strategy for Tourism Development of the Republic of Serbia 2006 – 2015.

4. Support / supply sector – this area refers to activities complementary to tourism sector – commercial contents, travel agencies and tour operators, organizers of activities (destination management companies), food and beverage facilities, man-made attractions (thematic parks), local suppliers / producers of traditional products, handicrafts, etc.
5. Production factors – human resources, infrastructure, resources and attractions, technological and financial means, research and development, innovations, etc.

Tourism clusters (destinations) in Serbia are still not defined, considering all relevant factors yet to be developed: tourist products, accommodation facilities, investments, employment, image and marketing, tourism value-chain (economy).

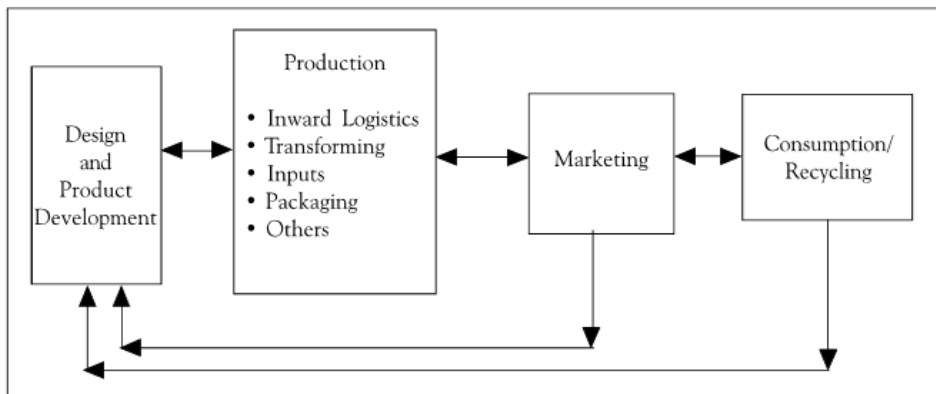
From the perspective of adopted framework for tourism development in Serbia, technological dimension is to be utilized as one of the production factors, important in all components and all actors of tourism value chain. The arrival of the Internet changed the landscape and context of tourism business, as well as increasing use of ICTs. The goal of destinations in use of ICTs is to enhance the visitor experience – from awareness building to final reflection of the visit to a destination (Ritchie & Crouch, 2003).

Another critical factor for sustainable tourism development in Serbia is proper tourism governance. Suitable governance model is the answer to activation of cultural and natural resources (attractions) and successful sustainable tourism development. Development of a destination is a process which demands significant professional support and due time. If there is a strong anchor attraction / place, peripheral areas have a chance to be developed as well. In that respect, there is a need to initiate the process of establishing of destination management organizations (DMOs), following the clear vision and tourism development goals for identified clusters. In addition, a strong commitment and political will is needed. Integration of contemporary innovations and digital technology will represent a critical success factor for global market recognition of Serbia as a tourist destination.

