

# **Smart Cities and Tourism:**

## **Co-creating experiences, challenges and opportunities**



# **Smart Cities and Tourism: Co-creating experiences, challenges and opportunities**

**Editors:**

**Dimitrios Buhalis, Babak Taheri and  
Roya Rahimi**



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## Introduction

The urbanisation, growth and associated challenges of modern cities, coupled with the rapid development of new Information Communication Technologies (ICTs), propelled the development of the 'smart cities' concept (Yin et al., 2015). The term 'smart city' appeared first in the early 1990s with emphasis on technology, innovation and globalization in the process of urbanization (Gibson et al., 1992). It was regarded initially as the possibility of providing citizens with information and services via the integration of ICTs into a city's infrastructure (Ahvenniemi et al., 2017). Smart cities aimed to support and encourage economic growth and human development, leading to improvements in the quality of life for the residents, visitors, companies and institutions that coexist in cities (Silvia et al., 2018).

The smart cities concept has attracted great attention since 2008, with the launch of IBM's Smarter Planet project (Palmisano, 2008). Since then it has continued to grow through research and evolution. The term has been defined differently by different scholars, and new definitions and conceptualisations of smart cities are still emerging. Harrison et al. (2010) defined a smart city as an instrumented, interconnected and intelligent city. A common definition for a smart city is using ICT to make a city (e.g., administration, education, transportation) more intelligent and efficient (Washburn et al., 2009). Smart cities drive the next generation of urban and tourism marketing management evolution. The smart cities of tomorrow engage locals, visitors, governments and businesses in an intelligent, collaborative and connected ecosystem (Yin et al., 2015).

Global urbanisation is progressing rapidly, resulting in human concentration in urban economic centres which offer a wide range of services. In 2015, there were 29 megacities – cities with more than 10 million inhabitants – and the forecast is that there will be over 40 megacities by 2030 (Allianz, 2015). The so-called *gigacities*, with more than 50 million inhabitants are emerging, mainly in overpopulated countries such as India, Brazil and China. Cities increasingly use integrated technologies to centralise resource management, improve efficiency, sustainability and mobility in order to address the effects of urbanisation.

By becoming smart, cities can generate urban economic development and change systems to benefit from greater convenience, growth in revenues and reductions in costs, reduced bureaucracy and increased transparency (Vinod Kumar, 2017). The IoT (Internet of Things) network can create a smart city infrastructure which supports every aspect of urban management, including transportation, health care, agriculture and entrepreneurship (Yasuura et al., 2018). Governments globally invest in smart city initiatives to better manage resources by integrating human and technological capital (Angelidou, 2015; Calzada & Cobo, 2015).

Smart city infrastructure includes strategic health care and intelligent transportation systems (Caragliu et al., 2011). Several frameworks for strategic smart sustainable development have emerged, primarily for urban regions with the potential to transfer these set-ups to different regional contexts (Bibri & Krogstie, 2017).

There is growing interest in the convergence of ICT and IoT in tourism and smart cities (Buhalis, 2020; Boes et al., 2016; Thompson et al., 2022; Buhalis & Amaranggana, 2014; Um & Chung, 2019; Gretzel et al., 2016; Kromidha et al., 2021; Huang et al., 2017). Global tourism has been evolving with technology through the integration of ICT towards an eTourism system (Buhalis, 2003). Advances in ICT have enabled the development of products and services on a variety of levels, from assembly lines to multi-stakeholder complex and interconnected systems. The proliferation of Internet connectivity through distributed networks, *Big Data* and the *Internet of Everything* have revolutionised the production and consumption of tourism experiences, ultimately reengineering economies at both micro and macro levels (Buhalis, 2020).

Smart tourism destinations take advantage of the smartness and smart city developments by applying data science to decision-making in destination management and marketing, urban planning and policy making (Shafiee, et al., 2021; Xiang et al., 2015). Gretzel et al. (2015) suggest that the key aspect of smart destinations is the integration of ICTs into physical infrastructure. Stemming from the conceptualisation of smart city, smart tourism destinations emerge to take advantage of interoperability and interconnectivity of networked organisations and co-create innovative products and services to maximise value for all stakeholders (Buhalis, 2020; Boes et al., 2016; Buhalis & Amaranggana, 2015; Buhalis & Foerste, 2015).

Smartness is effectively the glue of interconnected and mutually beneficial systems and stakeholders that provide the infostructure for the value creation for all (Buhalis, 2020). It is primarily about technology-empowered agile management and marketing that performs dynamic big-data mining, appreciates internal and external contextual factors and maximises benefits brought to all stakeholders in real time (Buhalis & Sinarta, 2019). Smart cities also empower digital accessibility and tourism for all, reducing inequalities (Fernández-Díaz et al., 2022). Buhalis et al. (2022) demonstrate how cruise ships emerge as smart destinations through smart cruising and technology diffusion throughout their ecosystem. Smart tourism destinations also address deconstruction of value in the system through the sharing economy (Buhalis et al., 2020) or other forces.

This book, with its three parts and 12 chapters, provides a comprehensive insight into the current issues and opportunities on smart cities and smart tourism in the next generation of urban evolution. It provides a better understanding of city services, but also enhances and evaluates the local and visitor experience as well



as city decision making processes by examining how smartness creates liveable environments and business solutions.

