

DIGITAL MARKETING OF TOURIST DESTINATIONS BASED ON GEOSPATIAL DATA

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Abstract

Digital transformation has significantly changed the way tourist destinations are promoted and managed. In the modern environment, geospatial data and GIS (Geographic Information Systems) are becoming key tools in the digital marketing of tourism. The aim of the paper is to analyze the role of geospatial data in improving the digital marketing of tourist destinations, with a special focus on location targeting and the concept of smart tourism. The subject of the research includes the integration of GIS technologies in the processes of promotion and positioning of destinations on digital platforms. Work methods: Analytical, descriptive and comparative methods were used in the work, as well as a review of relevant international literature. The results indicate that the application of geospatial data enables more precise market segmentation, personalized communication with tourists and more efficient management of the destination brand. **Conclusion:** digital marketing based on geospatial systems is a key element of the competitiveness of modern tourist destinations.

Keywords: Digital Marketing, GIS, Geospatial Data, Tourism, Geo-targeting, Smart Tourism.

Introduction

The development of information and communication technologies has significantly transformed the tourism industry. The Internet, mobile applications and social networks have become the primary channels through which tourists gather information and make travel decisions. Information technologies represent a key factor in the modernization of tourism and the shaping of tourist behavior.¹

In such an environment, geospatial data and GIS systems are gaining more and more importance. They enable the analysis of the location, movements and preferences of tourists, thus improving the effectiveness of digital marketing. The research problem of this paper is the examination of the role of geospatial data in improving the digital promotion of tourist destinations.

Many authors see tourism as science, art and business, seen as attracting visitors, providing accommodation and pleasant hospitality. Tourism as a business entity provides places and events with the aim of occupying people while they are on vacation, tourism is also described as a source of relaxation. It is a fact that tourism increases the social relationship, which means that it could affect the relationship and behavior between tourists and locals, and thus affect social changes.²

Tourism is an activity that can be used as a supplementary factor in the economic development of these areas, which is confirmed by European experiences. It is necessary to stimulate the development of rural tourism, primarily by providing financial support from the state.³

¹ Buhalis, D., & Law, R., Progress in information technology and tourism management. *Tourism Management*, 29(4), 2008. 609–623.

² Vidovic, A., Ecotourism Management for Development Countries. *Tehnika - Kvalitet [Ms, Standa Rdizacija J Metrologija]*, 18(2), 2018. 293.

³ Botezatu, A., Tourist motivation for rural destinations, *Scientific Papers Series Management. Economic Engineering in Agriculture and Rural Development*, 14(1), 2014.

1. Digital Marketing in Tourism

Digital marketing is a key component of promotional strategies in modern tourism. It is a marketing approach that uses digital channels and technologies to reach target groups of travelers at the right time and place. Digital marketing allows tourism organizations to communicate directly with consumers, create personalized messages and monitor user behavior in real time, which significantly improves the competitiveness of destinations in the digital environment.⁴

The development of digital propaganda and the use of social networks significantly change the way in which information is disseminated in the digital environment, which is particularly relevant for the promotion of tourist destinations through online channels.⁵

Digital marketing implies the use of digital channels for the promotion of products and services.⁶

In tourism, it includes:

- destination website
- social networks
- online advertising
- mobile applications
- review platforms.⁷

Digital marketing enables organizations to accurately measure campaign results and adapt content to target segments.

- Tourist destinations use digital channels to:
- strengthening the brand
- increasing visibility
- communication with tourists
- attraction promotion.⁸

2. Geospatial Data and Gis in Tourism

Geospatial data refers to information that contains a geographic component. GIS is a system for managing, analyzing and visualizing spatial data.⁹

In tourism, GIS is used to:

- attraction mapping
- analysis of tourist flows
- infrastructure planning
- visualization of destinations

The analysis of geospatial data enables a better understanding of tourist behavior and the spatial distribution of visits.¹⁰

⁴ Mulahasanović, J., Digitalni marketing u turizmu. e-Turizam.com, 2024.

⁵ Tadić, D., Internet and Digital Propaganda: Social Media. Journal of Information Technology and Applications (JITA), 2025. <https://jita-au.com/index.php/2025/06/12/internet-and-digital-propaganda-social-media/> [L.s.17.03.2026].

⁶ Ryan, D., Understanding digital marketing. Kogan Page, 2016.

⁷ TripAdvisor, Booking.

⁸ Chaffey, D., & Ellis-Chadwick, F., Digital marketing (7th ed.). Pearson, 2019.