ICTs and tourism value chain

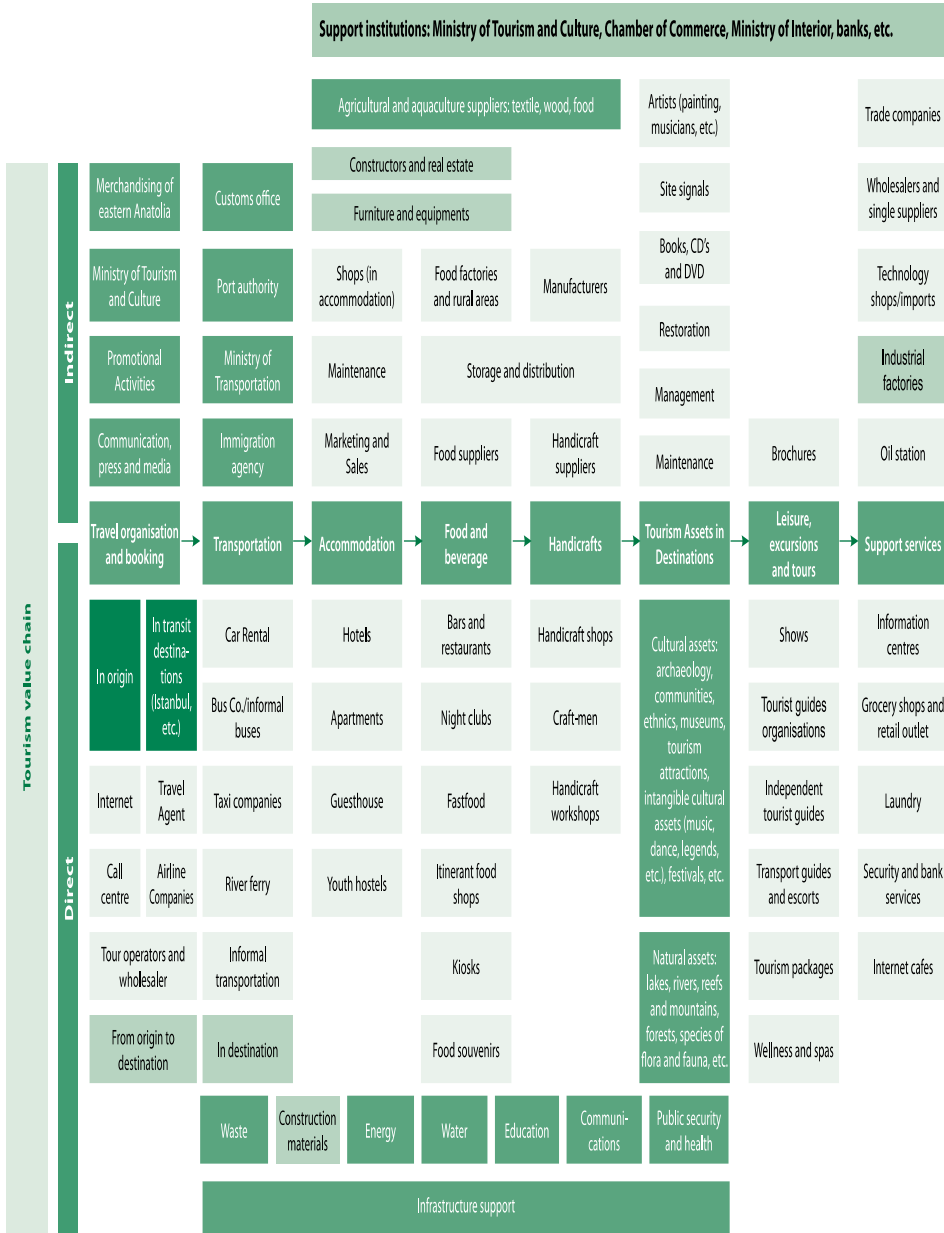
Tourism is a highly fragmented industry - it consists of a vast number of suppliers (hotels, restaurants, transportation companies, cultural and entertainment facilities, etc.) that are geographically disseminated but form a part of the same value-chain. Beside suppliers, the network of stakeholders in tourism includes governments, intermediaries and tourists themselves (Song et al., 2013). Kaplinski and Morris (2001) defined the value chain as “the full range of activities which are required to bring a product or a service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final dispose after use”. Entities (individuals, organizations and companies) in tourism value chain can be interpreted as links connected by their interdependent missions to create and deliver value to tourists, with the goal of making profits (Romero & Tejada, 2011).

