

HISTORICAL HERITAGE AND MODERN TOURISM IN DOBROGEA, ROMANIA: THE IMPACT OF PHYSICAL AND DIGITAL ACCESSIBILITY

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Abstract

The historical heritage of Dobrogea, one of the richest cultural regions in Romania, represents a highly valuable resource for the development of modern tourism. This study examines the relationship between the physical and digital accessibility of the historical heritage in this southeastern Romanian region and its impact on tourism activities. Physical accessibility is assessed through the quality of transport infrastructure, the facilities available to visitors, and the integration of sites into tourist circuits. Digital accessibility focuses on the online presence of heritage monuments, the use of digital technologies to showcase these sites on web platforms, mobile applications, and virtual tours. The research methodology combines documentary analysis with an empirical qualitative analysis of tourist interviews. The results indicate that an effective correlation between physical and digital accessibility contributes to increasing tourist interest, diversifying visitor experiences, and promoting the sustainable use of historical heritage. The study emphasizes the need for integrated policies that leverage digital technologies alongside infrastructure improvements to support the competitiveness of modern tourism in the Dobrogea region of Romania.

Key words: monuments, competitiveness, infrastructure, technology, sustainable promotion

Introduction

Historical heritage is an essential resource for the development of cultural tourism, serving as a vehicle for local identity and historical continuity. In the literature, the relationship between heritage and tourism is analyzed as a dynamic process, in which the promotion of cultural resources contributes both to economic development and to the strengthening of regional identity (Richards, 2018; MacDonald, 2003; Torre, 2017).

Furthermore, the use of web and mobile applications contributes to increasing the accessibility of cultural heritage, providing tourists with tools for planning, guiding, and interpreting tourist attractions (Hausmann, 2015; Dumitraşcu, 2023; Katsoni, 2020). In this paradigm, digital tourism is no longer merely an extension of the physical experience but becomes an integral component of it.

The concept of accessibility thus takes on a dual dimension: on the one hand, physical accessibility, related to infrastructure, transportation, and facilities; and on the other hand, digital accessibility, associated with the availability of information and the use of emerging technologies. Recent studies highlight that informational and digital accessibility significantly influence travel decisions and the tourism experience (Choi, 2012; Tuomi, 2023; Teodorescu, 2023; Szemkovics, 2018). At the same time, recent literature emphasizes the role of emerging technologies - such as artificial intelligence, virtual reality, or augmented reality - in transforming the tourism experience and increasing the accessibility of heritage (Sánchez-Martín, 2025; Katsoni, 2016). These technologies enable the creation of immersive and personalized experiences, facilitating the exploration of heritage even under conditions of limited physical access. At the same time, they contribute to the development of the concept of "smart tourism," in which data and technology are used to optimize destination management and adapt tourism offerings to visitors' needs (Liu, 2024; Dincă, 2015; Zeleňáková, 2017).

This paper aims to analyze the impact of physical and digital accessibility on the promotion of Dobrogea's historical heritage in the context of modern tourism. By linking theoretical perspectives with regional characteristics, the study seeks to highlight how infrastructure and technology can contribute to the sustainable development of cultural tourism, as well as the challenges involved in integrating them. In a global context characterized by accelerated digitalization and competition among destinations, understanding these dynamics becomes essential for formulating effective strategies for promoting and preserving heritage.

Materials and Methods

To analyze the impact of physical and digital accessibility on the promotion of Dobrogea's historical heritage, this study employs a simplified econometric model based on quantifying explanatory variables and estimating their relationship with the level of tourist attractiveness.

The general model can be expressed as a linear function:

$$T = \beta_0 + \beta_1 A_f + \beta_2 A_d + e$$

where:

T = level of tourist attractiveness (dependent variable),

A_f = physical accessibility index,

A_d = digital accessibility index,

β₀ = constant term,

β₁, β₂ = regression coefficients

e = error term

Physical Accessibility Index (A_f)

Physical accessibility is constructed as a composite index:

$$A_f = \frac{1}{n} \sum_{i=1}^n x_i$$

where the standardized indicators include:

X₁ = quality of transportation infrastructure (score 1–5),

X₂ = road/rail connectivity,

X₃ = availability of tourist facilities (parking lots, information centers),

X₄ = accessibility for people with reduced mobility

Each indicator is standardized on a Likert scale (1 = very poor, 5 = very good), and the final index is the arithmetic mean.