⁹ Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W., Geographic information systems and science (4th ed.). Wiley, 2015.

¹⁰ Yuan, M., Gretzel, U., & Fesenmaier, D. R., Using GIS for tourism marketing analysis. Journal of Travel Research, 2018.

GIS allows destinations to identify zones of high interest, analyze accessibility and optimize marketing activities.

GIS solutions enable the organization and analysis of spatial data through various modules, which can be directly applied in the analysis of spatial structure as a basis for digital marketing and promotion of GIS visualizations.¹¹

3. Location Marketing and Geo-Targeting

Location marketing is a form of digital marketing that uses geographic data about users to show them personalized promotional messages. Geo-targeting, which is its practical tool, allows ads and information to be shown only to users in a specific location, region or vicinity of a destination.

Location-based marketing uses information about a user's location to deliver personalized promotional messages.¹²

Geo-targeting enables:

- market segmentation according to geographic location
- personalization of the offer
- increasing the conversion rate

Today, mobile applications and Google Maps allow tourism organizations to promote attractions to users in real time.¹³

According to research, personalization of content based on location data increases user engagement and effectiveness of campaigns.

4. Smart Tourism and Digital Transformation

The concept of smart tourism implies the integration of advanced technologies, big data analytics and geospatial systems in destination management.¹⁴

Smart destinations use:

- sensors
- mobile applications
- digital maps
- real-time data

Geospatial data enables:

- management of tourist crowds
- sustainable development planning
- optimization of resources

According to Sigala (2018), digital transformation contributes to the creation of a personalized tourist experience.

¹¹ Ljubojević, S., & Avramović, Z., Architecture of GIS Solutions for Detection and Development of Wildfire Database. Journal of Information Technology and Applications (JITA), 2021.

¹² Sharma, A., & Sheth, J., A relationship marketing perspective on the digital age. Journal of Business Research, 63(3), 2010. 233–240.

¹³ Xu, H., Peak, D., & Prybutok, V., A customer value, satisfaction, and loyalty perspective of mobile application recommendations. Decision Support Systems, 79, 2015. 171–183.

¹⁴ Gretzel, U., Sigala, M., Xiang, Z., & Koo, C., Smart tourism: Foundations and developments. Electronic Markets, 25(3), 2015. 179–188.

5. Research

5.1. Digital Promotion of The Destination - Example of the Jahorina Mountain

Jahorina is one of the most famous mountain tourist destinations in Bosnia and Herzegovina, known for its ski resorts, natural beauties and active winter tourism. In the last few years, the promotion of Jahorina has been significantly digitized through the integration of GIS technologies, social networks and location marketing, which has enabled better visibility and targeted engagement of tourists.

The analysis of the digital promotion of the mountain destination Jahorina shows the importance of geospatial data in marketing.

Elements of analysis:

- Presence on Google Maps
- Digital ski resort maps
- Geo-targeted campaigns
- Online reviews and ratings

Destinations that use digital maps and location advertising report higher online visibility and better interaction with users.

5.2. Digital Marketing Strategies

The tourist organization of Jahorina and private operators apply the following digital marketing strategies:

1. Website and SEO optimization
 - The official website of Jahorina (www.jahorina.com) contains interactive maps, prices of ski passes, booking options and information about accommodation.
 - SEO optimization enables high ranking on Google search engines for key terms such as "ski Jahorina" or "winter vacation BiH".
2. Social networks
 - Facebook and Instagram are used to promote photo and video content of ski slopes, snow conditions and events.
 - Geo-tagging allows tourists to share their experiences and increases the organic reach of the campaign.
3. Mobile applications and digital maps
 - Interactive GIS maps show ski slopes, lifts, restaurants and hotels.
 - Applications for navigation within the ski resort help tourists better plan their stay.
4. Geo-targeted campaigns
 - Paid digital campaigns target users in the region (eg Sarajevo, Belgrade, Zagreb) and show promotional content to tourists who are nearby or planning a trip.

5.3. Integration of GIS Technologies

GIS technology in Jahorina enables:

- Monitoring visits to various ski slopes and mountain attractions.
- Analysis of the density of visits and identification of areas of high interest.
- Linking digital marketing with spatial data (eg sending promotional messages to users located near a specific cable car);

According to the previously mentioned model of Ljubojević and Avramović (2021), GIS solutions provide an architecture that enables efficient processing and visualization of spatial data, which is directly applicable for digital marketing of destinations like Jahorina.

