INNOVATIONS IN THE SERBIAN TOURISM SECTOR - POLICIES AND RECOMMENDATIONS

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Abstract: *This paper explores the digital transformation in the global tourism sector, emphasizing its impact on Serbia's tourism industry. It highlights the role of advancements in information technology, especially artificial intelligence in reshaping business processes, customer interactions, and marketing strategies, but also the integration of digital tools such as Artificial Intelligence, Virtual and Augmented Reality, and Big Data analytics, demonstrating their significance in enhancing operational efficiency and customer engagement in tourism. Focusing on the Republic of Serbia, the paper analyzes national tourism policies, including the Tourism Development Strategy of the Republic of Serbia 2016-2025, identifying gaps in implementation and the need for actionable strategies for digital innovation. Recommendations are provided to improve Serbia's tourism industry through digital marketing, AI applications, and educational reforms. The paper underscores the necessity of aligning educational programs with industry needs and developing a comprehensive digital platform to boost tourism competitiveness. It concludes that effective digitalization and AI integration are vital for the future of tourism, emphasizing the role of proactive public policy in bridging the developmental gap between Serbia and more advanced tourism destinations.*

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INTRODUCTION

The global economy is currently undergoing a significant shift towards digitalization, made possible by advances in information and communication technology (Jovanović & Lazić, 2018; Domazet et al., 2018) and artificial intelligence in particular. The tourism sector has also undergone major changes that include the *creation of different business processes and the diversification of services offered*. The importance of digital transformation in tourism cannot be overstated (Lazić & Bradić-Martinović, 2022a), as it will continue to change the way tourism services are valued and utilized. The way customers and companies interact with each other in terms of the timeliness and relevance of communication has changed significantly and rapidly (Ferreira, Ratten & Dana, 2017). The emergence of social media technologies, particularly mobile phone applications, has played an important role in facilitating this change, enabling consumers to actively participate in the co-creation of tourism experiences (Lazić & Bradić-Martinović, 2022b). The emergence of real-time and instant communication in tourism services has significantly increased competition within the industry.

Incorporating novel ideas and practices into the domestic tourism industry plays a pivotal role in fostering the sector's growth and long-term viability. This underscores the importance of interorganizational relationships in promoting innovation and progress in the sector and a comprehensive understanding of these global trends is essential for nations seeking to insert themselves into the global tourism sector.

National policies in the tourism sector often aim to promote innovation, but it can be difficult to achieve these goals. Rodríguez et al. (2014) highlight that tourism is rarely promoted as part of a national innovation program, indicating a gap in the implementation of innovation measures in the tourism sector. Valença et al. (2020) further support this by explaining that the tourism sector has been insufficiently considered by the approaches developed for the manufacturing industry, resulting in a lack of studies on innovation in tourism. Additionally, Batala et al. (2019) emphasize the lack of focus on public policy, innovation, and development in the tourism industry,

indicating a gap in attention to these aspects at the national level. Moreover, Pantano and Stylidis (2021) argue that there exists a prevailing notion that innovation in the tourist industry mostly revolves on enhancing services that are not easily patentable. This suggests a misunderstanding about the essence of innovation within the tourism sector. Hjalager and Gesseneck (2019) assert that there is a lack of research and conceptualization about innovation policies in the tourist industry and they emphasize the difficulties associated with successfully implementing innovation policies within this sector. This evidence supports the claim that national policies in the tourism sector often struggle to achieve their objectives in terms of innovation. Lack of funding, inappropriate approaches, misconceptions about innovation and inadequate innovation policy design contribute to the challenges in achieving innovation goals in the tourism sector.