### **Part 1: Smart Cities: Concepts and Issues**

This part explores the smart cities concepts and issues offering a comprehensive analysis. It starts with smart cities' digital transformation. Ekaterina Glebova and Wojciech Lewicki in their chapter provide the theoretical basis for analysing the concept of a smart city. The chapter explores digital transformation phenomena in the urban area, as well as the main drivers of change, various impacts, and the contributions of stakeholders of smart cities to development projects in any context. It further focuses on the main challenges for smart cities, related to technological progress, and explains what makes modern cities smart. It proposes a conceptual framework for the implementation of digital technologies within the concept of a smart city. In Chapter 2, *Smart technology trends*, Evrim Çeltek focuses on using artificial intelligence, big data and robotic technologies in processes and organizations. In Chapter 3, Diogo Correia and Leonor Teixeira focus on a deep understanding of the smart cities concept and evolution. The chapter provides a comprehensive examination on the evolution of the concept, highlights the associated comprehensions and terms, and proposes a common understanding of the smart city concept.

In Chapter 4, Ekaterina Glebova and Michel Desbordes focus on the development of strategies that connect sports and cities. The chapter explores the three main categories of smart sports related actors: (1) the sports environment user, a citizen practicing physical activity and using sports facilities, (2) the team player or athlete, who practices as part of a club, amateur or professional (3) the sports fan, spectator or/and follower, a person who is interested in sports content consumption (live or mediatory watching). It provides a theoretical basis to learn and analyse the interrelation of sports and the concept of smart cities, followed by real examples. By distinguishing different types of sports, urban infrastructure, and their nature and purposes, it provides a comprehensive review of the nature, features, and dimensions of sports in the smart city framework.

### **Part 2: Smart Tourism and Smart Tourists**

This starts with Chapter 5 by Carlos Romero-Dexeus, Aurkene Alzua-Sorzabal, Diana Gómez-Bruna, Francisco Femenia-Serra and Edurne Vidal López-Tormo. The chapter tackles the research problem of how city governments can take ownership of smart city/smart destination projects to ensure that they create value for residents and local organizations. Therefore, it focuses on the value smart services create and how local governments can ensure that value is created and delivered. In Chapter 6, Tomáš Gajdošík focuses on smart tourists in smart cities and the ways smart cities contribute to citizen value co-creation and

sustainability and improve the quality of life. Chapter 7 by Katerina Volchek, Dimitrios Buhalis and Rob Law is on co-creating and co-destructing personalised experiences through smart tourism. This chapter conceptualizes the potential of a smart tourism city to co-create and co-destruct tourist experiences through personalization. It defines personalization as a service offering in tourism and explains the reason why this is acknowledged as one of the determinants of the advanced tourist experience. The chapter applies Service-Dominant Logic (SDL) to conceptualize the potential of not only co-creating but also co-destructing tourist experiences through the process of personalization.

### **Part III - Smart Cities and Smart Tourism Destinations**

The last part starts with Chapter 8 by Abbie-Gayle Johnson and Jillian M. Rickly. In this chapter Ljubljana in Slovenia is selected as a case study to focus on the formulation of smart tourism destination. This chapter explains the role of collaboration in bringing together diverse stakeholders and roles. Chapter 9, by Alberto Amore, Pavlos Arvanitis, Francesca d'Angella and Manuela De Carlo, provides empirical evidence from Milan, Italy, through a longitudinal analysis of destination meta governance and smart governance processes between 2004 and 2019. From a destination meta governance perspective, the genesis of Milan as a tourist destination saw a shift from a networked hierarchy to a more collaborative and adaptive mode of smart meta governance. The insights from Milan provide a timely reflection on the nexus between new technologies, governance archetypes, and meta governance responses and how these contribute to the development of a city into a culturally vibrant and smart destination.

Chapter 10, by Luiz Pinto Machado and António Manuel Martins de Almeida, explains the practical difficulties involved in building up the required infrastructure of a smart island/destination. These include implementation complexities as well as transformative and disruptive concepts in traditional tourism ecosystems that have been operating for years relatively smoothly. This chapter bridges the theoretical foundations of smart tourism with empirical research focused on less studied insular geographical settings. Hence it interprets operators' attitudes regarding several key factors affecting the development of smart tourism in Madeira, Portugal. The chapter includes policy-making aspects, supply-side elements, and in-house technical competencies. Valuable insights regarding strengths, weaknesses, and challenges are discussed to analyse the current state of affairs and devise a coherent and comprehensive methodology to adopt a progressive agenda focused on smart tourism on islands.

Chapter 11, by Otto Regalado-Pezúa, Luis Felipe Galarza Cerf and Leonardo Toro, is based on the case of Barranco, Lima, Peru. It focuses on technological management of a smart city which is followed by the case of the district of Barranco, Lima in Peru. Chapter 12 by Kadir Çakar examines the competitiveness

of four European smart cities that are classified as smart destinations from a comparative analysis perspective. The chapter aims to examine to what extent the four selected cities offer innovative services and smart facilities, based on the smart city initiatives, for both residents and visitors. Thus, the research contributes to the literature by offering valuable insights and key implications for destination managers.

The book, with its comprehensive approach, serves as a main reference point for smart cities researchers, scholars, students and practitioners. It provides definitions and conceptualisations of smart city and smart tourism through exploring the implications of technological developments, stakeholder engagement and sustainability. This book uses a multi-disciplinary approach to explore different cities from around the world whilst exploring smart user behaviour, information system design, and service management.

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### Editors

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