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Benefits of creating smart marketing strategies for sustainable tourism development in North Macedonia

Iva Nikoloska^{a,b*} , Biljana Petrevska^c 

^a PhD student, University St. Kliment Ohridski Bitola, Faculty of Tourism and Hospitality Ohrid, N. Macedonia

^b Municipality of Ohrid, North Macedonia


^c Goce Delcev University, Stip, Faculty of Tourism and Business Logistics, N. Macedonia

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Abstract

This conceptual paper investigates the benefits of artificial intelligence (AI) and smart marketing strategies in tourism, with a focus on North Macedonia. No original empirical research was carried on; instead, the study offers a contextual framework for understanding how AI, big data, and digital marketing can be used to improve tourism development. Tourism is identified as a key economic sector in the Smart Specialization Strategy of North Macedonia, which places a high priority on innovation and the integration of information and communication technologies. The paper discusses how these technologies provide assistance to the stakeholders to better understand tourist behavior, design personalized marketing campaigns, and promote sustainable tourism practices. It also highlights the importance of collaboration among academia, industry, and policymakers in designing effective tourism policies. By general discussion within the current theoretical and policy contexts, the paper aims to clarify the potential of smart marketing to improve tourism competitiveness of North Macedonia while supporting environmental sustainability and advancing the UN Sustainable Development Goals. At the same time, this framework offers insights into the strategic role of digital transformation in developing a responsible, innovative, and resilient tourism system that benefits both local communities and the broader industry.

Keywords: sustainable tourism, smart marketing strategy, tourism promotion, North Macedonia

1. Introduction

Artificial intelligence (AI) and digital technologies brought serious systematic changes in many industries, including tourism. Specifically, AI, big data, and digital marketing tools fundamentally redesigned how to plan tourism actions and operations and how to satisfy consumers with marketing tactics that provide competitive advantage on the market (Bondarenko et al., 2025; European Commission, 2019; Fotiou et al., 2024; López-Naranjo et al., 2025; PhocusWire, 2025; Stroumpoulis et al., 2022). The future tourism development is directly dependent on applying AI to add value to provided services. As such, contemporary tourism foresees application of smart marketing approaches which provide better understanding of tourist preferences, target effectively specific markets, and enhance promotion of the destination (European Commission, 2019; Fatema et al., 2024; López-Naranjo et al., 2025; Rane et al., 2023; Zhang & Deng, 2024). This became a basic requirement for fostering tourism growth and at the same time, supporting sustainable development and responsible tourism practices.

North Macedonia is a country that over the years, defined tourism as a vital sector that contributes to economic development. However, the country lacks approach towards digital transformation of tourism to meet the modern requirements of tourism market. In that line, within the national Smart Specialization Strategy (2024-2027), tourism is targeted as a potential area of interest for applying innovations and developing new inventive tourism products. In particular, the intention is to implement information and communication technologies (ICT) that align with the United Nations (UN) Sustainable Development Goals (SDGs) (UNWTO, 2025). Having in mind that the country is dedicated to developing tourism with sustainability patterns, the following SDGs are of national importance: SDG 8, which foresees generating jobs in tourism based on local products and culture (Tourism4SDGs, 2023; Sustainable Tourism Network,

*Corresponding author:

E-mail address: iva.nikoloska@uklo.edu.mk

2025); SDG 11, which highlights importance of resilient and inclusive tourism development that preserves local identity and culture (Sustainable Tourism Network, 2025); SDG 13, which addresses actions on reducing the carbon footprint of tourism (Sustainable Tourism Network, 2025); and SDG 15, which seeks to protect terrestrial ecosystems and implement environmentally responsible tourism (Tourism for SDGs, 2025). All these approaches are important for sustainable and inclusive growth since data-driven decision-making along with personalized targeting support tourism industry in turbulent times and strengthen national tourism competitiveness.