Figure 2: *Four Links in a Simple Value Chain*



Source: *Kaplinski & Morris, 2001*

Figure 3: Stakeholders in tourism value-chain



Value Chain Phases: Planning ■ Development ■ Operations ■

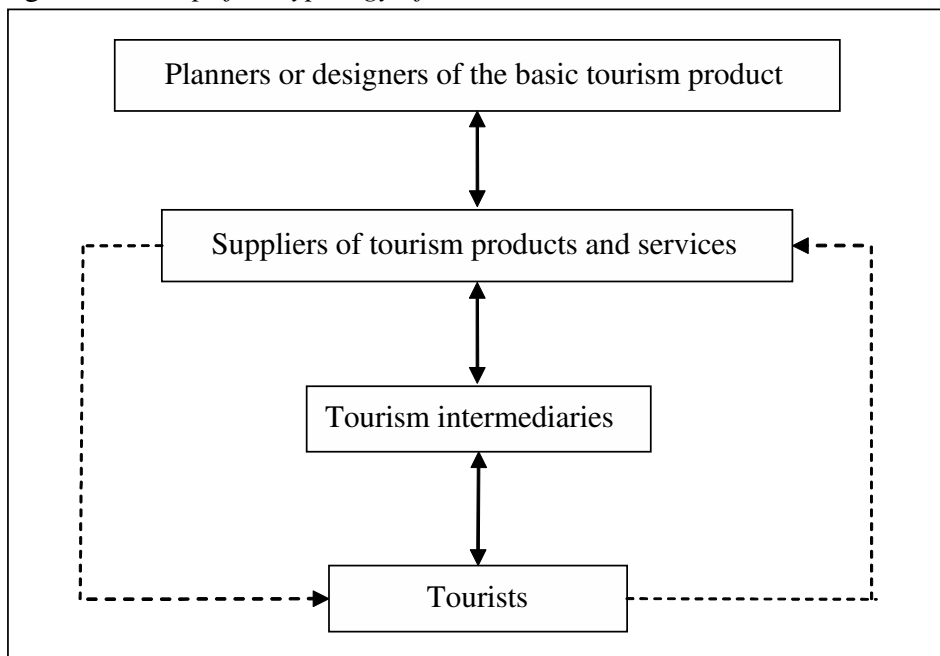
Source: UNWTO, 2011

Globalization of tourism and extensive use of ICTs brought changes in its business paradigm – various activities can be carried out by entities

located in different countries (Bradić-Martinović & Zdravković, 2012). This makes tourism value chain even more complex, since many entities are directly or indirectly linked to tourism sector in the areas of planning (design), product development and operations (production, marketing and consumption / recycling). The Figure 3 presents complexity of tourism value-chain network of stakeholders (UNWTO & ETC, 2011).

In general, there are four types of actors in a tourism value-chain: planners and designers of tourism products, suppliers of products and services, tourism intermediaries and tourists themselves (Song et al., 2013). Following figure presents a simplified typology of these actors:

Figure 4: *A simplified typology of tourism-value chain actors*



Source: *Song et al., 2013*

Interdependence of these actors and alignment in their missions is critical for success of a competitive tourist destination. The issue of tourism value chain governance is, thus, one of the most important factors of a globally competitive destination - number of products and services are offered by various individual actors in tourism value chain and performance of each entity in a value chain can affect value for tourists, which, in turn, affects performance and profitability of a large number of other entities, as well

as performance and profitability of a destination as a whole. Efficient tourism governance model within a destination, comprising of well-established communication, coordination, cooperation and integration among activities of various actors, shapes the success of a destination on a global tourism market (Song et al., 2013).

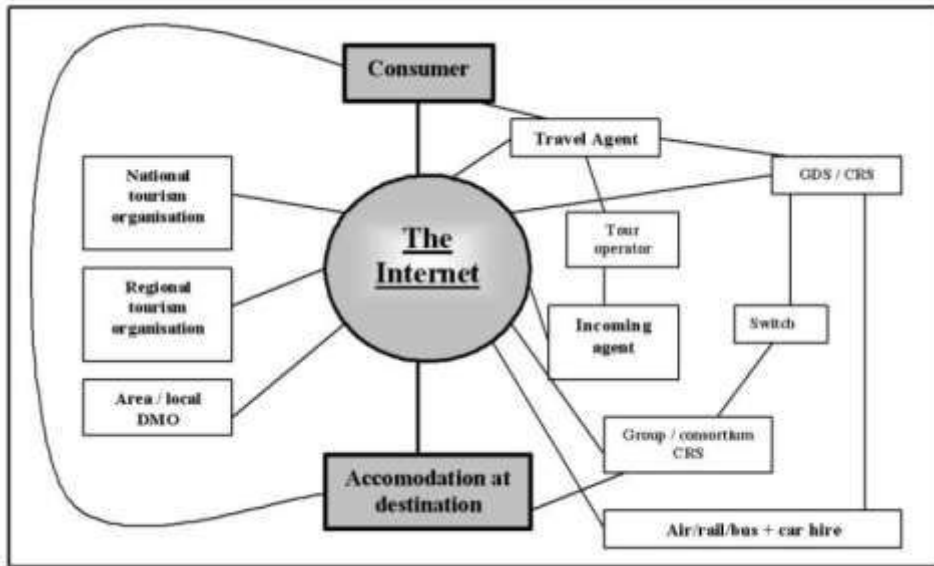
With many entities on the supply side, considering opportunities at the global tourism market, the key challenge has remained how to match existing supply and demand. In that respect, mediation has a crucial role in tourism, presenting the offer of a destination and its entities to the diverse customers coming from all around the world (Tejada & Linan, 2009).