The analysis conducted by Petković et al. (2022) indicate that Serbia's competitive position as a tourism destination is unfavorable, both in terms of its global ranking and in comparison, to neighboring countries within the region. Additionally, Bradić-Martinovic et al. (2023) show that Serbia faces challenges in terms of sustainability, which is according to Đukić et al., 2016 critical and driven by a social awareness of the importance of a balance between human development and the protection of the environment. Furthermore, it could be argued that Serbia's level of preparedness for the digitalization of its industrial sector remains somewhat limited. According to the findings of the research by Bradić-Martinović and Miletić (2017), Serbia has a strong information and communication technology infrastructure and a remarkable level of ICT readiness compared to other nations. Nevertheless, the analysis also reveals significant potential for improvement, as Serbia continues to lag behind its peers in terms of ICT infrastructure, while other countries are making faster progress in this area. Given the prevailing circumstances, the state government is actively developing a public policy for the tourism sector. This policy includes current digital solutions and activities to facilitate the modernization of the tourism sector. However, it appears that the implementation of these policies is fraught with challenges. This study focuses on the national tourism policy in the Republic of Serbia. The aim is to evaluate the recommended measures for implementing new solutions in this area and to assess the effectiveness of their implementation. In the first part of the study, a comprehensive examination of the prevailing trends in the digital transformation of the tourism sector is carried out. The

second part of the study includes an analysis of public policies at national level, followed by recommendations for improving these policies.

DIGITAL TRANSFORMATION OF THE TOURISM SECTOR

The digital transformation of the tourism sector has proven to be a crucial paradigm shift that has fundamentally changed the landscape of travel and hospitality. Technological advancements have triggered changes in many areas of the industry, but most important in a) *business processes and operational management* and b) *customer interactions and marketing strategies*. First of all, booking and reservation systems have evolved from rudimentary manual systems, initially digitized by a CRM (Customer Relationship Management) application based on suddenly available large digital databases, to sophisticated AI-driven platforms. Similarly, innovations in virtual reality (VR) and augmented reality (AR) are enhancing tourism experience and operational training (Beck, Rainoldi & Egger, 2019). In addition, the emergence of AI and machine learning is revolutionizing personalized recommendations and customer service through predictive analytics and chatbots (García-Madurga & Grilló-Méndez, 2023). In this section, we will explain the fundamental technological aspects of digital transformation in the areas of business processes and marketing.

Digital transformation in business processes

Digital systems and infrastructure - Booking and reservation systems have evolved from manual configurations to online platforms and CRM systems and currently to artificial intelligence or AI-powered systems, changing the way companies book and reserve. Sisternes et al. (2016) emphasize that manual systems were slow and error prone. However, digital technology has transformed these systems into integrated online platforms that simplify booking and reservation management for businesses. Today we are witnessed that incorporation of AI technology has significantly transformed the landscape of booking and reservation systems. AI algorithms and machine learning techniques are currently being used to enhance the efficiency and effectiveness of these systems by optimizing various aspects, including pricing strategies, overbooking management and capacity allocation. AI-powered systems are able to analyze booking patterns and trends, providing companies with the opportunity to make more accurate

and reliable revenue management decisions. From a pragmatic perspective, the implementation of integrated online platforms and AI-driven systems has facilitated operational efficiency and improved the holistic customer experience for businesses. According to Kim et al. (2017), these systems offer improved management of bookings and reservations for businesses by streamlining processes and offering tailored recommendations based on customer preferences and behavior.

Digital interactions and experiences - The use of *Virtual Reality (VR)* and *Augmented Reality (AR)* has attracted great interest in various areas such as tourism, education and user experience enhancement. VR and AR technologies have been used as part of virtual tours to provide tourists with immersive and interactive experiences (Argyriou et al., 2020; Liang & Elliot, 2020). These technologies allow users to virtually explore different destinations, creating a stronger sense of presence and enhancing the understanding of cultural heritage (Argiolas et al., 2022). In the field of tourism, VR and AR have the ability to revolutionize the way tourists engage with different destinations. According to Argyriou et al. (2020), the use of VR technology in virtual tours offers users a highly authentic and engaging encounter, allowing them to explore places virtually that might otherwise not be accessible to them in person. Augmented reality, on the other hand, overlays the physical world with digital content, enriching users' experiences by providing additional information and interactive components (Liang & Elliot, 2020).

