Abstract

Digitalization is increasingly influencing the way of travel planning, exploring new destinations, promoting them, but also the experience of traveling. New technologies are changing and will continue to change the face of tourism in the years ahead. Numerous challenges are created, which countries, destinations, and especially business entities need to find a response, or a strong wave of digitization will erase them from the market. At the same time, opportunities are being created that should be used.

Generations of tourists born after 1980. (Y and Z generation), and especially those who will be growing in the next ten years, will have radically different expectations and requirements in relation to today's tourists. The sharing economy and the experience economy strongly influence the creation of new business models in tourism. The integration of mobile technologies into hotel business processes, the ability to inspect business and adapt to new conditions in real time, as well as digital interaction with guests will be crucial for achieving competitiveness and survival in the increasingly demanding international market.

Key Words: digitization, sharing economy, economy of experience, mobile and smart technologies, millennials


Introduction

Tourism is one of the most dynamic and most flexible branches of the economy today (Pindžo & Barjaktarović, 2016). The authors of this study sought to draw attention to the strong link between the successful business of tourism companies and the application of new technologies
and innovations. Furthermore, the subject of research of this paper is the influence of digitization, new technologies and innovations on tourism and hospitality industry as well as on increasing contribution of tourism to the national economy by changing the traditional business models. Furthermore, the paper deals with the research of new economic phenomena as well as the response of hotel companies to the increasingly demanding needs of modern generations of consumers in tourism.

Special attention will be paid to the application and potentials of digitization in Serbia and the challenges that digital tourism is faced with. Research is based on data and research provided by the United Nations World Tourism Organization (UNWTO), the United Nations (UN), World Economic Forum (WEF), National Tourism Organization of Serbia businesses associations and relevant scientific papers in the field of tourism and hospitality. Recognizing the object and purpose of research, this paper is conceived in six parts. The introduction defines the object, aim and expected contributions of the research. In the second part, global trends, results and predictions will be presented. In the third part of the paper, new business models in tourism as well as behavior patterns of modern consumers in tourism will be examined. The fourth part deals with the challenges that the hotel industry faces responding to the digitization, new technology implementation and innovations. In the fifth part, the current situation and potentials for digitalization and new technology implementation in the Republic of Serbia will be analyzed. The study will be completed with concluding remarks.

Global Trends and Forecasts

There is a widespread recognition among industry leaders that the role of digital technology is rapidly shifting, from being a driver of marginal efficiency to an enabler of fundamental innovation and disruption (WEF, 2016). Digital evolution, as all the other evolutions, is “rewarding” the ones that have managed to adjust but not the ones that didn’t do so – they won’t stand a chance to “survive” (Petković et. al., 2018). Technology is not the occupation but a tool, way, or means to realize a goal (Petković et. al., 2018). A new term called „Internet of Things” (IoT), denoting the next Internet evolution, has recently appeared, taking a huge leap in its ability to gather, analyze, and distribute data that can be turned into information, knowledge and basis for business decisions. According to the Cisco Internet Business Solutions Group (Evans D., 2015), IoT is simply the point in time when more “things or objects” were connected to
the Internet than people. Refining these numbers further, Cisco IBSG estimates IoT was “born” sometime between 2008 and 2009 (see Table 1). Today, there are around 25 billion connected devices in the world or 3.47 per person on average. It is expected that this number will have grown to 50 billion connected devices by 2020, approximately it is estimated that 2 billion people use the Internet today.

