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Towards a new generation of smart tourism cities–GenAI-enabled aerotainment

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ABSTRACT

This article adopts a futures-based approach to explore the marketing of smart cities as tourism destinations with a specific focus on the role generative artificial intelligence (GenAI) can play in this process. Building on the novel concept of aerotainment, which advocates a holistic approach to urban destination management merging airports, theme parks, regional visitor attractions and tourism cities, the future impacts of GenAI on the planning and management of visitor experiences are discussed critically. A novel framework for the development of GenAI-enabled smart tourism cities - the urban tourism destination pyramid - is posited and discussed, including the use of tools such as digital twins and GenAI to monitor and predict future customer behaviour.

1. Introduction

The use of artificial intelligence (AI) is set to revolutionise global tourism cities in the next decade, especially in terms of their ability to predict and adjust quickly to rapidly changing consumer trends. Not surprisingly, the application of AI to tourism has attracted a great deal of attention recently from scholars (see, for instance, Hall & Cooper, 2025), including the interaction between people and robots in hospitality settings (Liu et al., 2025). Similarly, it is becoming increasingly evident that the advent of Large-scale Language Models in AI (e.g., ChatGPT) is becoming a major catalyst for change in how visitors choose tourism destinations and consume the experiences offered by places (Gursoy et al., 2023). Subject to reliable data to train it with, tools supported by AI such as chatbots, digital twins (DTs) and wider generative AI (GenAI) applications have the scope to personalise experiences to individual preferences by using data analysis capabilities on a scale not available to the sector ten years ago (e.g., Hsu et al., 2024).

Smart cities are becoming increasingly reliant on the use of GenAI (Dashkevych & Portnov, 2024). However, unlike earlier AI algorithms, GenAI is capable of creating original content, including text, graphics, code, images, and simulations on the basis of existing data (Valença et al., 2025). In sustainable smart cities like Lausanne (Switzerland) and Kelowna (Canada), GenAI and Digital Twin (DT) technologies have started to revolutionise urban planning and design by delivering data-driven decision-making to complex problems, including improved predictive capacities (Huang et al., 2025; Esparza, 2025; Jiang et al., 2025). This is beginning to be used by smart tourism cities to develop enhanced personalised visitor experiences tailored to individual preferences (Wong et al., 2023).

Similarly, in the context of urban tourism, the disruptive influence of Gen AI as a tool for the delivery of new levels of segmentation and personalisation of experiences has been investigated (Florido-Benítez, 2024), with a number of Online Travel Agencies (OTSs) such as Vacay, Wonderplan, Layla or Mindtrip already beginning to pilot it as part of their enhanced service offer. However, the curation of reliable training data for these algorithms remains a major challenge (Hong et al., 2023).

These developments represent a major step towards a more connected and accessible world. They improve processes in destination management organizations (DMOs) as well as the entire travel and visitor experience. However, given the nascent stage of many of these technologies - ChatGPT was only launched commercially in 2022 -, further research is necessary to establish not only their true potential but also the actual impact of GenAI in tourism. Not surprisingly, much of this rests on the acceptance and adoption of AI technologies by visitors, especially in situations (e.g. robotics in hospitality) where AI replaces face-to-face services currently offered primarily by people (Zhong et al., 2022). Inevitably, this will lead to difficult ethical dilemmas in tourism (Lin & Lee, 2024; Zvaigzne et al., 2025). Moreover, the pace of change of these technologies is likely to increase dramatically as a result of the advent of quantum computing. In the meantime, the implementation of

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GenAI in urban tourism destinations is gathering momentum. In 2024, Saudi Arabia started a process of implementing AI platforms and applications to enhance productivity and deliver more tailored solutions in travel and tourism that also included the management or tourism destinations. Enterprises such as Vacay have already taken this further by offering their customers personalised suggestions and travel ideas where most of the communication is done with a chatbot. Advice offered on accommodation, experiences, restaurants and public transport is not only tailored to personal preferences, but also the traveller's specific budget and other needs. Urban destinations and their visitor economy ecosystem will increasingly build on this to enhance their marketing strategies and gain competitive edge (García-Madurga & Grilló-Méndez, 2023), especially when AI's computing power can overcome barriers such as language and real-time information from various sources (Wolniak & Stecuła, 2024). In Málaga (Spain), AI technology has been integrated into the city's official tourism website to create multimedia content with photos, providing the geolocation of its main tourist attractions, delivering potential routes for visitors to follow, as well as direct visualisation links with key attractions clearly marked, merging the physical and virtual worlds using an approach that some authors have referred to as "phygital" in the context of smart urban tourism (Ballina et al., 2019).