The new technological revolution, or digital revolution, has been continuously reshaping the way people work, live and interact. Digital platforms enable matching of supply and demand in a simple and accessible way - costs are low, supply side is diversified, parties are in continuous interaction, which leads to their increased overall satisfaction and mutual trust (Schwab, 2016).

Innovations and ICTs / digital technology in travel and tourism essentially changed previously established behavior patterns of all participants in the value-chain of a destination and introduced new standards in tourism business. Internet has changed the way tourists search, compare alternatives and choose their travel options, customizing their experiences to the greatest level of details. Acceptance and endorsement of new technological trends in tourism is an imperative and destinations, as well as individual participants, are forced to redefine and adjust their strategies of providing services on the global tourism market. Digital technology consists of hardware, software and networks, and basically it is a type of transfer between two machines. For the business operation of a destination and entities in the tourism value chain, the Internet is a basic infrastructure. Today, global market awareness of a destination, its growth and importance is based on its online performance. Increasing number of innovations and technology by far exceeds the capabilities of individual entities to adopt and productively use all the options available; however, the level of sophistication and integration of technology in all aspects of social and economic life forces actors to adapt to continuously changing market conditions – forms of communications and interactions between a destination and its stakeholders is changing, becoming globally transparent. Transparency in the offer of a destination is one of the main

benefits that ICTs brought to tourism industry, reducing asymmetry of information between suppliers and consumers, which further reduces traditional monopolistic position of intermediaries.

Figure 5: *Internet based value chains in tourism*



Legend: GDS: Global distribution system; CRS: Central reservation system; DMC: Destination Management Company; DMO: Destination Marketing Organization

Source: *Werthner & Klein, 1999, 54*

ICTs opened direct digital marketing channels which introduced a revolution in a way destinations present and execute their offer at global tourism markets – dissemination of information and execution of transactions online are extremely simplified and destinations use digital technology for further advancements of their offer, as well as for customer relations management. Digital platforms used by destinations include central website cross linked with specialized websites, thematic websites, e-mail marketing, eCRM, social media, smart TVs, mobile platforms, etc. In addition, destinations continue to work with intermediaries, where a new and significant power is held by electronic intermediaries. Online travel agencies (OTAs) and Internet distribution systems (IDS), meta-search engines and platforms developed by traditional global distribution systems (GDS) and computer reservation systems represent powerful channels for a destination to present and execute its offer. Figure 5 presents Internet value chains which changed

the paradigm of tourism in last decades. In the future, destinations should closely monitor development of various platforms providing exchange of services among equal participants on the global market (peer-to-peer platforms). Companies such as Airbnb, HomeAway and HouseTrip have recorded significant growth in the number of bookings and revenues, which poses serious threats to existing model of accommodation business. In addition, similar types of platforms have expanded to other services in tourism value chain, such as transportation (Uber, Lyft, Blablacar), food and beverage (Eatwith, Feastly and Bookalokal), and organization of experiences and activities within a destination (Viator, Vayable). Peer-to-peer platforms offer users value for money and, more importantly, authentic and unique experiences because of direct contacts and exchange of services among increasing number of users. Although there are legal limitations in some countries (including Serbia) to use these platforms, it seems that that will not stop their growth and popularity.

Further personalization of services through digital platforms can be expected as a result of convergence of a great number of technological innovations, including the possibility to collect and process a huge amount of data about every prospective individual tourist, which was previously impossible generating so called Big data. This data can be efficiently analyzed through customized algorithms, resulting with highly personalized offer. The appearance and growth of mobile travel agencies has been dictated by migration from desktop to mobile technologies – smart phones and tablet computers. Tourists are continuously connected to the Internet and expect to receive services in all phases of a tourism value chain. Mobile travel agencies (and destinations) are constantly available to their clients, providing support in all phases, additional services and reservation and purchase options. In addition, new technologies are expected to enable interaction through wearable, smart cars and other platforms for tourists while travelling.

