

## **COVID19 TOURISM AND MODERN TREND IN THE APPLICATION OF INFORMATION TECHNOLOGIES**

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### **Abstract**

*Tourism is one of the most impacted sectors of the economy caused by the COVID-19 pandemic consequences. The transformation of the tourism industry has conditioned new tourism trends and influenced the development of nature-based tourism. The research of the tourism market shows changes in consumer behaviour and motives of tourism movements. The meeting with the destination value chain where they travel is extremely important for modern tourists. The destination as a 'value chain' consists of related activities making it recognizable and more competitive in the tourism market. The value chain assessment is an indicator of tourists' satisfaction degree with the provided and used service, i.e. the tourism destination 'final' product. The application of information technologies has a key role in the tourists' assessment of the value chain and the destination selection. The future tourism research will be based on the application of BD, BD analytics and business analytics.*

**Key Words:** *tourism, COVID-19, market research, consumer behaviour, information technology*

**JEL classification:** *Z32, O310*

### **Introduction**

The tourism sector is constantly changing and shaping its services in accordance with the requirements and needs of modern consumers. Tourism as a global phenomenon before 2020 and the emergence of the

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COVID-19 pandemic had rapid, stable and steady growth. It was one of the most important sectors of the world economy, with a 10% share of a total GDP and with about 320 million employees (UNWTO, 2021).

Tourism is a sector of the economy that, we can freely say, is facing with the biggest consequences of the COVID-19 pandemic. The research of the UNWTO experts indicates that 2020 is the worst year in the historical development of tourism. With the appearance of the COVID-19 pandemic, tourism could be brought back 30 years, i.e. it could be plunge to the levels of the 1990s. International tourist movements recorded a decline of 74%, which is a loss of about 1 trillion international tourist arrivals. The loss of revenue from international tourism was US\$1.3 trillion, while the estimated loss of global GDP was over US\$2 trillion (UNWTO, 2021). On the other hand, the WTTC research indicates that about 100-120 million jobs in tourism are directly endangered, i.e. that about 75 million workers may lose their jobs (Škare et al., 2021).

Although tourism is very vulnerable to crises and catastrophes, research by the world experts indicates growth trends and better revenues from tourism in 2022, compared to 2021. However, the most tourism experts do not expect that tourism can be return to the pre-COVID level of development before 2023 (UNWTO, 2022).

The COVID-19 has made the huge losses and influence on the transformation of the tourism industry (Abbas et al., 2021; Božović et al., 2021; Luković & Stojković, 2020). The closing of borders, the impossibility of traveling to well-known attractive tourism destinations, has directed tourism movements and interests towards destinations within the national framework. The expansion of domestic tourism in relation to foreign tourism came to the fore during 2020.

In conditions of isolation, domestic tourism has shown positive signs in many markets due to the fact that consumers have created a tendency to travel closer or go on vacation near home. The motives of tourist movements in domestic tourism are encouraged by moving from overpopulated urban units to uninhabited or sparsely populated areas, in the immediate vicinity of urban settlements. Nature-based tourism has become a popular travel choice due to travel limitations and the quest for open-air experiences. This type of tourism has contributed to the development of many selective forms of tourism (rural, rural, ecotourism, health, sports and recreation, spa, mountain, etc.). Lesser-known, but also

forgotten destinations have become the places of tourism movements within the national framework.

The previously mentioned tourist trends have been also recognized in the Republic of Serbia. During 2020, the demand for domestic tourism destinations was directed towards well-known mountain tourism centres and rural areas in the immediate vicinity, but also to the spa destinations. The statistical data indicate the demand for mountain destinations in the Tourism region of Western Serbia. The special attention and interest of tourists was focused on the well-known destination - Zlatibor.

By reviewing the relevant literature, the paper aims to look at contemporary consumer behaviour in tourism, motives for tourism trends and the role of tourism organizations in placing promotional activities towards priority target markets and target segments. The paper also discusses new trends in the methodology of applying information technologies to support decision - making in tourism business. The subject of the research refers to the presentation of tourist satisfaction with the visit of well-known tourism destinations of the tourism region of Western Serbia.