The Internet of Things (IoT) has also made a significant contribution to the tourism industry, particularly in the areas of smart hotels, wearable devices for travelers and smart transportation. These applications of IoT technology have improved the overall travel involvement, improved operational efficiency and enhanced customer satisfaction (Kabadayi et al., 2019; Lee et al., 2020). Smart hotels are equipped with IoT devices and sensors that facilitate automation and connectivity. According to Kabadayi et al. (2019), these devices are able to regulate multiple facets of the hotel room, including lighting, temperature and entertainment systems. As a result, they offer guests personalized and convenient practices. The use of wearable devices has undergone a notable increase in popularity among travelers, offering a variety of features and benefits. Smartwatches and fitness trackers can provide instant data, help with navigation and offer customized suggestions to augment the overall travel experience (Dakopoulos & Bourbakis, 2010; Hersh, 2022). According to Ng et al. (2020), wearable devices can collect data about travelers' activities and behavior. This data can

be utilized to offer personalized services and implement targeted marketing strategies. The introduction of IoT technology in the tourism industry is associated with various challenges. The implementation of IoT devices and systems requires careful consideration of privacy and security issues. In addition, it is essential to address the issue of interoperability and standardization of IoT devices and platforms to ensure smooth and uninterrupted connectivity and integration (Troisi et al., 2023).

Automation and efficiency - The integration of *Artificial Intelligence (AI)* and *Machine Learning (ML)* technologies has led to remarkable advances in automation and efficiency in several areas. These advances include personalized recommendations, chatbots for customer service and predictive analytics for demand forecasting. Personalized recommendations are now a common feature of many online platforms, including e-commerce websites and streaming services. According to Filieri et al. (2021), AI algorithms examine user data such as browsing history, purchasing behavior and personal preferences to provide tailored recommendations to each user. The implementation of personalized recommendations has been shown to positively impact the user experience by effectively increasing user engagement and contributing to higher customer satisfaction and loyalty. According to Pillai and Sivathanu (2020), AI-powered chatbots can hold conversations with customers, respond to queries instantly and resolve common issues. Chatbots are able to handle multiple customer concerns simultaneously, reducing the need for human interaction and speeding up responses (Larasati et al., 2022). Companies can learn from their customers and enhance their performance. AI and ML algorithms in predictive analytics also help companies to assess demand. By analyzing historical data, market trends and other aspects, predictive analytics models can predict demand patterns (Doborjeh et al., 2021). Companies use this data to enhance inventory management, pricing strategies and resource allocation, reduce costs and increase efficiency. Automation and efficiency go beyond personalized suggestions, chatbots and demand forecasting with AI and ML. These technologies are also used for fraud detection, quality control and process improvement. AI systems can find patterns and anomalies in huge data sets that could indicate fraud.

Blockchain technology has also proven to be a powerful tool for automation and efficiency in several areas, including secure payments, loyalty rewards and identity verification. Blockchain-based loyalty programs provide secure and transparent handling of rewards and engage consumers. Blockchain can authenticate rewards

points, accelerate redemption, and increase trust and enjoyment among loyalty program users (Zhu et al., 2023). On the other hand, blockchain-based identity verification systems provide a decentralized and tamper-proof method of verifying and managing digital identities. By storing them on the blockchain, users can share personal information with trusted parties, reducing identity theft and fraud (Kairaldeen et al., 2023). The elimination of repeated identity verification procedures simplifies the onboarding of services with blockchain-based solutions. Also, by leveraging the decentralized and transparent properties of blockchain technology, companies can optimize their operations, reduce expenses and improve data protection. The ongoing development and removal of barriers in blockchain technology is expected to facilitate its wider use in automation and productivity enhancement. Consequently, this advancement will stimulate innovation and bring about significant changes in various sectors.

Digital transformation in marketing activities and channels

Evolution of digital platforms and mobile apps – In the tourism industry, marketing activities and channels have changed significantly due to digital transformation. This change has led to an expansion of digital platforms, ranging from websites to mobile applications. The change in interactions between customers and businesses has been brought about by the emergence of mobile apps, responsive designs and the increasing use of mobile devices. The use of mobile apps has become essential in the tourism industry as they provide businesses with specialized platforms to interact with customers, provide personalized experiences and streamline transactions. Mobile apps grant businesses the opportunity to send timely and relevant material to consumers, thus strengthening customer loyalty. This is made possible by incorporating features such as push notifications and location-based services (Dorčić et al., 2019). The simplicity, accessibility and personalized experiences that mobile devices offer have made them the preferred method for reservations and inquiries in the tourism industry. Mobile devices have enabled customers to make reservations and ask questions at any time and from any location (Hannam et al., 2014). Thanks to the proliferation of mobile apps and flexible websites, customers can now more easily research topics, compare prices and make purchases from their mobile devices.