The European Union also has a goal to “fully exploit the potential for better use of information and communication technologies” (EC, 2010) with intent to develop touristic sector in EU countries, through connection between tourism and knowledge economy and provision of sustainable development. These priorities had been included into the European Tourism Policy, adopted in 2010 by the European Commission. The EU went a step ahead with the idea to develop decision management system (DMS) in order to measure and integrate all relevant information about their tourism destinations. They also developed 67 indicators within the

European Tourism Indicators System for Sustainable Destinations (ETIS) with an idea to implement it in new DMS. The central point of EU sustainability are Destination Management Organizations. Having in mind great diversity between countries in EU in many cases the role of DMOs play local authorities. Their plan is to establish DMO in each touristic destination in EU as a significant factor of development and competitiveness (Iunius et al., 2015, 12903).

Measurement of ICT infrastructure quality

As we already stated, ICT infrastructure became one of the main driver of competitiveness on the country level (Popova et al., 2005) with significant impact on growth and development of economy (Keček et al., 2016). In the recent decades the need to establish a reliable index and to find suitable methodology that measures this impact has increased. We can find several cases in which new methodologies tended to include all relevant factors, both quantitative and qualitative measures and parameters (Zubović & Bradić-Martinović, 2014). For example, International Telecommunication Union, ITU's Digital Access Index (ITU, 2017a) and Orbicom's Digital Divide Index (ICTlogy, 2017) constructed ICT Opportunity Index (ICT-IO) first published in November 2005, in time for the second phase of the World Summit on the Information Society. It covered a total of 139 economies and tracked developments from 1995 to 2003 (WISR, 2007)). ICT-IO consists of two levels of indicators, Info Density (Network and Skills) and Infor Use (Uptake and Intensity). This index was lately replaced with ICT Development Index funded by UNCTAD. ITU also publish Digital Opportunity Index (DOI) on annual basis. DOI contains 11 ICT indicators, grouped in three clusters: opportunity, infrastructure and utilization (ITU, 2017b). We can also mention WEF Network Readiness Index, NRI (WEF, 2017a). Despite the fact that we have available numerous composite indexes that measure the development and impact of ICT, other indices also contain this component.

For the purpose of this research we put in the focus the Travel and Tourism Competitiveness Index (TTCI) developed by WEF, International Organization for Public-Private Cooperation. At the beginning, in 2007 values of this index were calculated for 124 economies and published in Travel & Tourism Competitiveness Report 2007, while the latest one has been published in 2017 and covers 136 countries. TTCI index includes factors that are important for the country's competitiveness in the tourism

sector, and its ranks provides time and cross-country analysis on the global level, but also on the level of particular pillars. According to the latest report “Paving the way for a more sustainable and inclusive future” (WEF, 2017b) TTCI framework includes 14 pillars:

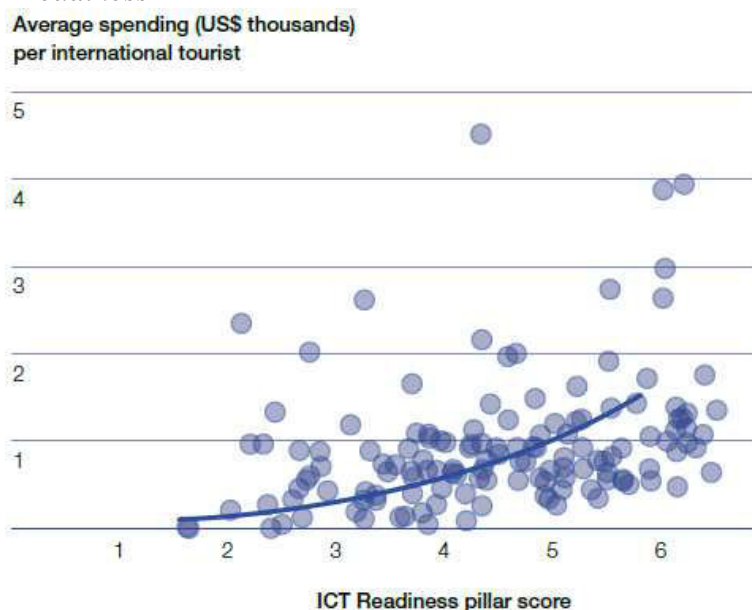
- Pillar 1: Business Environment;
- Pillar 2: Safety and Security;
- Pillar 3: Health and Hygiene;
- Pillar 4: Human Resources and Labour Market;
- Pillar 5: ICT Readiness;
- Pillar 6: Prioritization of Travel & Tourism;
- Pillar 7: International Openness;
- Pillar 8: Price Competitiveness;
- Pillar 9: Environmental Sustainability;
- Pillar 10: Air Transport Infrastructure;
- Pillar 11: Ground and Port Infrastructure;
- Pillar 12: Tourist Service Infrastructure;
- Pillar 13: Natural Resources and
- Pillar 14: Cultural Resources and Business Travel.