### **Consumer behaviour and motives for tourism movements**

Understanding consumer behaviour, as an important segment of tourism market research, has a very important role in tourism. Market research more precisely defines the needs, motives and behaviour of tourists in order to see the demand for products of tourism providers in destinations (Čerović, 2004). By researching the motivation and satisfaction of consumers, as the basic factors of behaviour, new needs and preferences of modern consumers can be recognized. Motivation as a concept explains consumer needs and their decisions (Tomić et al., 2018).

The needs, attitudes and motives of tourists are crucial for making a travel decision. The needs of consumers are formed in the place of the consumer permanent residence, and they are met outside it, which conditions the formation of movements in tourism. The decision on the realization of movements in tourism stems from the need and motivation to meet the need (Brunsko, 2002; Šušić, 2010).

Tourist needs are conditioned by historical, physiological and cultural elements (Čomić, 1990). As a result, factors that influence on consumer behaviour in tourism can be external and internal. Travel of tourist are

realized in order to consumers fulfil their wishes (internal factors), i.e. to visit the attractions of the chosen destination (external factors) (Tomić et al., 2018).

What are the motives of movements in tourism and what encourages consumers to realize them, are the key issues addressed by modern theoretical research. According to Čomić (1990), ‘Tourism motives are created under the influence of needs and other internal incentives that act from the inside and spatial incentive, as outside incentive’ (p. 15).

The motives for movements in tourism are numerous and varied. They arise as a consequence of socio-economic and social development. Excess of free time and money has conditioned that at the beginning of the 21<sup>st</sup> century 3S tourism (sun, sea, sand), as the most massive form and the main feature of the movement of tourists for rest, recreation and enjoyment, will be replaced by a new 3E concept (entertainment, excitement, experience, etc.) (Jovanović, 2013). In contrast to passive (‘old’) tourists, active (‘new’) tourists are becoming a significant segment on the side of tourist demand and an important element in the development of modern forms of tourism.

The modern tourist is independent, experienced, active, looking for value for money, eager for knowledge, uses several short vacations during the year, is environmentally and socially sensitive and, very importantly, is technology-oriented (Tomka, 2006). The modern tourist is a ‘smart’ tourist who, through information technology, and before going to the chosen destination, meet himself with the destination value chain, i.e. the key activities to attract tourists and meet their needs.

### **Application of modern information technologies in tourism**

The modern tourism industry business cannot be imagined without the application of modern information technologies and the exchange of information. In the modern travel conditions, the implementation of modern information technologies has changed the relationship and manner of communication between tourism demand and tourism offer (Milićević et al., 2013). The Information and communication technologies have contributed to significant innovations in tourism, primarily through the digitalization and modernization of the entire tourism industry (Ivanović et al., 2016).

Tourism is one of the more dominant industries with a large turnover of money in which the transfer of information, as well as tools and mechanisms for its management, require very high standards and quality. The development of information is an important factor of success and survival in the tourism market. It is generally known that the carriers of the tourism offer form their competitive advantage precisely thanks to information. Today, tourism is dominated by digital channels, and the growth of SoMo networks (social networks + mobile devices) contributed to the modernization of the tourism sector (Turistički svet, 2015).

In the last few years, in almost all areas of science, technology and economy, including tourism (Mariani, 2020), a new trend in the development of information is present. It is the evolution of Big Data (BD), BD analytics, massive data set analytics and business analytics. When there is a pattern between some input and output parameters and when enough data is available, it is possible to extract these patterns from the data using appropriate algorithms (Jordović-Pavlović et al., 2020a; Jordović-Pavlović et al., 2020b), that further lead to practical conclusions. In this way, decision-making in business is supported, as well as the design of efficient business models. We live in a data world and businesses in a data economy where data is actually the new oil propelling economic growth (The Economist, 2017).