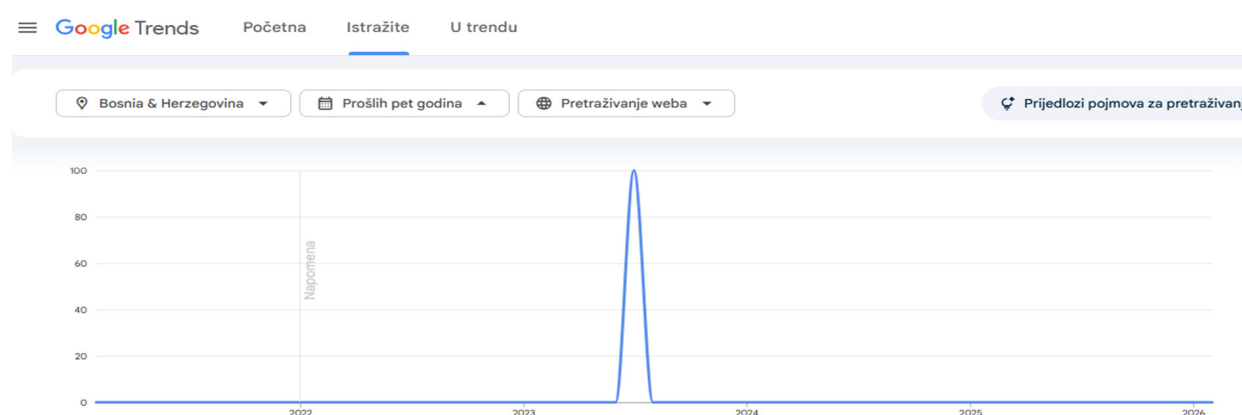
5.4. Results of Digital Promotion

Although there are no publicly available official statistical data for the digital campaigns of the destination Jahorina, general trends in the literature show that intensive digital presence, geo-targeted campaigns and visual content on social networks significantly contribute to increasing online visibility and interaction with the audience.¹⁵

Based on data from Google Trends - one can observe, how often the terms "Jahorina skiing", "Jahorina winter" etc. are searched, then data on website visits - where data for official tourist sites can be obtained based on Google Analytics. Based on the reports of tourist organizations or the statistical institute - the number of arrivals and visits in a certain period of time is published, and finally based on social networks - it is evident, how interactive the campaigns are (likes, comments, reach).

Google Trends is a useful tool for measuring online interest in specific tourist destinations over time. The data from this platform provides insight into the relative volume of searches for the term "Jahorina", which can be interpreted as the digital interest of potential tourists in certain periods. Although the official graphic data is not shown in this paper, the concept of Google Trends data emphasizes that the popularity of searches for a destination often coincides with seasonal tourist cycles and promotional activities (e.g. campaigns for winter skiing or summer events) because the tool normalizes interest through an index from 0 to 100 in relation to total searches in the selected time and region, as shown in the following image, where it can be seen that in the specific example of Jahorina, the most visited period was the winter season 2023 to 2024.

Figure 1. Google Trend 2020-2025



Therefore, in this case, it is assumed that the promotion of Jahorina through these channels has a similar effect. The implementation of digital marketing and GIS technologies brought the following results:

- Increased online visibility – Jahorina regularly ranks high on Google for key terms related to winter tourism in the region.
- Greater interaction on social networks - the use of visual and geo-tagged content increased the reach and engagement of tourists.
- Targeted campaigns and personalization of the offer - geo-targeted campaigns increased the number of tourists from nearby cities, which led to an increase in income from tourist services.

5.5. Connection with the Concept of Smart Tourism

The promotion of Jahorina through digital channels and GIS technologies is an example of smart tourism:

¹⁵ Ryan, D., Understanding digital marketing. Kogan Page, 2016. Chaffey, D., & Ellis-Chadwick, F., Digital marketing (7th ed.). Pearson, 2019.

- Digital maps and applications allow tourists to move around and plan activities more easily
- Location marketing enables personalized offers in real time
- Analysis of the spatial distribution of tourists enables better capacity management and reduction of crowds.