Having in mind that we tend to emphasize the impact of ICT infrastructure and readiness on tourism competitiveness we set up a more narrow focus on Pillar 5: ICT readiness, a part of the Enabling Environment sub-index. This sub-index captures the general settings necessary for operating in a country and WEF include it in the first, 2007 version of TTCI as Pillar 9: ICT infrastructure. This pillar “measures ICT penetration rates (Internet and telephone lines), which provide a sense of the society’s online activity; Internet use by businesses in carrying out transactions in the economy, to get a sense of the extent to which these tools are in fact being used for business (including T&T) transactions in the economy” (WEF, 2007b). TTCI 2017 report presents updated methodology with ICT readiness as Pillar 5 which includes 8 sub-pillars:

- ICT use for B2B transactions;
- Internet use for B2C transactions;
- Individuals using internet (%)*;
- Broadband internet subs. per 100 pop.;
- Mobile telephone subs. per 100 pop.;
- Mobile broadband subs. per 100 pop.,
- Mobile network coverage (% pop.) and
- Quality of electricity supply.

Inclusion of ICT infrastructure and readiness in TTCI index is a result of research which shows that the key word of contemporary tourism is connectivity. The outcomes of the latest report point out the fact that tourism has a great impact on connectivity among people and that connectivity became digital, as a consequence of the Forth Industrial Revolution. Today, in most cases tourist need and demand mobile cell network and internet connection. On the other hand these services allow providers to approach to their customers faster and cheaper. Few examples are online booking and access to information in real time. Also “the Internet has become a great mechanism to enable locals and travelers to connect directly without relying on intermediaries” (WEF, 2017, 6).

Figure 5: *Relationship between average spending per international tourist and ICT readiness*



Source: WEF, 2017, 6

Probably the most significant impact of ICT on tourism can be found in the relationship between ICT readiness and average spending per international tourist, i.e. tourism receipts. This relationship, according to the Figure 5, shows high level of correlation, but requires additional research with the aim of testing scientific hypotheses.

Competitiveness of Serbian tourism and ICT readiness

Serbian Government adopted a Strategy of Tourism Development of the Republic of Serbia for the period 2016-2025 and formulated three main goals: Sustainable economic, environmental and social development of tourism in the Republic of Serbia; Strengthening the competitiveness of the tourism industry and related activities in the domestic and international markets; an increase in direct and total participation of the tourism sector in the gross domestic product of Serbia, as well as increasing the total number of direct and employed in the tourist sector and its participation in the overall number of employees in the Republic of Serbia and improving the overall image of the Republic of Serbia in the region, Europe and the world. Strategy recognizes digital channels as a core of modern communication, sharing economy with virtual cross-sector information platform, social networks and 3D technology in touristic promotion as a basis for future expansion. The development of ICT tools for tourism is at the list of priorities, but Strategy does not contain any details regarding this subject. Finally, Serbia does not have destination management organization.

Despite the fact that Serbia is making efforts to develop tourism and tourist offer, the results compared to other countries, are modest. Table 1 is presenting scores of overall index for the period 2007-2017.

Table 1: *T&T Competitiveness index for Serbia - scores and ranks for the period 2007-2017*

Year	2007*	2008	2009	2011	2013	2015	2017
Score	4.18	3.78	3.71	3.85	3.78	3.34	3.38
Rank	61	78	88	82	89	95	95

* The values are for Serbia and Montenegro

Source: *WEF TTIC reports, 2007-2017*

According to the presented values, after separation from Montenegro Serbia recorded sharp decline and during the ten years its position in the global rankings continued to deteriorate (from 2008 rank fall for 17 positions with average score value of 3.64). When it comes to Pillar 5: ICT readiness the situation is much better and we are recoding great improvements in this sub-index, especially from 2013 as presented in Table 2.