Table 1: The Internet of Things (IoT) Was “Born” Between 2008 and 2009

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Population</td>
<td>6.3</td>
<td>6.6</td>
<td>7.2</td>
<td>7.6</td>
</tr>
<tr>
<td>(in billion)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connected devices</td>
<td>0.5</td>
<td>12.5</td>
<td>25</td>
<td>50</td>
</tr>
<tr>
<td>(in billion)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connected devices</td>
<td>0.8</td>
<td>1.84</td>
<td>3.47</td>
<td>6.58</td>
</tr>
<tr>
<td>per person</td>
<td></td>
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</tbody>
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In order to understand the significance and the contribution of IoT, it is very important to understand the difference between Internet and World Wide Web (web). Internet represents network of switches, routers and other equipment and it serves mainly for information transfers and dissemination. Web is a kind of junction of applications based on the Internet. Both Web and Internet have evolved over time. In the first stage, Web was used only for academic purposes, than the second phase was some kind of informational phase when companies tried to get acquainted with their products and services. After that it was a phase in which it was possible to find out where and under what conditions certain products and services can be purchased and how they can be delivered. This phase is also called “dot-com” boom and bust phase (Evans D., 2015). Finally, the fourth phase has arrived, where we are still today. Then, a Web-based medium is a medium that allows users to communicate, share their experiences and connect with friends, family, colleagues etc. That's the time of the so-called social networks and experience based exchange. On the other hand, IoT presents the first true evolution of the Internet – „a leap that will lead to revolutionary applications that have the potential to dramatically improve the way people live, learn, work, and entertain themselves“ (Evans D., 2015).

Digital transformation of one industry represents a mix of significant customer demands and the new technology that can help meet those
demands and expectation. The top trends that are impacting the hospitality and tourism industry are (Newman D., 2018):

1. Mobile Integration,
2. Artificial intelligence (AI) and Chatbots,
3. Integration of the IoT,
4. Focus on Data,
5. Reputation,

The tourism industry is being disrupted by digital technology and innovation. Having in mind the fact that 51% of all reservations are executed on-line, out of which 22.5% via on-line tourist agencies – OTAs, that 18% of all reservations are done in “motion”, usually via mobile phones or tablets (Berger R., 2016), and that Internet travel booking revenue has grown by more than 73% over the past 5 years clearly shows the impact of new technologies on tourism and hospitality. The latest research shows that online completely dominates in the process of selection of accommodation, with 86%; 85% of consumers trusting online reviews as much as personal recommendations (Local Consumer Review Survey, 2017). On the other hand, we must not forget that the number of tourists in the world is constantly growing. The results achieved in 2017 surpassed all expectations. International tourist arrivals grew by a remarkable 7% in 2017 to reach a total of 1,322 million, according to the latest UNWTO World Tourism Barometer. This strong momentum is expected to continue in 2018 at a rate of 4%-5% (UNWTO, 2018).

Given that an increasing share of online bookings goes to mobile devices and that customers/guests can do practically anything on their mobile devices (“smart” phones and tablets etc.) from checking in—to ordering room service - to unlocking the room door itself, or planning an entire trip, understanding of mobile integration became crucial for modern tourism industry.

Not long time ago, staff in hotels were provided information where guests could go, what they should visit, where they can go shopping etc. Today, especially for the guests of the newer generation, it is inconceivable: applications based on artificial intelligence are used. Things go as far as having curtains in rooms that open or close upon hearing the guest's voice, or ordering room service by voice activated chat etc. Marriott has been using AI-powered chat boots at nearly 5,000 hotels to do things like...
make reservation changes, and check on account balances or redemption vouchers (Newman D., 2018).

As mentioned earlier, the number of devices that are connected to the Internet is steadily increasing. This fact precisely influenced the increasing use of collected data. In the coming period, the focus will be on the data as a prerequisite for creating personalized offers and for creating a personalized approach to each guest individually which represents a completely new approach and business model in tourism.

It is very complex to define term 'sharing economy' or 'collaborative economy'. Simply put, it is the system/platform that uses the Internet or technology to create a link between what people need and what other people have. Generally, this is a completely new business model that implies bypass institutions, mediators etc. and which brings in direct contact two parties that need to find, rent or give or sell something. This approach allows for immediacy, speed, directness, and at the same time lower costs. This approach promises a new exciting picture of the economy as we know it today.

The system of this new economy rests on the philosophy of modern times - access to goods / services versus the possession of goods. At the same time, the position of technology as a "facilitator" changes significantly - technology is not a topic in itself, but a means. In order to better understand the concept, its use and potentially adopt the basic principles of the sharing economy, it seems important to understand what kind of sharing economy can be, that is, how many "entities" the sharing economy has.