Social media has evolved from simple posts to live interactions, stories and now integrated booking options, revolutionizing the way businesses engage with customers and promote their offerings. Social media platforms have become powerful marketing tools in the tourism sector, allowing businesses to reach a wide audience and engage with customers in real time "The Social Media Bible: Tactics, Tools and Strategies for Business Success" (2009). The introduction of live interactions such as live streaming and live chats has enabled businesses to engage with their customers in a more authentic and interactive way to drive engagement and build relationships (Hvass & Munar, 2012). The rise of Stories on social media platforms such as Instagram and Snapchat have opened up a new way for businesses to share content and engage with customers (Moro & Rita, 2018). Stories allow for a more ephemeral and immersive experience and provide a sense of urgency and exclusivity that can increase customer interest and engagement (Moro & Rita, 2018). Furthermore, Pietro et al. (2012) point out that social media platforms have integrated booking options that allow customers to make bookings and inquiries directly through these platforms. This integration streamlines the customer process and makes it more convenient and seamless for customers to access information, compare options and complete transactions. The role of social media in the tourism industry has expanded beyond simple posts to include various marketing activities. Social media platforms offer a range of features and tools that businesses can use to promote their offerings, including targeted advertising, influencer collaboration and user-generated content (Agyapong & Yuan, 2022). These strategies allow companies to effectively reach their target audience and promote their products or services.

Engaging the digital traveler - The tourism industry is increasingly recognizing the importance of *multimedia platforms* such as videos, blogs and vlogs to effectively engage and attract travelers. The use of different types of multimedia materials is paramount when it comes to providing captivating and immersive experiences for digital travel participants. Videos offer companies the opportunity to visually showcase places, attractions and experiences to evoke emotional responses and create a desire to travel (Ünel et al., 2014). Travel blogs and vlogs serve as a medium through which individuals can share narratives, perspectives and suggestions to build relationships with potential travelers and influence their travel decisions (Taheri et al., 2014; Cheng et al., 2020). The use of multimedia materials in the tourism industry appeals to multiple sensory

modalities, captures the attention of individuals, and reinforces the narrative component of marketing efforts. This makes the content more indelible and influential (Uenel et al., 2014). In addition, the emergence of social media platforms provides organizations with the opportunity to disseminate and distribute multimedia material, thus expanding their reach and increasing awareness (Liu et al., 2019). The use of multimedia in content strategies is motivated by the evolving tastes and behaviors of the digital consumer, predominantly Gen Y and Gen Z, who actively seeks immersive and engaging encounters. To remain competitive in the ever-changing digital world, it is essential for the tourism sector to incorporate multimedia into its content strategy. This enables successful interaction with the digital traveler, as Silaban et al. (2022) point out.

Personalization and data analytics - The use of *Big data* is of great importance to understand customer behavior and preferences and to facilitate the development of tailor-made packages or offers in the tourism sector. By examining extensive data sets that include various sources such as social media postings, online reviews and booking patterns, companies can gain valuable insights into customer preferences, travel behavior and emerging trends (Miah et al., 2017). The information provided helps to adapt marketing tactics, create personalized offers and improve the overall customer experience. The use of Big data analytics in businesses facilitates the identification of patterns and correlations, enabling companies to make informed decisions based on data and improve their operational efficiency (Cao & Meng, 2022).

The utilization of digital traces in the retargeting of potential customers in the tourism sector involves the deliberate implementation of data analytics to analyze the digital footprints and behavioral tendencies of individuals. This methodology enables companies to gain valuable insights into customer preferences, interests and previous engagements, making it easier to adapt marketing measures and create customized promotional offers. Analyzing consumer behavior based on digital traces enables companies to effectively target potential customers by providing personalized and relevant information (Chroneos Krasavac et al., 2016). This approach increases the likelihood of achieving conversion and engagement (Bergel et al., 2019). The use of data analytics in the tourism sector makes it easier for businesses to optimize their marketing tactics, improve customer segmentation and enhance the overall customer experience (Mathew & Soliman, 2020). Nevertheless, it is crucial to acknowledge and resolve privacy issues and uphold ethical data practices while utilizing digital traces for the goal of re-

engagement (Chang, 2009). In general, the utilization of digital traces through data analytics offers significant opportunities for tourism businesses to efficiently reconnect with potential customers and promote economic expansion (Stockdale, 2007; Bowen & Whalen, 2017; Huda, 2022).