The BDs by definition have five main characteristics labelled as 5V: volume (data size, in the order of zettabytes), velocity (velocity of data generation, modification and transmission), variety (data can be presented in different formats/structures), value (the process of extracting valuable knowledge from data using BD analytics) and veracity (data management in relation to their reliability).

Tourism destinations, companies and tourists are increasingly creating and implementing large data sets. For example, by analysing locations of tourist data from GPS sensors built into smartphones can provide meaningful insights into the most popular routes and attractions in a destination. When data from social media is added to this, about affinities, behaviours, tastes that tourists have discovered on social networks in the past, marketing experts can create offers specific to that location (Mariani, 2020), even in real time. Also, there are massive sets of structured and unstructured data on the Internet that come from travel reviews. The analysis of these data brings a better understanding of tourist behaviour. The supervised and

unsupervised machine learning over massive data sets collected from past and present customers can predict and identify future tourist needs.

In the coming period, research in tourism will increasingly rely on BD, BD analytics and business analytics, including more and more digital technologies such as artificial intelligence and the Internet of Things at different levels and for different purposes.

The digitalization of tourism has enabled the tourism destinations managers to creatively promote the elements of the value chain of the tourism destination. The DICRMS (Destination Integrated Computerized Information Reservation Management Systems), digitizes the entire tourism industry and integrates all aspects of the value chain. It works in a WAN network and is accessible via the Internet, as well as many mobile devices (Računarski fakultet). This principle of business certainly affects the increase of the competitiveness of the destination on the tourism market, which was especially evident in the conditions of the COVID-19 business.

Complete closure of countries, limited travel, impossibility of physical booking of travel, have conditioned that the modern consumer in search of the desired destination is informed via the Internet. Promotional activities of tourism destinations key stakeholders were realized through E-tourism or Web tourism, which improves the functions and performance of destination management systems and has become an important element in the assessment of the value chain.

### **Value chain in tourism**

In the modern destination management, tourism development planning has become an important element of strategic management. The applied planning models can be divided into traditional and modern. Traditional models view the tourism area from a geographical and economic point of view, while modern ones are based on planning the development of tourism products (Ilić & Stefanović, 2018).

The formation of the tourism destination ‘final’ product is done through the analysis of the value chain. The value chain in tourism implies the identification of entities which are participating in the creation of value that should represent the final offer of a destination (West Serbia Tourism Organization, 2020). In order to place a unique ‘final’ product on the

tourism market, it is necessary to connect and harmonize a large number of tourism entities which are operating in one tourism destination.

The destination as a value chain is consisting of a strategic management system, related activities aimed at creating value that will be competitive in the tourism market (Čerović, 2020). Certain activities within the value chain are key to attracting tourists to the destination. From the tourists' point of view, these are different activities that are performed from the moment of departure to the moment of return from the destination. From the carriers of the tourism offer point of view, these are the activities of various entities that are mainly related to the material base of tourism (accommodation facilities, transport, attractions, travel agencies, etc.) (Vuković, 2015). Activities that have the supporting role are also of great importance (guide service, educational institutions, insurance and finance, media, tourism organisations, tourist info-centres, etc.).

Each link in the chain creates value from its scope of business. Depending on the connection of the links in the chain, the competitive advantage of the destination on the tourism market will also depend (Popović et al., 2021). Cooperation between the links, i.e. their networking and cooperation in the chain is necessary to create a superior value of the destination.

### **Consumer satisfaction with the tourism region of Western Serbia**

In modern tourism trends, border areas and borderlines between neighbouring countries are becoming very attractive tourism destinations. Tourism development in these destinations is based on cross-border cooperation, sustainable development and development of selective forms of tourism (Stankov et al., 2021).

Tourism region of Western Serbia as a border tourism region based its development on the tourism-resource basis on which the priority tourism products were selected. Mountain tourism, rural tourism, ethno tourism, special interests, eco-tourism, health tourism, spa & wellness, events, cruises - cultural thematic routes, transit tourism, MICE and nautical tourism, as priority tourism products, are drivers of tourism development.