The focus of sharing economy are users benefits, which have more control and savings, but we should not ignore the benefits that this system brings to society and the natural environment. This is basically a platform that shares the principles of sustainable development and recycling - waste shortage, resource saving because existing ones are used, etc. Sharing economy offers possibility of changing perspectives and defining needs (use or possession, access or behavior ...), but also defining the response to the needs, as well as the providers of that response. It is clear that the sharing economy is much more accessible than the traditional economy sector and at the very least presents a serious challenge to big brands in terms of costs. The costs of the bidders, but also the costs of the claimant are immeasurably lower. Personalization is rooted in the
foundation of the sharing economy and the spectrum of possibilities is almost unimaginable, since the offer is created in relation to a very specific, sometimes completely personal need. Apart from the sharing economy, which has emerged as a consequence of the aspiration for new, authentic experiences and familiarity with local customs in the original and unique way, the economy of experience emerged as a result of the dissemination of information using new digital technologies. The fact that modern technology allows for the exchange of experiences and the expansion of sharing guests attitudes has made many tourism service providers to take into account the level of the quality of the services they provide. The latest research shows that 49% of consumers need at least a four-star rating before they choose accommodation or services (Local Consumer Review Survey, 2017). Sharing of photos and up-dating social media profile’s are the most usual forms of online sharing post trip experience (Dempsey C., 2015).

Figure 1: Online Sharing Post Trip

[Diagram showing online sharing post trip]


The economy of experience presents a great development opportunity not only for tourism, but also for culture and the creative industries in the world. The economy of experience can also be viewed as a shift in thinking, essentially as a matter of personal experiences for which we are ready to pay. Leisure and entertainment, history and culture, shopping and gastronomy are the most important segments for the development of the
economy of experience. Authentic locations and offers in every place, the city and even the whole country can be excellent underpinnings for creating an economy of experience, which should involve national, regional and global marketing agencies. That is the right way to open tourism offer to foreign markets, which is important for revenue and the growth of the national economy. Some countries have really benefited from the development of the economy of experience, which was under the strong influence of the implementation of the new technologies and the digitization of tourism. According to Thomas Keith (Petersham Group, 2017), the economy of experience in United Kingdom in 2017 was worth 117 billion pounds, accounting for 7.4 percent of its GDP, growing three times faster than other sectors of the economy, or on average 5 percent a year. Virtual reality has become a reality in many segments. Today is a completely normal step in the journey of getting to know one destination, its cultural heritage by a virtual walk before making the travel decision itself. However, that's not all. The virtual reality has led to the fact that if guests are not willing to pay transportation and accommodation costs, they can meet the destination in a virtual way with much lower cost.

**New Business Models and Practice in Tourism**

New technologies significantly influence the behavior of modern consumers in tourism. Around 74% of travelers begin their journey researching and choosing their destination; almost 45% of future travelers have a destination in mind when they start to plan their journey; today, there are four different reservation patterns (Tripbarometer, 2016) that travelers can demonstrate (see table 2):

<table>
<thead>
<tr>
<th>Types/steps</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flight Bookers</td>
<td>Researching flights</td>
<td>Booking flights</td>
<td>Researching hotels</td>
<td>Booking hotels</td>
</tr>
<tr>
<td>Hotel Bookers</td>
<td>Researching hotels</td>
<td>Booking hotels</td>
<td>Researching flights</td>
<td>Booking flights</td>
</tr>
<tr>
<td>Balanced Bookers</td>
<td>Researching hotels</td>
<td>Researching flights</td>
<td>Booking hotels</td>
<td>Booking flights</td>
</tr>
<tr>
<td>„Mavericks“</td>
<td>Skip research phase and make bookings</td>
<td>Booking hotels</td>
<td>Booking flights</td>
<td></td>
</tr>
</tbody>
</table>

Source: *Tripbarometer 2016*
Flight bookers behavior is more common for longer holidays than shorter, when the flights are more expensive than for short holidays. Hotel bookers choose the destination according to the prices of accommodation and transportation, furthermore, a family friendly environment and attendance of events is the most important aspect for them. Experience of culture is the most important motive for travelling for balanced bookers.