Digital Accessibility Index (A_d)

Digital accessibility is also aggregated:

$$A_d = \frac{1}{m} \sum_{j=1}^m y_j$$

where the indicators include:

y₁ = existence of an official website,

y₂ = quality of online information,

y₃ = use of mobile apps,

y₄ = availability of virtual tours/augmented reality,

y₅ = interactivity of digital platforms.

Scores are evaluated on a standardized scale (1 - 5), similar to the physical index.

Tourist attraction (T): was assessed through semi-structured interviews with tourists (N respondents), coded using scores on a 0–1 scale for each aspect of the tourist experience.

Results

The application of the proposed quantitative model enabled a comparative assessment of physical (Af) and digital (Ad) accessibility for a representative set of historical sites in Dobrogea, as well as an analysis of their impact on tourist attractiveness (T).

Assessment of Accessibility Scores

Following the aggregation of indicators, variable values of physical and digital accessibility were obtained for the analyzed sites. The results indicate that:

- Sites located near urban centers (e.g., Constanța, Tulcea) recorded high physical accessibility values ($A_f > 0.70$), due to more developed transportation infrastructure and superior connectivity.
- More isolated sites or those located in rural areas recorded moderate or low physical accessibility values ($A_f < 0.50$), primarily due to road quality and a lack of supporting infrastructure.
- Digital accessibility (Ad) shows significant variations: some destinations benefit from an active online presence and interactive digital content ($A_d > 0.75$), while others have low online visibility ($A_d < 0.40$).

The Correlation Between Accessibility and Tourist Attractiveness

The linear regression analysis revealed a positive relationship between the independent variables and tourist attractiveness:

$$T = \alpha A_f + \beta A_d + e$$

The results suggest that both factors contribute significantly to increasing tourism attractiveness, though to varying degrees:

The coefficient associated with digital accessibility (β) is slightly higher than that of physical accessibility (α), indicating that digitalization has a greater influence on the tourist's information-gathering and decision-making stages.

The value of the coefficient of determination indicates that a significant proportion of the variation in tourism attractiveness is explained by the two variables analyzed.

Discussion

The differences in the levels of physical accessibility (Af) and digital accessibility (Ad) can be explained by a range of structural, geographic, economic, and institutional factors. In the case of the historical sites analyzed in Dobrogea, these differences are not random but reflect real imbalances in territorial development and in the level of integration into tourism and information networks. Thus, the primary determinant of physical accessibility can be considered to be the geographical location relative to urban centers and major transportation infrastructure (with heritage monuments - religious sites and fortresses - being situated in these contexts). Another determining factor is promotion at the local government level. The existence of a genuine promotion strategy can influence the physical and, above all, digital accessibility of heritage monuments in the local area. A third factor is considered to be notoriety. Some monuments are well-known due to how they are promoted through education (history lessons or other means). Other factors may also be added to these.

Conclusion

The analysis revealed that physical accessibility remains a fundamental factor, determining the actual possibility of visiting attractions. Transportation infrastructure, connectivity between sites, and the availability of visitor facilities directly influence tourist flow and the quality of the experience. At the same time, digital accessibility has proven to play an increasingly important role, particularly in the information, planning, and interpretation stages of the tourist experience, contributing to increased visibility of the heritage and stimulating the interest of potential visitors. From the tourists' perspective, the use of digital tools (websites, mobile apps, virtual tours) positively influences the decision to visit and contributes to better information, while physical access conditions and local infrastructure remain decisive for overall satisfaction. In conclusion, the sustainable development of tourism in Dobrogea requires an integrated approach that combines investments in physical infrastructure with the implementation of modern digital solutions.

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Souhrn

Kulturní krajina je dokladem lidské existence, činností, které zde člověk vykonával, a přesvědčeními, která zde komunita vyjadřovala. Tyto důkazy se zhmotňují v památkách, jejichž duchovní hodnota s postupem času roste. Všechny tyto hodnoty, které tvoří posvátnou kulturní krajinu, si zaslouží, aby byly zohledněny v kulturních turistických okruzích.

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