Yet, research to date on smart tourism destinations (Boes et al., 2016) falls short of adopting a systems-based approach to the understanding of travel and visitor experiences (Lacárcel, 2022). This more holistic approach has major implications for the place marketing of smart tourism cities (Coca-Stefaniak, 2019), with GenAI able to personalise this marketing to individual consumers based on their personal preferences, views on sustainability and aspirations. This is a field of research that has already started to attract the attention of scholars and practitioners alike (Huang et al., 2025).

2. Aerotainment – a new approach to managing and marketing smart tourism cities

The advent of social media, the shared economy and a more immersive approach to visiting places. This has led to a new typology of modern technology-savvy visitors fully conversant with digital channels that gather information related to airport services, flight connectivity, public transport availability and pricing, local attractions (e.g., museums, theme parks), nearby accommodation, restaurants, and a tailored tourism offers from various sources. These include destination marketing organizations (DMOs), online travel agencies (OTAs), and other stakeholders in the tourism ecosystem (McClanahan, 2024). Against this backdrop, the concept of aerotainment has been recently developed and defined as "the interaction of airports with nearby theme parks and other visitor attractions (e.g., casinos, sporting venues, museums) as part of a destination's stakeholder network with the aim of enhancing the overall visitor experience and competitiveness of that ecosystem" (Florido-Benitez et al., 2025). However, aerotainment is not limited to synergies between a single airport and its nearest tourism city. Instead, it has a much wider reach, which encompasses whole regions, including tourism attractions with distant though accessible airports and a number of choices of nearby urban destinations. In this context, the application of GenAI is set to take aerotainment to a new level in smart tourism destinations by personalizing visitor experiences through the enhanced personalization of itineraries, services, recommendations and services.

This relationship, which is currently in its infancy, has been conceptualised visually in Fig. 1. Place marketing strategies for smart tourism cities can capitalise on these synergies (Marchesani & Masciarelli, 2025), with growing levels of innovation, especially as regards the links between air connectivity and tourism (Frétigny et al., 2024). For example, ubiquity information and communication between business-to-consumer (B2C) and business-to-business (B2B) help to users make better decisions and maximize their satisfaction (Saravanan et al., 2024). In this context, it is important to note that although the attractiveness of tourist destinations often stems from their proximity to airports and air accessibility provided by airlines, there are also exceptions to this, notably in UNESCO World Heritage sites that remain distant from the nearest international airport and yet remain well visited tourism destinations (see Napoli & Trapman, 2019; or Canale et al., 2019).

This framework builds on the concept of smart tourism cities (Gretzel & Koo, 2021) and the need for them to engage more effectively with visitors and residents alike to enhance their visitor experience and attractiveness (Coca-Stefaniak & Seisdedos, 2022; Molinillo et al., 2019). It also posits the adoption of a systems-based approach, first mentioned by Sessa (1988) in the context of tourism, and subsequently developed fully by Morrison et al. (2018), to illustrate the complexity of the processes involved, including travel to smart tourism cities as well as visitor interactions with local attractions facilitated by smart technologies.

3. Towards a new generation of smart tourism cities?

Building on the concept of aerotainment, it is possible to conceptualise urban tourism destinations on the basis of the services they offer, including the effectiveness of their public transport and air connectivity, and their use of technologies to enhance the visitor experience.