Mavericks have a limited time for booking: 17% of them choose destination because they go there every year. Business travellers and long holiday makers do not spend a lot of time in researching process before making a decision on their destination for vacation.

Around 73% of travelers use online sources when deciding on their destination. Younger generations prefer using social channels in order to select their destination: both face to face and digital word of mouth are very influential for younger travelers. In 2017, according to the latest research of Tripadvisor, 9% more tourists travel on their own.

This group includes young people at a crossroad in life, older single men and married women, tired of waiting for their husbands. In two years, on Twitter, the keyword "travel alone" has grown in popularity by more than 100 percent in different languages. According to the Francesca Di Pietro (2017), this is the new trend in tourism due to the fast pace of life.

People are looking for travel opportunities on their own and need to disconnect. In addition, more and more people are single or separated. These tourist experiences are also affected by professional commitments, which are much more dispersed today than in the past. Many couples can not reconcile their holidays, so they go on vacation on their own.

Today, the turism sector is aiming to support the traveller in every step of his/her journey to use with ease especially mobile digital tools that provide everything he/she needs from researching to booking, during the trip and on returning home. The modern tourists want the control of the whole process and to manage their own itinerary and spending.

According to Roland Berger (2016) tourists should be addressed in every phase of their journey and this represents crucial change compared to the period before digitalization.
Table 3: Analytical Framework for the Customer Journey

<table>
<thead>
<tr>
<th>Phase</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>Before Booking</td>
<td>Searching &amp; being inspired</td>
</tr>
<tr>
<td></td>
<td>Discovering &amp; planning</td>
</tr>
<tr>
<td>During Booking</td>
<td>Booking</td>
</tr>
<tr>
<td></td>
<td>Refining &amp; improving</td>
</tr>
<tr>
<td>After Booking</td>
<td>Experiencing</td>
</tr>
<tr>
<td></td>
<td>Reflecting</td>
</tr>
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</table>

Source: Berger R., (2016)

New entrants – especially digital natives such as online travel aggregators (OTAs), meta-search engines and travel service platforms – are shaking up the value chain in tourism (WEF, 2016). Digitalisation and the emergence of new digital business models have had an undeniable influence on the travel industry. With the emergence of innovative online platforms, consumers are organising their holidays online at an ever growing rate. Some of these innovative business models are based on the collaborative or sharing economy. While these new types of business models provide opportunities to those offering the service as well as to prospective tourists, this phenomenon poses difficult questions regarding security and the development of digital skills and competences.

The path that the technologically and digitally “growing” and demanding guests take today and will be taking in the forthcoming years includes "smart" mobile devices. If hotels want to be competitive, they will have to offer their guests the possibility to choose and reserve accommodation in their own simple way. Hotels have to enable their guests to choose the services as much as possible in the hotel itself as well as to receive the requested information and quick and efficient solution for their possible problems.

The emphasis is on technological solutions available on all platforms and operating systems that do not require a high technological knowledge necessary for installation and use.

How can this be applied in a concrete case? In developed hotel companies, new applications are in use; in one place they offer all the necessary information regarding the guests’ stay in the hotel. Application will welcome guests, unlock their room, order a massage, or dinner in the room or a wakeup call, check the timetable and weather forecast, call a
On the other hand, there are also applications that guests can also use on smart and mobile devices which they will find in hotel room; devices that will welcome guests in the room and which will allow them access to all hotel services, tourist information, control over air conditioners, curtains, lighting and TV in the room, and access, for example, to Press Reader. This type of application can be used on a large number of languages on Android and iOS, and it is also usually possible to integrate them into any existing hotel system (PMS, RMS, IPTV, POS), regardless of the size of the property or hotel company.

With the possibility of direct communication with the guest, the applications and the system as a whole cater to the caterer to obtain a wealth of data and information that can improve the business.