The region consists of cities and municipalities that have recognized the interest in uniting and performing together on the tourism market. The formation of the Tourism Organisation of the Western Serbia in 2006 an institutional framework for positioning this region in the domestic and

foreign markets was established (West Serbia Tourism Organization, 2020).

The macro-destinations of the region have been recognized and affirmed on the tourism market (Zlatibor, Tara, Mokra Gora, Zlatar, Golija, etc.). These are destinations that have recorded growth in tourism turnovers in recent years and towards which modern tourism trends are directed, which became especially evident during the COVID-19 pandemic.

Table 1: *The share of the Tourism destination of Western Serbia in the tourism turnover of the Republic of Serbia*

<b>Destination/year</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Republic Serbia	3,689,983	1,820,021	2,591,293
Tourism destination of Western Serbia	471,099	272,521	285,154

Source: *Statistical Office of the Republic of Serbia, Belgrade, 2022*

Since 2015, the region has recorded an increase in tourism turnovers, i.e. since 2019, due to the COVID-19 pandemic, there has been a double decline in turnovers. The world expert's forecasts indicate that the tourism industry will begin to recover from 2023. The statistical data (Table 1 and Table 2) indicate that the region participates on average 10-15% in the realized turnover, i.e. 11-16% in the realized number of overnight stays at the national level.

Table 2: *The share of the Tourism destination of Western Serbia in the tourism turnover of the Republic of Serbia*

<b>destination/year</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Republic Serbia	10,073,299	6,201,290	8,162,230
Tourism destination of Western Serbia	1,542,861	1,000,754	958,005

Source: *Statistical Office of the Republic of Serbia, Belgrade, 2022*

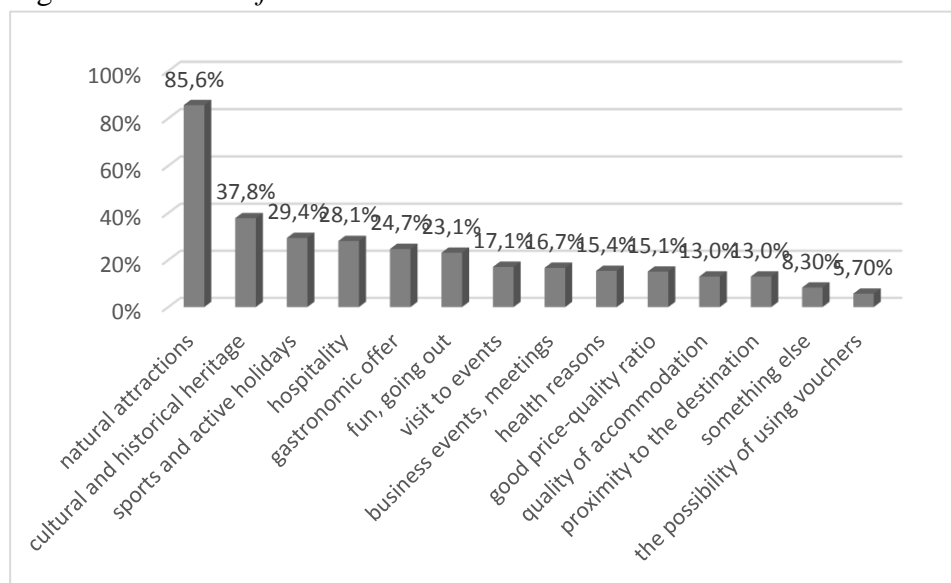
In addition, the consequence of the COVID-19 pandemic in the realized turnover as well as the realized number of overnight stays can be noticed. They are still twice lower in 2021 than in 2019. In 2021, a smaller number of realized overnight stays compared to 2020 is noticeable, although a higher tourism turnover was recorded. This condition is an indicator of the average (3-4 days) stay in the destination.