Various studies discuss the application of AI when it refers to North Macedonia, They address various fields of research, including accounting (Atanasovski et al., 2023), e-commerce business and consumer dynamics (Josimovski et al., 2023; Sherovska, 2024), small and medium-sized enterprises (Abedini, 2023), emergency management (Fisher & Azemi, 2025), judiciary (Korbayram & Angeleska, 2023), robotics (Nuredin, 2022), scientific publishing (Spiroski & Spiroski, 2024), etc. However, there has been limited research specifically addressing the tourism industry, despite its recognition as “one of the 57 most strategic sectors for the country, with huge opportunities and significant potential for future development” (Lazarov et al., 2021: 57). Some previous studies explored different aspects of tourism development and innovative technologies in North Macedonia (Erceg et al., 2020; Koceski & Petrevska, 2012a, 2012b; Petrevska, 2012, 2013). This contextual paper adds to this area which highlights its pioneering nature in advancing understanding of benefits of creating smart marketing tourism strategies. So, this conceptual study discusses the positive impacts of AI-based tools for supporting sustainable tourism development. It adopts a holistic viewpoint to explore how the traditional tourism industry in North Macedonia can evolve into a smart, technology-driven sector. To achieve this objective, the study addresses the following research questions (RQs):

- RQ₁: What is the role of AI in the tourism environment of North Macedonia?
- RQ₂: Can digital tourism transformation provide a base for resilient and sustainable-responsible tourism in North Macedonia?

After the introduction, this paper presents the contextual framework particularly addressing the relationship between digital technologies and tourism. This is followed by a discussion section, and the paper concludes with the key findings along with study limitations and suggestions for future research.

2. Contextual framework: conceptualizing digital technologies and tourism

Tourism promotion cannot be imagined without digital technologies, such as big data, AI, digital platforms, augmented reality (AR), virtual reality (VR), virtual assistants (VA), and other analytical tools. They are very important since enable tourist destinations to enhance their competitiveness and smoothly develop in the global tourism market (Bondarenko et al., 2025; Fotiou et al., 2024; Stroumpoulis et al., 2022). To this, it is also essential to implement various initiatives like local tourism projects, partnerships, storytelling, which involve participation of local communities and build strong relationship with tourists (Damiasih, 2025; Sigala, 2016, 2020). AI tools and digital technologies also support positive engagement and promote development, particularly with bookings (López-Naranjo et al., 2025; European Commission, 2019; PhocusWire, 2025). In the same line, hotels and travel agencies use chatbots and VA which increases their service efficiency (López-Naranjo et al., 2025). Furthermore, AI is used in predicting tourism demand which makes destinations more competitive in the global tourism market (European Commission, 2019; López-Naranjo et al., 2025).

On national level, countries also adopt smart marketing technologies. Herein, Croatia uses real-time AI data for tracking visitors and analyze their behavior and demographics (Bujdosó et al., 2025). Similar to this, Slovenia integrates AI for monitoring environmental changes when implementing conservation efforts for responsible travel across the country within its positive tourism promotion campaign (Bujdosó et al., 2025). These examples show how digital tools may successfully preserve social and ecological sustainability of the country, while simultaneously produce smart marketing results.

According to Alonso-García et al. (2025), innovative technologies like AR and VR offer virtual tours and interactive storytelling that motivate tourists easily to adopt practices that reduce the impact on the environment. Such smart marketing that are focused on sustainability dimension, saves time for communication with tourists, but at the same time, encourages them to practice responsible tourism (Fotis et al., 2012). Furthermore, Gretzel et al. (2015) claim that smart technologies enhance visitor experiences and give travel agencies the ability to make decisions based on big data. As such, tourists use AI tools, like virtual tours, mobile apps, and geolocation services and have precise information on how and when to act responsible (Fatema et al., 2024; Rane et al., 2023; Zhang & Deng, 2024). In this line, smart marketing uses digital tools to improve appeal of the destination and to increase visitor satisfaction, building on and upgrading the traditional marketing concepts.

Tourism is specifically acknowledged as a priority sector that is linked to innovation, technology, and sustainability in the Smart Specialization Strategy of North Macedonia (Government of the Republic of North Macedonia, 2023). By applying knowledge and digital transformation to create competitive, superior tourism goods and services, this strategy foresees to move towards green and sustainable tourism growth in the country. As Lazarov et al. (2021:39) emphasize,

“ICT plays a key role in this digital transformation by providing new growth opportunities and enabling innovative virtual tourism platforms and e-services that support the modernization of tourism.” The national strategy supports the SDGs and offers an integrated approach for redesigning the current tourism development to be innovative, competitive, environmentally responsible, and socially inclusive.