**Trends in Digitalization of Hotel Industry**

There is no difference between the digitalization events at the global level and those at the local level. Digitization and application of new technologies have a particular impact on hotel industry as an important segment of tourism. Digital transformation greatly influences hotel management. Hotel managers have to realize that changes and the speed of changes are important, just like their impact. Then they have to determine what they would like to achieve and where they want their company to be in five or ten years. The question arises how they will benefit from new trends, and what they have to do to gain advantage? It is necessary to transform the organization in terms of entrepreneurial culture, innovation and commitment to the goals if the management wants the digital transformation to be successful. Therefore, both hotel management and company’s employees must adopt new skills such as digital marketing, data analysis, finding favorable and alternative sources of financing, creation of predictive concepts, artificial intelligence, and psychometrics.

The results of the research and analysis of the impact of digitization and trends in the hotel industry (Berger R., 2016) showed that the current situation is not satisfactory even in the tourist-developed destinations. Before the guest makes reservations for accommodation and is provided with accommodation services, the hotelier can contact the guest digitally, thanks to the so-called *touchpoints*, which are on average 21. At the same time, hotels and other accommodation providers are most often present in
the digital world only through a presentation on their website and possibly on Facebook. This fact indicates a huge loss of potential because the key success factor of a modern hotel company lies in his contact with the guest during his entire "journey".

Start-ups play a key role in the overall innovation process, as they promote creativity and innovation. Since most of the start-ups will fail, it's important to be in touch with more, track new startups and be able to put them in the context of business and goals.

In spite of systematic gathering of data, less than 50% of the hoteliers use these data in personalizing their services while rarely one may find a hotel group cooperating with start-ups in the tourist and leisure industry. Nonetheless, some of the big players have realized advantages and necessity of the innovation application and new technological solutions as well as the need to adjust to current market trends. Accor Hotels Group has presented revolutionary concept named Jo & Joe that entirely redefines approach to the members of generation Y (millennial generation) and Z (known as iGen generation) in accommodation segment and this concept is by far better than any other concept in this segment. During developing the concept in parallel with Accor team has been build a team of the future guests and experts so they have defined the concept together. Aforementioned concept redefines the role of management. The hotel manager is now being followed by community manager and event manager that are responsible for successful operating of the business. On the other side, successful example is Marriot company that has started with its own high-tech accelerating program for the start-ups in the catering industry called Marriot Test Bed that will secure strategic advantage in comparison to competitors. TestBED is a unique 10-week accelerator program that gives start-ups an invaluable opportunity to test their products within operating Marriott Hotel in major European cities.

The key impact of technology on tourism in the immediate future will be, inter alia, the integration of mobile technologies into hotel business processes, the ability to inspect business and its adaptation to new conditions in real time and digital interaction with guests. The generation of millennials (a population aged between 20 and 35) would, according to forecasts, become the dominant consumer group by 2017. By 2025, it is expected that every other traveler will be a millenial.
This generation has grown in a world in which social networks led by Facebook, ubiquitous smartphones are virtually inevitable, and digitalization and internetization are unstoppably spreading around the world like a tidal wave. With postmillennials, the situation will not be different. On the contrary, it is to be expected that its members of yesterday's and today's digital and mobile novelties would be considered something normal and standard.

Social networks are a great channel for hotel communication with tourists and their potential guests. Traditional hotels that do not exist on these channels will require much more effort to successfully fight with increasing and stronger competition. Loyalty programs as they existed until now will be greatly reduced. Tourists will no longer collect points in order to get a reward from the hotel for their loyalty. Instead, one of the options is to integrate this program with the whole trip, in order to make the guest experience more intense. For example, guests will receive a discount on the next stay in the hotel if they write their experience on the booking sites.

Destinations and hotels that support healthy life will prevail in the future choice of hotels. Wellness and spa destinations that advocate both physical and mental health will become a new trend. In addition, other hotels will also be able to take part in this race by offering guests of air purifiers, modern exercise equipment, organic food or water enriched with vitamins and minerals. Also, green hotels and those who take care of environmental protection will become more and more popular among tourists. However, it is essential that all of these be enriched by modern technological trends and innovations.