In this respect, Fig. 2 outlines a new framework – the urban tourism destination pyramid. Whilst this framework acknowledges tourism cities

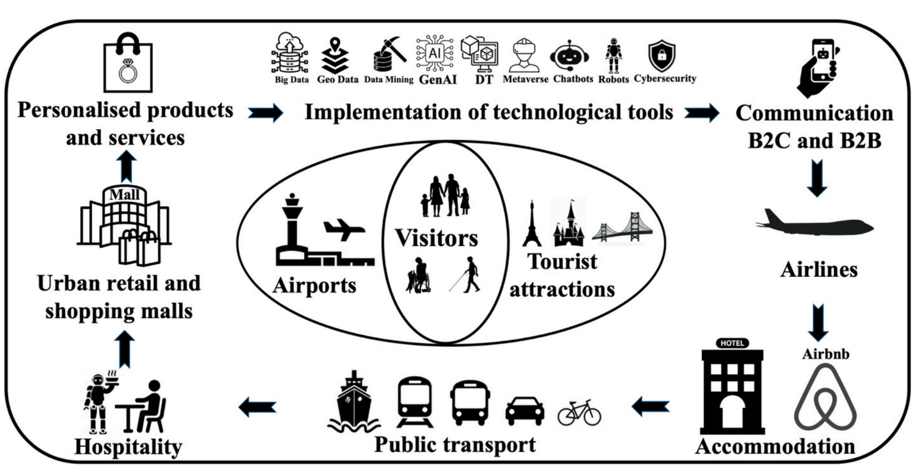

Fig. 1. Aerotainment in smart tourism destinations.