In summary, digital transformation in the tourism sector has been nothing short of revolutionary, reshaping everything from business processes and customer interactions to marketing strategies and data analytics. Advances in AI and ML have automated and optimized booking and operational systems, improving efficiency and customer satisfaction. The advent of immersive technologies such as VR and AR, along with IoT applications, has enriched tourism experience and operational efficiency. In terms of marketing, the shift from websites to mobile platforms and the development of social media have redefined customer engagement. Multimedia content and collaboration with influencers have become key tools to captivate the digital traveler. Finally, the strategic use of Big data and data analytics enables personalized marketing and efficient re-engagement strategies, although ethical considerations around data usage remain. As technology continues to evolve, the tourism industry must adapt and innovate to meet the ever-changing needs and expectations of the modern traveler.

INNOVATIONS IN THE TOURIST SECTOR OF SERBIA - POLICIES

Following the political changes in 2000, Serbia began to rebuild its tourism infrastructure and improve its reputation as an attractive destination. The main goal was to create political stability and attract foreign investment. Tourism Development Strategy (Official Gazette of the RS, No. 91/2006), as a first national strategic policy grounded on contemporary principles, defined the strategic development goals for Serbian tourism and the measures for their implementation. The expected overall results of the implementation of the strategy were Increasing the competitiveness of Serbian tourism, foreign exchange earnings, domestic tourism turnover, the number of international tourists and employment through tourism to make Serbia a competitive tourist destination (Petković, Lovreta, Pindžo, 2015). Nevertheless, the document lacks precise details and tangible measures to implement the proposed strategies. Even though the document places great emphasis on the importance of innovation in the areas of

marketing and accommodation, a comprehensive analysis of innovative practices and initiatives in the tourism industry is not included.

The current highest national policy in place is the Tourism Development Strategy of the Republic of Serbia for the period of 2016-2025. (Official Gazette of the RS, No. 98/2016). The Strategy contains multiple references to the concept of innovation within the framework of tourism development in Serbia. The alignment of supply with contemporary trends in habits and demand on the global market is a significant focus area for promoting innovation. Additionally, the document highlights the importance of implementing contemporary quality standards across multiple facets of the tourism industry, including lodging, culinary practices, and customer service. This suggests a prioritization of the implementation of novel methodologies and technologies to improve the overall caliber of tourism encounters. Furthermore, it emphasizes the necessity of implementing novel attractions and products within ongoing capital projects. Also, the document highlights the enhancement of the ICT promotion and reservation system as a strategy to improve efficiency and facilitate the commercialization of capacity. Nevertheless, the Strategy acknowledges the significance of innovation in facilitating the expansion of the tourism industry, but it falls short in providing specific implementation details and action plans.

The document has officially declared the finalization of the previously initiated National Tourism Register. Despite not being implemented, another very beneficial system, known as *e-Turista*, was presented with the intention of digitizing the tourism sector in Serbia. This initiative drew inspiration from similar systems implemented in Croatia and other comparable markets. It is a legal requirement for both individuals and legal companies involved in the hospitality and tourist sector to record the registration and deregistration of all individuals using their lodging services consistently and electronically. In addition, e-Turista facilitates the filing of requests for the categorization of objects and maintains records of paid residential taxes. Based on the incentive tax policy, the current system effectively eliminates any desire for individuals to hide their involvement in the informal sector, often called the grey economy.

Serbian tourism development is additionally governed by the Strategic marketing plan for tourism of the Republic of Serbia until 2025. The marketing strategy provides an

overview of various marketing innovations that have been implemented in the Serbian tourism sector. These innovations focus primarily on the improvement of photo and video databases to adapt them to the technical requirements of modern communication channels. The aim is to improve the presentation of tourist experiences and ensure more effective communication with the target audience. In addition, a conscious selection of printed materials that evoke emotional associations is required, as well as a transition to digital platforms. The focus is on improving the internet presence with the aim of achieving a uniform online presentation of tourism offers. In addition, the document promotes the use of advanced psychographic segmentation techniques to tailor marketing strategies to a variety of traveler profiles, but without clear guidelines for use, resulting in a lack of implementation. It also emphasizes the utilization of Customer Relationship Management (CRM) systems to personalize communications and improve customer relations, ultimately leading to cost savings.