The research conducted by the West Serbia Tourism Organization in 2020 indicates the diversity of motives for travel to the region (Figure 1). The results of the survey indicate that the natural attractions (85.6%) as a motive of tourists' movement are at the first place. In addition, visitors most often choose the region of Western Serbia because of cultural and historical heritage (37.8%), sports and active recreation (29.4%), entertainment and going out (23.1%), but also because of good hospitality (28.1%), and as well as excellent gastronomic offer (24.7%).

It can be noticed that visits to events (17.1%) as a motive for travel to the region are much less pronounced, although the border area is a place of regional and world-famous events. The manifestations on the river Drina are standing out, as well as other world-famous manifestations (e.g. the Trumpet Festival in Guča, rafting on the Lim, the Kustendorf Film Festival, etc.). The regatta on the river Drina as a cross-border sport water event (Marković et al., 2021), is also recognized as a motive for active recreation and sports.

Figure 1: *Motives of tourist arrivals*



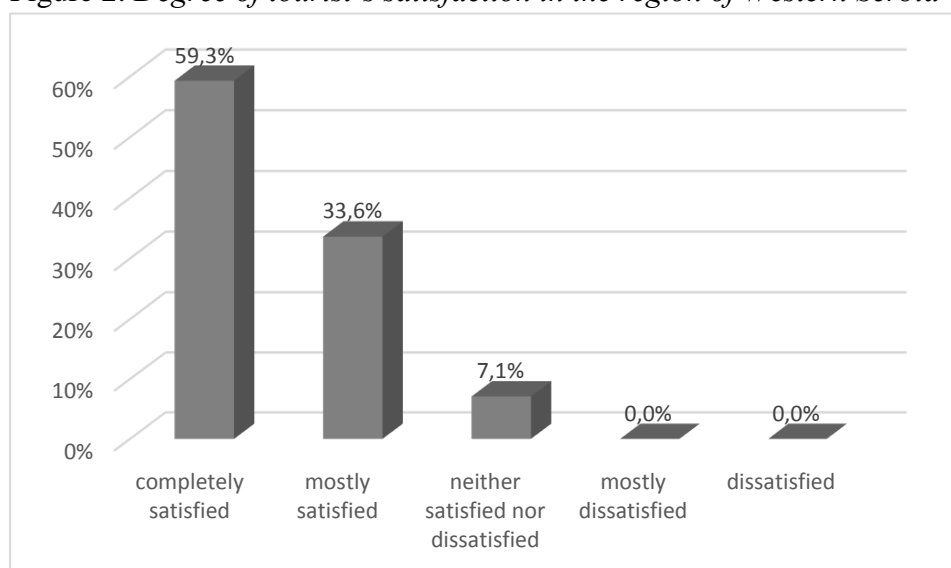
Source: *West Serbia Tourism Organization, 2020*

Tourists who stay for a small number of days in one destination require a high level of services, which include additional facilities in addition to basic accommodation services. The destination level of equipment and the quality of the tourism offer is a direct indicator of the general tourist

satisfaction with the provided services during the stay in one destination (Podovac & Jovanović Tončev, 2015). The satisfied tourists are loyal tourists. A guest who will return in the destination and destination services will recommend at least to five more potential tourists. This increases the tourists retention rate, which is reflected in the increase of income (Gašević et. al., 2019).

The level of consumer satisfaction in tourism is an important issue in the marketing management of a tourism destination. Measurement of tourist satisfaction is necessary to be based on measuring of each individual phase of travel in the value chain of a tourism destination, in order to assess the overall level of satisfaction with the achieved tourist experience. The satisfaction with provided services is the result of the provided services satisfaction at each stage of travel, from services before the travel starts, through services during the stay in the destination till the services during the travel to the destination and travel from the destination (Lacmanović & Bulatović, 2014).