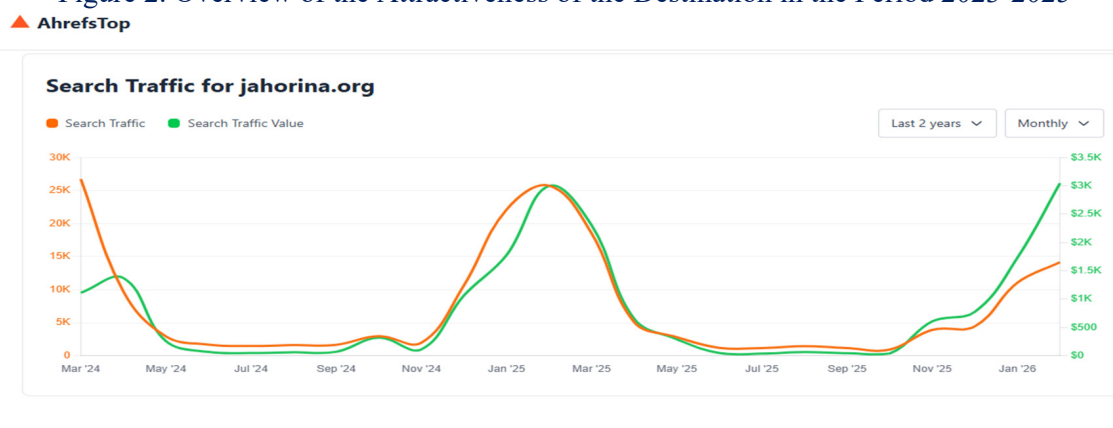
This example shows how destinations in BiH can use digital marketing in combination with GIS technologies to increase competitiveness and improve the tourist experience.

Based on available data:

- Tourist visits (summer season) During the summer season of 2024, Jahorina was visited by more than 100,000 tourists who made over 155,000 passes at the summer attractions, which represents a record attendance for this destination.¹⁶
- Visit of tourists (spring season) in the spring of 2025, more than 27,000 tourists visited Jahorina, with more than 40,000 rides on attractions such as panoramic gondolas, adrenaline trails and recreational areas.^{17 18}

On the other hand, the geographical proximity of the airport and the possibility of the arrival of a large number of visitors (up to 15,000 per day) during the winter season indicate a strong attraction of the destination and a good infrastructure for receiving tourists.

Figure 2. Overview of the Attractiveness of the Destination in the Period 2023-2025¹⁹



Based on the above, it can be concluded that in the previous period, Jahorina shows a growing trend in destination visits, indicating that Jahorina is no longer a seasonal, but a year-round destination, and physical visits are connected with online interest and digital marketing signals.

5.6. Application of Geo-targeting in Tourism: the Example of Jahorina

Jahorina, as a tourist destination, uses geo-targeted campaigns to target tourists in the region.

This includes:

1. Online advertisements

- Facebook, Instagram and Google Ads campaigns display promotional posts to users in Bosnia and Herzegovina, Croatia, Serbia and neighboring regions.

¹⁶ Simic, B., Više od 100.000 turista posjetilo Jahorinu tokom rekordne ljetne sezone, 2024. https://www.vijesti.ba/clanak/707771/vise-od-27-000-turista-na-jahorini-tokom-ljetne-sezone?utm_source [L.s.17.03.2026].

¹⁷ This shows that the destination does not function only during the winter, but also has an effect in the summer season, which is important for the concept of smart tourism and the development of year-round tourism.

¹⁸ BiH-Olimpijski centar. Više od 27.000 turista na Jahorini tokom ljetne sezone. 2025. https://www.vijesti.ba/clanak/707771/vise-od-27-000-turista-na-jahorini-tokom-ljetne-sezone?utm_source [L.s.17.03.2026].

¹⁹ View in picture. <https://ahrefstop.com/websites/jahorina.org> [L.s.17.03.2026].

- Example: the campaign for ski passes during December is shown to users located in Sarajevo and surrounding cities.

2. Geo-fenced offers

- Restaurants, hotels and ski centers use geo-fencing to send push notifications to users when they enter a certain zone near Jahorina.
- For example, a user passing the highway towards Jahorina can receive an accommodation offer or a promotional code for ski equipment Smart tourism integration.

3. Smart tourism integration

- GIS data allows monitoring of the density of visits by paths and attractions.