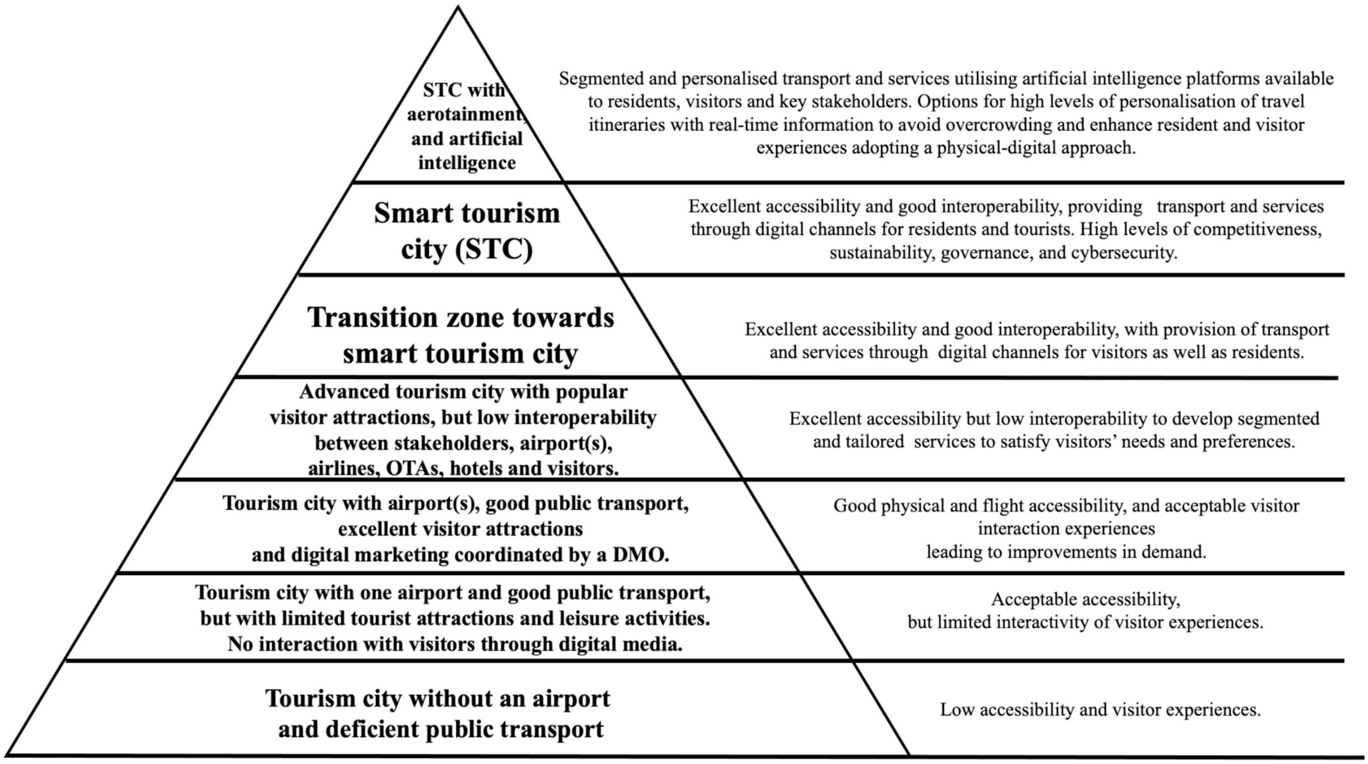

Fig. 2. The urban tourism destination pyramid – from traditional tourism cities to AI-enhanced aerotainment.

without airport connectivity and public transport services that could be enhanced further (shown at the bottom of the pyramid), smart tourism cities are positioned in Fig. 2 at the base of an apex that is capped by cities able to capitalise on new smart approaches in this context – a new generation of urban tourism destinations that will embrace strategically the concept of aerotainment supported by GenAI technology to enhance every experiential element for visitors and residents alike. This highly sophisticated digital approach has been shown to reduce operational costs for tourism destinations, enhance tourism supply, and increase the value of their brand, especially online (Chan & Choi, 2025; Tian & Tang, 2025). Whilst sustainable tourism cities often prioritise a balance between a successful visitor economy and the socio-cultural sustainability of its residents, a smart tourism city will often adopt emerging technologies such as GenAI to optimise these processes leading to improved decision-making (Dashkevych & Portnov, 2024).

A good example of this is the city of Málaga (Spain), which is an award-winning European smart city. Málaga has experienced exponential growth in the last 25 years in tourism, logistics, and the attraction of major investment by Google, Oracle, Vodafone, IBM, Deloitte, Amazon, DHL, Telefónica, and Huawei, among many others. Today, Málaga is one of Spain's most innovative and successful smart tourism cities.

Importantly, some scholars (e.g., Kouroupi & Metaxas, 2023) have posited that AI-supported technologies may help to mitigate the effects of overtourism, though further research is required to establish the validity of this claim. Moreover, the conceptual framework offered here does not suggest that all urban destinations should seek to embrace AI-enhanced aerotainment. Instead, it seeks to provide a spectrum that captures current practice in this respect by tourism cities and encourages debate among practitioners and researchers alike, with each smart tourism city finding a position on the spectrum aligned with its strategic goals.

4. Concluding remarks

Capturing customer expectations, visit intentions and actual behaviours during a visit to a tourism destination have been key to the effective promotion, management and success of global smart tourism cities. GenAI, including large language models, fuzzy logic, neural networks and other digital technologies will increasingly become key tools in the tracking and analysis of visitor behaviours. However, research and practice in this respect are at the verge of a major inflection point that will see continuous improvement and data-driven optimisation processes (e.g., transport networks, energy use, etc.) being replaced by more innovative solutions that incorporate the formulation of a new generation of place marketing strategies. These strategies will capitalise on the granularity of better data to anticipate micro and macro customer trends from an embryonic stage. Quantum computing will become key to this inflection point for smart tourism cities. The widespread personalisation of visitor experiences will cease to be a privilege for wealthier visitors – it will become commonplace for visitors and residents from a wide range of socio-economic backgrounds. The result will be a democratisation in the availability visitor experiences, with leading smart tourism cities offering the first test beds for this approach to the visitor economy before similar approaches are adopted by other tourism destinations. Similarly, pioneering smart tourism cities will capitalise on these developments to position themselves is a rather unique way by using smartness and GenAI as attractors in the context of place marketing – a process that remains remains underutilised and poorly understood. The concept of aerotainment is set to become integral to this strategic thinking, especially as it encourages tourism destinations to adopt a systems-based approach to the management of the visitor economy with data sharing and the personalisation of experiences at the very heart of this approach.

CRediT authorship contribution statement

Lázaro Florido-Benítez: Writing – review & editing, Writing – original draft, Conceptualization. **J. Andres Coca-Stefaniak:** Writing – review & editing, Writing – original draft, Conceptualization.

Declaration of competing interest

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Data availability

No data was used for the research described in the article.

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