Figure 2: *Degree of tourist's satisfaction in the region of Western Serbia*



Source: *West Serbia Tourism Organization, 2020*

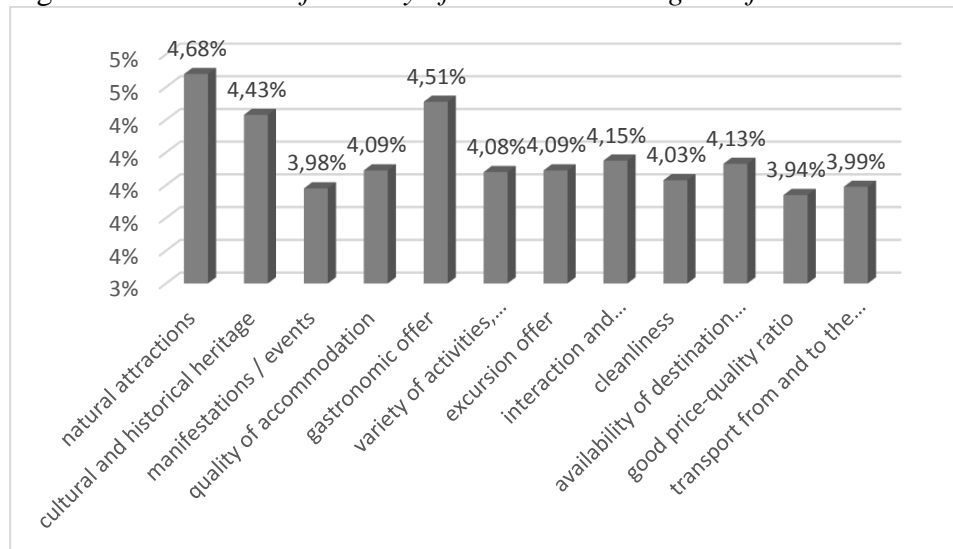
The results of the conducted research by the West Serbia Tourism Organization, on the level of satisfaction of tourists with the used and provided service in the destination of Western Serbia (Figure 2), indicate a very high level of satisfaction. The results indicate that 59.3% of surveyed

tourists are satisfied with staying in the destination. It should be noted that the overall satisfaction of tourists is based not only on the quality of the tourism offer, but also on the price and perceived value of the tourism product and/or service (Podovac & Jovanović Tončev, 2015).

As a qualitative indicator, the degree of tourist satisfaction indicates the assessment of the ‘final’ product of a tourism destination which ‘affects the complete satisfaction that the tourist is bringing with him from travel’ (Štetić, 2007). The satisfaction or dissatisfaction with the provided services directly affects the level of tourist experience, which can be positive or negative. It can be concluded that the ‘final’ tourism product ‘stems from the needs, requirements and desires of consumers, i.e. tourists’ (Popesku, 2018).

The quality of provided and used services is determined by the specification of properties or characteristics that the service should meet, and is prescribed by a certain standard. From the customer's point of view, quality is the level of meeting his needs and requirements, i.e. compliance with his growing requirements and expectations (Gašević et. al., 2019).

Figure 3: *Assessment of the stay of tourists in the region of Western Serbia*



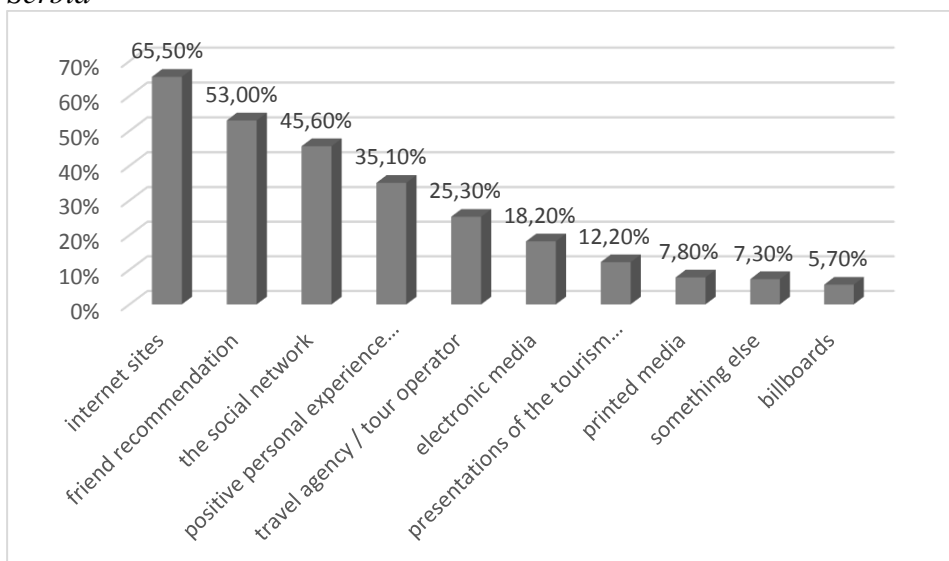
Source: *West Serbia Tourism Organization, 2020*