4. The marketing team can create personalized campaigns for areas that are less visited, thus optimizing the flow of tourists and reducing congestion. This directly affects the better tourist experience and sustainable development of the destination.²⁰

5. Effective application of location marketing and geo-targeting in tourist destinations requires integration with digital tools and GIS data of the destination. Mobile applications are a key channel because they allow tourists to receive personalized notifications about attractions, events and special offers, which increases engagement and relevance of communication.²¹

Tracking the spatial distribution of visitors through GIS technologies enables the creation of campaigns aimed at less visited zones, optimizing the flow of tourists and improving their experience, which is especially important for sustainable development and the concept of smart tourism.²² Geo-targeted campaigns can also be adapted to seasonal activities, such as winter sports or summer festivals, thus achieving greater promotion efficiency and increasing the performance of marketing strategies.²³

According to the above, it can be concluded that the application of geo-targeting on the example of Jahorina can relate to digital marketing and GIS integration, because data on the location of tourists enables better planning of promotional activities and management of tourist flows.

The following picture shows Geo-targeting in tourism.

Figure 3. Method of Applying Geo-targeting in the Tourist Destination of Jahorina.



²⁰ Gretzel, U., Sigala, M., Xiang, Z., & Koo, C., 2015.

²¹ Chaffey, D., & Ellis-Chadwick, F., Digital marketing (7th ed.). Pearson, 2019.

²² Gretzel, U., Sigala, M., Xiang, Z., & Koo, C., Smart tourism: Foundations and developments. Electronic Markets, 25(3), 2015. 179–188.

²³ Ryan, D., Understanding digital marketing. Kogan Page, 2016.

The diagram shows the process of geo-targeted marketing in a tourist destination. Tourists first search for a destination on the Internet, after which the mobile application and website collect data about their location. GIS technology analyzes spatial data about visits and generates information that is used to create geo-targeted campaigns. Personalized offers are then sent to tourists, who come and use the destination's attractions. Visit feedback is sent back to the system to optimize future campaigns, resulting in more effective promotion and improved visitor experience.

6. Discussion

The results of the analysis indicate that the integration of GIS technologies into digital marketing enables:

- more precise targeting
- better understanding of the market
- personalization of the offer
- increasing competitiveness
- Compared to traditional marketing, digital marketing based on geospatial data provides measurable results and greater efficiency.

For instance:

- The application of digital marketing in combination with GIS technologies in Jahorina shows that modern tools can increase online visibility, engagement and effectiveness of destination promotion. Visits by tourists throughout the year confirm the success of the year-round promotion and the concept of smart tourism.
- SEO strategies and social networks enable high search rankings and increased reach. The seasonal increase in searches and engagement on social networks confirms that digital campaigns effectively attract the attention of potential visitors.²⁴
- Geo-targeted campaigns enable the personalization of promotion according to the location of tourists. Mobile applications and GIS analysis help with more even distribution of visitors, optimize the flow of tourists and contribute to the sustainable development of the destination.²⁵
- More than 100,000 tourists in the summer of 2024 and 27,000 in the early phase of 2025 confirm the practical application of these strategies. The integration of digital marketing and geo-targeting enables effective destination management and improves the tourist experience.
- The combination of digital campaigns, GIS data and location marketing increases the competitiveness of the destination and the quality of the tourist experience. The example of Jahorina can serve as a model for other tourist destinations in BiH and the region.

Conclusion

Digital marketing of tourist destinations based on geospatial data represents a modern approach to the promotion and management of destinations. The integration of GIS technologies and location marketing enables a better understanding of tourist behavior and a more effective marketing strategy.

It is confirmed that geospatial data has a significant role in increasing the competitiveness of tourist destinations in the digital economy. Future research could include empirical analysis of specific campaigns and measurement of their effects.

In the course of the research for this paper, the following findings were made: the destination of Jahorina shows that the integration of digital marketing, GIS technologies and geo-targeting significantly improves the promotion and management of the tourist destination. Digital campaigns and SEO strategies increase online visibility, while social media and visual content contribute to greater audience

²⁴ Chaffey & Ellis-Chadwick, 2019; Ryan, 2016.

²⁵ Gretzel, U., Sigala, M., Xiang, Z., & Koo, C., Smart tourism: Foundations and developments. *Electronic Markets*, 25(3), 2015. 179–188.

engagement. Google Trends and web metrics show a seasonal increase in tourist interest, which confirms the effectiveness of digital promotional activities.

Geo-targeting and location marketing enable personalized campaigns, even distribution of visitors and optimization of the tourist flow, which also achieves the sustainable development of the destination. Empirical data show that Jahorina is visited by a significant number of tourists throughout the year, with record summer visits and stable winter seasonal traffic.

This combination of modern marketing and technological tools is a practical example of the application of smart tourism principles in medium-sized mountain destinations. The application of such strategies can serve as a model for other tourist destinations in BiH and the region, increasing their competitiveness, attractiveness and the quality of the tourist experience.

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