Table 2: *Pillar 5: ICT Readiness for Serbia - scores and ranks for the period 2007-2017*

Year	2007*	2008	2009	2011	2013	2015	2017
Score	3.3	2.8	2.9	3.3	3.6	4.4	4.8
Rank	46	57	63	62	49	56	57

* The values are for Serbia and Montenegro

Source: *WEF TTIC reports, 2007-2017*

With the aim of conducting a more detailed analysis we extracted values for all ICT Readiness indicators for Serbia in period 2013-2017, presented in Table 3. Serbia upgraded the value of all indicators in the reporting period, with particular improvement in the area in individual use of internet and mobile broadband subscriptions, while the modest improvement has been recorded in B2B and B2C transactions.

Table 3: *Pillar 5: ICT Readiness sub-pillars for Serbia for 2013, 2015 and 2017*

Pillar 5: ICT Readiness	2013	2015	2017
5.01 ICT use for B2B transactions	4.2	4.5	4.4
5.02 Internet use for B2C transactions	3.5	4.0	4.1
5.03 Individuals using internet (%)*	42.2	51.5	65.3
5.04 Broadband internet subs. per 100 pop.	11.3	14.2	17.4
5.05 Mobile telephone subs. per 100 pop.	125.4	119.4	120.5
5.06 Mobile broadband subs. per 100 pop.	34.5	53.7	71.8
5.07 Mobile network coverage (% pop.)	-	99.7	99.8
5.08 Quality of electricity supply	-	4.7	4.8

Source: *WEF TTIC reports for 2013, 2015 and 2017*

Although Statistical Office of Republic of Serbia (2016) reported that 100% of Serbian enterprises use computers, 99.1% use internet and 75.2% has web site it is obvious that Serbia does not have ability to support new business models based on knowledge-intensive technologies. In support of this is the fact that 41.0% of enterprises ordered goods/services via the Internet in 2015 (Ibid) and that only 9.3% of enterprises pay cloud computing services. We can conclude that Serbian enterprises use ICT for basic services.

After analysis of Serbian situation in the field of ICT readiness there is a need to compare values of indicators with other countries. Our country sample is consist of countries with similar resources and attraction base indicating the potential of development of prospective competitive

tourism products. These are: Hungary, Czech Republic, Slovenia, Slovakia, Romania and Bulgaria. We choose two periods for comparison, 2015 and 2017.

Table 4: *Pillar 5: ICT Readiness and sub-pillars for selected countries in 2015*

	Serbia	Hungary	Czech Republic	Slovenia	Slovakia	Romania	Bulgaria
T&T Competitiveness Index	3.34	4.14	4.22	4.17	3.84	3.78	4.05
Pillar 5: ICT Readiness	4.45	4.93	5.19	5.07	5.05	4.36	4.76
5.01 ICT use for B2B transactions	4.5	5.5	5.6	5.3	5.6	4.6	5.1
5.02 Internet use for B2C transactions	4.0	4.9	5.8	4.9	5.5	5.1	4.7
5.03 Individuals using internet (%)	51.5	72.6	74.1	72.7	77.9	49.8	53.1
5.04 Broadband internet subs. per 100 pop.	14.2	24.9	17.0	25.0	15.5	17.3	19.3
5.05 Mobile telephone subs. per 100 pop.	119.4	116.4	127.7	110.2	113.9	105.6	145.2
5.06 Mobile broadband subs. per 100 pop.	53.7	26.3	52.3	41.8	50.1	37.6	58.1
5.07 Mobile network coverage (% pop.)	99.7	99.0	99.8	99.7	100.0	99.9	100.0
5.08 Quality of electricity supply	4.7	5.9	6.4	6.2	6.2	4.6	4.2

Source: *WEF TTIC report 2015*

Based on the overall values of TTIC, presented in second row of Table 4, we can conclude that Serbia is at the last place among observed countries. The same situation is regard to Pillar 5: ICT readiness, having in mind narrow range between the highest and lowest values compared to the TTIC. The biggest lag in 2015 Serbia recorded in two indicators: Individuals using internet (%), Broadband internet subscriptions per 100

population and Quality of electricity supply, while slightly lagging behind the other countries in the sample in cases of ICT use for B2B transactions and Internet use for B2C transactions. Serbia has average values for Mobile telephone subscriptions per 100 population and Mobile network coverage (% population).