Today, the expectations of tourists are significantly higher because tourists are more demanding in terms of meeting their needs. They are more educated, more informed and able to assess the relationship between price

and quality of products and services (Podovac & Jovanović Tončev, 2015). Tourists want to spend their ‘discretionary income’ on the quality service. For this reason, the growing demands of modern tourists have led to the fact that the quality of service has become the most important segment of destinations tourism development. The quality of service directly affects to the final product of the tourism destination, but also to the experience of tourists. The perception of the tourist experience directly affects to the level of evaluation, i.e. the assessment of the tourists staying in the tourism destination.

The average rating of general satisfaction with visiting tourism destinations in Western Serbia is very high and amounts to 4.52 out of a possible 5. The results of the research (Figure 3) indicate that visitors valued natural attractions the most (4.68%), followed by gastronomic offer (4.51%) and cultural and historical heritage (4.43%). In addition, it can be noticed that the availability of information about the destination (4.13%) is more valued in relation to the quality of accommodation and the offer of excursions (4.09%) or the variety of activities, entertainment and programs (4.08%).

Figure 4: *The source of tourists informing about the region of Western Serbia*



Source: *West Serbia Tourism Organization, 2020*

The results of the survey indicate that the application of information technologies has an important role in the analysis of the value chain, i.e.

tourist opinions and attitudes (Figure 4). The results of the West Serbia Tourism Organization research on the sources of tourists informing about the region and its destinations indicate the Internet as the main source of information. About two thirds of respondents (65.5%) state Internet sites as the main tool for information. Primarily, we mean the sites of tourism destinations, where all the important information can be found at one place. Slightly more than half of the respondents (53%) were informed based on the experience and recommendations of friends, while 45.6% of them prefer information through social networks. It is important to point out that only 7.8% of visitors used the print media as a source of information about the tourism potentials of the Western Serbia tourism region.

### **Conclusion**

Tourism is one of the most impacted sectors of the economy caused by the COVID-19 pandemic consequences. The COVID-19 caused huge losses, influenced the transformation of the tourism industry and conditioned the expansion of domestic in relation to foreign tourism. Nature-based tourism has become the main motive of domestic tourism movements.

Understanding consumer behaviour, especially in crisis situations such as the COVID-19 pandemic, plays a very important role in tourism industry. Research on consumer motivation and satisfaction identifies new needs and preferences of modern 'smart' and technology-oriented consumers.

Tourism destinations, companies and tourists are increasingly creating and implementing large data sets. The digitization of tourism has enabled tourism destination managers to promote elements of the tourism destination's value chain in one place, i.e. to improve the functions and performance of destination management systems through E-tourism or Web tourism.

Destination as a value chain consists of a strategic management system, related activities aimed at creating value that will be competitive at the tourism market. Depending on the connection of the links in the chain, the destination competitive advantage on the tourism market will also depend.

The information technologies application in the analysis of individual links in the value chain of the Tourism Region of Western Serbia indicated that tourists use Internet sites (65.5%) as the main source of information, i.e.

the tourist destination sites where they can find all necessary information at one place.

The future research in tourism will increasingly rely on BD, BD analytics and business analytics. The supervised and unsupervised machine learning over massive data sets collected from past and present customers can predict and identify future tourist needs. The analysis of these types of data will contribute to a better understanding of tourist behaviour.

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