3. Discussion

3.1. The role of AI in the global tourism environment

Digital technologies and AI play significant role in revolutionizing the global tourism landscape and act as a key enabler of tourism development providing new opportunities for improving destination management and tourist satisfaction. They significantly transform the way how tourists, travelers and visitors organize, reserve, and enjoy their travel. In this line, the AI is known for its enormous capability to easily process big data and provide schemes of complex relationships, problems and obstacles among different concepts. It represents more than just a technical advancement, since it makes a revolutionary modification of the interaction between tourist destinations and the tourism business in general, with tourists. Incorporation of AI into marketing strategies provokes dramatic changes for destinations since, as Wang et al. (2025) discuss, the processing of big data makes it possible to create highly customized marketing messages and experiences that greatly outperform conventional methods. Travel and tourism industry rapidly integrated AI tools shaping quality of tourism services, adding value to tourists, increasing their satisfaction and generating sustainable positive interactions. By facilitating more flexible, data-driven consumer interactions that improve territorial attractiveness and visitor satisfaction, smart marketing strategies which incorporate intelligent digital technologies, evidence a contemporary extension of conventional tourism marketing theories. Henriques et al. (2024) and Bujdosó et al. (2025) have already covered this.

This section also highlights how important it is to balance the application and functioning of the AI. Namely, chatbots and VR are examples of AI innovations that improve service efficiency and creativity, but only if based on human interaction and not by replacement. According to Henriques et al. (2024), while robots, AI, and service automation increase operational capacity, they also present new difficulties in preserving the human element that is typically connected to tourist experiences. This implies that AI should be viewed as a strategic enabler that boosts the effectiveness and inventiveness of tourism services, in addition to being a technical asset. Having in mind that AI thinks, learns, makes decisions, and achieve goals, it is widely used to enable quality assurance and content production, meaning it is applied far beyond the operational tasks. This is discussed by Bujdosó et al. (2025), who found that AI helps to define marketing topics and validate information, allowing destinations to craft more convincing and experiential narratives. Given that this is crucial for drawing tourists and improving destination branding in an era of intense competition and overload of information, the AI support is even more valued.

3.2. Digital transformation and its contribution to resilient and sustainable-responsible tourism

Digital transformation provides opportunities for developing tourism on the basis of resilience and sustainability. Its utilization generally means creating smart marketing strategies based on AI, which substantially increase the long-term adaptability of tourism. It also means contributing to responsible stakeholder engagement, in the first line, to increase the trust and responsibility in tourism actions, leading to more balanced outcomes for local communities. AI technologies offer a deep understanding of local culture and environment, urging to development of sense for accountability when it comes to preserving and sustaining tourism heritage. Such transformation enables developing innovation and responsibility in creating and driving sustainable tourism practices and environmental tourism strategies.

Wang et al. (2025) reinforce the idea that resilience increasingly depends on digital readiness and data-driven decision-making by discussing how AI-driven demand forecasting and customer segmentation enable tourism businesses to quickly adapt to changing market conditions and external shocks. Digital technologies support sustainable tourism practices, particularly in providing a comprehensive understanding of the increased recognition of their utilization in sustainable tourism destinations.

Additionally, in a world of rapid innovation and changing consumer expectations, smart marketing provides destinations to strengthen their competitiveness with creating personalized communication and effectively managing tourism operations and activities. Henriques et al. (2024) discuss that using AI tools to create images of tourist destinations encourages the use of data-driven insights to promote unique experiences while responsibly managing tourism resources.

However, over-reliance on automation creates a risk of diminishing the human element that is crucial for creating tourist loyalty and satisfaction, even when AI improves efficiency and creates personalization. As previously proposed by Bujdosó et al. (2025) and Samala et al. (2022), it is evident that digital transformation initiatives must place a high priority on providing meaningful, high-quality service experiences by combining AI with human-centered, interactive self-service technologies.

Finally, adopting smart marketing is not without difficulties. This means to include transparent and inclusive strategies for collaboration among stakeholder in overcoming some major obstacles of ethical concerns and resistance to new digital tools. Leung et al. (2013) and Hall (2019) stress that in order to guarantee successful integration, it is necessary to address these non-technical factors. However, Gretzel et al. (2015) offer convincing proof that AI-focused tactics combined with the use of big data and real customer feedback are essential for encouraging resilient, ethical, and competitive tourism growth that supports global sustainability objectives like the SDGs.