INNOVATIONS IN THE TOURIST SECTOR OF SERBIA - RECOMMENDATIONS

The integration of new developments in the Serbian tourism industry, according to policy documents, is in line with current ecological and digital advances as well as global lifestyle trends. The focus is on promoting creativity and innovation, advocating inclusivity, offering entertainment and providing experiences and services that exceed expectations. The focus is also on promoting additional tourism offerings, such as special culinary experiences and authentic local goods. Efforts are currently underway to improve the quality of accommodation, services and infrastructure and to expand the integration of digital technologies into the tourism industry. These efforts include the implementation of strategies such as the centralized information system and the establishment of an internet-based archive.

With aim to strengthen its competitive advantage over competing destinations, Serbia should prioritize the introduction and utilization of digital marketing tools and techniques. This includes the use of visual media such as photos and videos, as well as the use of VR and AR technologies to effectively target and engage younger age groups and create immersive experiences. The introduction of a comprehensive digital platform at a national level that provides a wide range of information on tourist attractions, events, itineraries and locations would further improve accessibility and enable tourists

to make well-informed decisions. It is recommended that Serbia conducts a study on the application of AI in the areas of predictive analytics and promoting visitor loyalty. By analyzing data, AI can provide valuable insights into visitor preferences, behavioral patterns and emerging trends. This enables the implementation of individualized marketing initiatives and tailored customer experiences. In addition, this technology can improve resource allocation and optimize operational efficiency in the tourism sector. To encourage the active participation of visitors in content creation and promotion, it is advisable for Serbia to implement strategies that incentivize the creation of user-generated content and the solicitation of ideas through crowdsourcing. This goal can be achieved by running campaigns on social media, organizing contests and setting up interactive platforms that make it easier for visitors to share their experiences and recommendations. Serbia has the potential to improve its destination branding and attract a greater number of visitors by capitalizing on the innovative and passionate characteristics of tourists.

In order to promote the growth of the tourism industry, it is crucial for Serbia to synchronize its education system with international standards and develop innovative curricula that meet the specific needs of the tourism sector and related fields, with particular emphasize on digital skills (Bradić-Martinović, Petković, 2023; Lazić et al., 2023; Bradić-Martinović et al., 2022). This includes facilitating practical training opportunities and expanding the skills of the workforce to adequately respond to the evolving needs of the industry. To achieve these goals, collaboration between educational institutions, industry stakeholders and government agencies is essential.

Finally, the consistent assessment of Serbia's strategic goals regarding tourism development is of utmost importance. The purpose of this assessment is to evaluate the feasibility and achievability of the goals related to establishing an outstanding international destination, promoting tourism as an important economic sector and adapting the tourism offer to current global trends. It may be necessary to make changes and adjustments to maintain the relevance and feasibility of the objectives.

CONCLUSION

It is expected that the tourism and hospitality industry will continue to change in the future due to advancing digitalization and particularly AI. Many trends can be observed in the digital modernization of tourism. The most important are: firstly, the digital transformation of business processes through the application of CRM, AI in operations, but also Virtual and Augmented Reality technologies in the relationship with customers; and secondly, the digital transformation of marketing activities and channels through the validation of apps and platforms, Big data analytics and the personalization of customer experiences. All of these changes are being introduced by innovators, which tend to be large companies in developed economies. Even there, ready-made incentives motivate startups to initiate innovations and eventually sell them to large companies. In less developed economies such as Serbia, incentives from private capital are rare and insufficient to ensure targeted development of activities such as tourism. This is where the need for an active role of public policy comes into play. The political decision-makers in Serbia have partly recognized the need to modernize tourism. The Tourism Development Strategy of the Republic of Serbia 2016-2025 emphasizes the importance of implementing contemporary quality standards in the various sectors of the tourism industry, as well as introducing new methods and technologies to improve the overall level of tourist encounters but the imperative is the prerequisite for a clear elaboration of measures within the action plan leading to the full implementation of digital innovation. Otherwise, the gap between developed destinations and Serbia will continue to widen.

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