**Tourism Digitization: Where is Serbia?**

Serbia seeks to streamline and modernize the country through the digitalization and improvement of the IT sector and creates a more competitive business environment introducing the latest information technologies (Barjaktarović et al., 2017). A framework for the improvement of electronic business and electronic communications in the tourism sector is being created by adopting regulations related to electronic commerce, electronic communications, electronic documents, electronic identification, as well as the information security (Barjaktarović et al., 2017a). Strategy for the development of new networks is adopted and the Broadband Law is being prepared for
adoption. This is considered to be a very important step in the process of introducing digitalization in the overall Serbian economy as well as in tourism too.

The survey of foreign tourists’s attitudes carried out by the National Tourist Organization of Serbia /NTOS/ (2016) shows that 63.9 % of them obtained information about Serbia as a tourist destination through the Internet (different web sites, social medias...), 10% through newspapers, magazines, travel guides and other printed materials, 4.1% on TV, 4.3% through a travel agency and etc. On the other hand, the survey of attitudes of domestic tourists in 2015 (NTOS; 2015) has shown that they prefer personal experience (40%) and recommendations from friends and relatives (38%), while only 18% of them are informed via Internet and 2% of them contact local travel agencies. According to a survey carried out by HORES in 2017, 41.09% of all bookings in Belgrade were made through different online booking systems (websites). NTOS devoted a significant part of its 2018 marketing budget (around 12.5 %) to digital promotion channels. What needs to be done definitely is to support domestic travel organizers in order to improve their online promotion, possibilities for online bookings on their websites and finally, online sales. It seems that the online sale of Serbian tourist products is the weakest link in this stage in the process of digitalization of Serbian tourism.

In order to reduce the effects of the “shadow” (grey) economy, to provide support to the tourism industry and to obtain more realistic statistical data, the Government of the Republic of Serbia has begun reforming the tax system with regard to individual accommodation service providers, which is part of a wider story of the digital transformation of Serbian tourism: this is a precondition for the introduction of an electronic, digital system for registration of arrivals and departures of all tourists as well as the monitoring and analysis of their preferences in real time called E-Tourist.

The information system for registration and check-out of (domestic and foreign) tourists will be a unique information system that functionally connects all tourist stake holders in the Republic of Serbia, and it will be accessible via the Internet without the need for any other special installation. The mentioned information system will be a unique online system that should enable daily insight into the state of tourism traffic, an updated database of accommodation facilities (accommodation service providers) and capacities, to enable real time reporting for statistical and
marketing purposes, and better control of the collection of residence tax, and tax with the aim of generating higher revenues in the tourism sector in Serbia. Furthermore, this system will contribute to the process of improving destination management - further development of new modules and connection with other information systems in the Republic of Serbia (Pindžo R. & Barjaktarović L., 2016). That will give the E-Tourist system the possibility of expanding in the direction of business intelligence, which will enable even better management of destinations and tourism offer in real time, as well as integrated marketing activities of all users of the system.

The only thing required is access to the Internet, without additional installations, applications should be available through computers, tablets, mobile („smart“) phones, tablets and all other mobile devices. At the same time hospitality industry should bear in mind operational risk management, in order to maximize opportunities and to minimize negative effects (Barjaktarović L. & Barjaktarović D., 2011). Furthermore, digitalization will have impact on the changing of the structure of hotels’ offer (Barjaktarović D. & Barjaktarović L., 2012)

**Conclusion**

Further technology development and the application of digitization will continue to have strong impact to the entire tourism sector (Pindžo R. & Barjaktarović L., 2016). Thanks to the technological improvement, the division of actors in tourism is clearly visible: those who invested in the Internet and modern technologies, and especially mobile channels of promotion and distribution, and those who did not, finding it very difficult to survive the current wave of digitization. Tourism is facing great changes that mean constant interaction with guests at all stages of their travel in real time. If they want to do business successfully, hotel companies will have to adapt their business models to new demands and the latest developments on the tourism market taking into account all technological changes and applied innovations. Robots, the virtual reality of playing new types of gadgets will find even greater application in tourism in the not too distant future. In order to attract new tourists whose expectations are (or will be) significantly different from those who today dominate and whose behavior is largely under the influence of new technologies, tourism stakeholders must have their own unique "story" which should be presented on the Internet and different social networks.
Literature