Table 5: *Pillar 5: ICT Readiness and sub-pillars for selected countries in 2017*

	Serbia	Hungary	Czech Republic	Slovenia	Slovakia	Romania	Bulgaria
T&T Competitiveness Index	3.38	4.04	4.22	4.18	3.90	3.78	4.14
5th Pillar: ICT Readiness	4.8	4.9	5.6	5.2	5.4	4.7	5.0
5.01 ICT use for B2B transactions	4.4	4.9	5.4	5.1	5.3	4.6	4.9
5.02 Internet use for B2C transactions	4.1	4.6	5.8	4.9	5.6	5.0	5.0
5.03 Individuals using internet (%)*	65.3	72.8	81.3	73.1	77.6	55.8	56.7
5.04 Broadband internet subs. per 100 pop.	17.4	27.4	27.3	27.6	23.3	19.8	22.7
5.05 Mobile telephone subs. per 100 pop.	120.5	118.9	123.2	113.2	122.3	107.1	129.3
5.06 Mobile broadband subs. per 100 pop.	71.8	39.8	72.0	52.0	67.5	63.7	81.3
5.07 Mobile network coverage (% pop.)	99.8	99.0	99.8	99.7	100.0	99.9	100.0
5.08 Quality of electricity supply	4.8	4.8	6.4	6.3	6.0	4.7	4.6

Source: *WEF TTIC report 2015*

Table 5 presents the same indicators in 2017. The situation is similar as in 2015 and we can draw general conclusion that the most indicators (ICT use for B2B transactions, Internet use for B2C transactions, Individuals using internet (%), Broadband internet subs, per 100 pop., Mobile

telephone subs, per 100 pop., Mobile network coverage (% pop.) and Quality of electricity supply) recorded the progress and closed the gap compared to other countries while Mobile broadband subs, per 100 pop. slightly increase the gap. However, despite the progress in almost all fields covered with this sub-index the overall Pillar 5: ICT readiness for Serbia increase the gap in comparison to other countries in the sample.

Conclusion

The conclusion in this paper can be divided into two sections. The first section contains general states about the impact of ICT on tourism competitiveness. First of all, digital technology has changed the paradigm of tourism business and has become integral part of all phases of tourism value chain. Integration of ICTs in tourism value chain is a critical success factor of competitiveness of tourist destinations, enhancing visitors' experience from early phases of building awareness on the global tourism market to the reflection of the visit to a destination via digital channels. Also, potential use of ICTs in tourism depends on the ability of destinations to align missions of various entities participating in value creation within its overall market performance and finally responsible, accountable and efficient tourism governance (destination management) is a main driver of using digital technologies and innovations in all phases of value creation throughout tourism value chain.

Finally, a tourism industry has become digital – offers of destinations and all entities in tourism value chain have become transparent and comparable, while complete power lies in the hands of consumers, who seek for value added in all phases of their travel. New generations intuitively accept technological innovations and those are integral parts of their lives. Tourism business paradigm has been changed forever and tourist destinations can effectively utilize digital technology and present their offer to the global tourism market, building long-term, and quality relations with their customers.

Based on conducted analysis we can also make some focused conclusions for Serbia. Serbia has a solid ICT infrastructure and ICT readiness in comparison to its competitors, but also has a space for improvement. Serbia is slightly lagging behind competitors despite progress, because other countries have faster progress than Serbia in the field of ICT infrastructure. Our analysis also shows that Serbia does not have sufficient capability and capacity to achieve a real impact on applied ICT

to transform its economy and society and the potential benefits of ICT in terms of establishing sustainable development and improving the quality of domestic tourism. At the end, having in mind that ICT readiness have neutral impact on the value of TCI we would like to point out a correlation between tourism governance and tourism competitiveness of Serbia, but this relation needs to be further explored.

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