3.3. Smart marketing, AI, and sustainable tourism development in North Macedonia

The case of North Macedonia emphasizes the strategic value of tourism as a catalyst for national growth and points to a important role in adoption of AI-driven smart marketing to increase tourism potential. The existence of locally inventive and creative businesses offers a solid basis to use AI for improving tourism competitiveness of the country as a destination (Lazarov et al., 2021). From the analytical point of view, North Macedonia must implement AI technologies in a way that boosts productivity and personalization advantages without undermining the human-centric approach that tourists and travelers value very high. This means to merge the coexistence of technological innovation with cultural and experiential authenticity, and not just pure automation or reduction of costs. To achieve this balance is key to prevent initial negative effects like depersonalization or low quality of the services, which may jeopardize the long-term reputation of the destination along with visitor satisfaction.

Furthermore, incorporating smart marketing into tourism strategy of North Macedonia may be a chance for further fulfillment of the sustainability goals along with building national tourism competitiveness. Because of its alignment with the SDGs, digital transformation has the potential to promote responsible tourism consumption patterns, sustainable urban and community development, and decent employment. In order to improve the resilience, competitiveness, and sustainability of tourism development, key tourism policymakers may urge the process of accepting all benefits from smart marketing strategies based on intelligent digital technologies. They should focus on integrating emerging technologies in tourism and must stay updated on evolving digital trends. They must also adopt innovative solutions, to collaborate with stakeholders and to navigate the dynamic digital landscape.

4. Conclusion

The study emphasized how the application of AI resulted in revolutionary changes in tourism and travel industry, especially when using digital tools like chatbots, VA, and AR/VR. It highlighted the speed with which the AI particularly reshaped marketing strategies and tourist engagement. The study also discussed that tourism industry benefits greatly from the adoption of these innovative technologies which enable increase in effectiveness of the operations, facilitating personalization of tourist experience, and improving satisfaction of travelers, visitors and tourists.

With a focus on North Macedonia, the discussion showed how incorporating AI into smart marketing strategies presents significant chance to reveal the tourism potential of the country as a destination. Application of AI makes possibilities for communities, tourism business, and policymakers to more precisely analyze and understand tourist behavior, which enables creation of more focused promotional campaigns of the destination. These findings imply that smart marketing promotes community well-being and sustainable resource management in addition to boosting competitiveness of the country. In order to guarantee that tourism development plans are both theoretically sound and practically applicable, the paper emphasized the importance of a multidisciplinary and collaborative approach with expertise from academia, industry, government, and local stakeholders. AI technologies are constantly developing, so smart marketing strategies must balance between the innovation that is rapidly evolving, and the sustainable-responsible tourism growth that is necessary.

Finally, the study underscored that integrating SDGs into smart marketing initiatives is essential for promoting competitiveness in the tourism industry, social equity, environmental responsibility, and long-term sustainability in North Macedonia. Having strategic document is not sufficient, if not being accompanied with effective action plans that will support implementation of the goals defined within the national Smart Specialization Strategy (2024-2027). It is essential to establish digital cooperation between all key stakeholders to strengthen tourism business by applying AI tools, in the first line, to increase the quality of tourism service, to improve tourist satisfaction and to create a tailor-made promotion. Despite some ongoing transformations in tourism industry in North Macedonia, there is still place for improving and enlarging the use of digital technologies to change, improve, and enhance modest tourism development.

Yet, the study acknowledges several limitations. First, the paper does not address the ethical and regulatory issues, such as data security, privacy, transparency, authenticity, and intellectual property that arise when discussion application of AI. Second, it discusses only the positive impacts of digital technology, while the negative social impacts such as dehumanization, workforce displacement, and social deprivation, are omitted. These points may be explored in some other future research. Finally, the paper advocates continued exploration into the complex challenges posed by AI adoption in tourism marketing. It suggests that future studies should concentrate on determining the optimal balance

between AI-driven service automation and preserving the human touch that remains fundamental to authentic tourism experiences.

Despite its limitations, the study offers valuable implications for tourism policymakers and stakeholders in North Macedonia about the benefits of applying AI and smart marketing strategies when creating competitive advantage in tourism market. This is important for achieving tourism growth and sustainable-responsible development in an environment that is constantly and rapidly changing.

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