

10 Smart model of sustainable tourism development: Lessons from Madeira Island, Portugal

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Introduction

The tourism industry has benefited greatly from technological progress (Buhalis, 2020). Much of its progress over the years is a direct outcome of several advances made towards applying technical solutions in key areas of the tourism experience. The current social development model is based mainly on Information and Communication Technologies (ICT). Society and key players communicate, produce knowledge, and generate wealth at various levels. (Machado & Almeida, 2010). What has changed significantly is that technology has not only become an integral part of tourism but has revolutionized the way travel is planned (Buhalis, 2003; ITU, 2015, 2016). Business is conducted (Buhalis & Licata, 2002), and tourism services and experiences are created and consumed (Stamboulis & Skayannis, 2003) using technological solutions and platforms. Technology revolutionized the entire distribution channel by empowering direct communications and transactions between suppliers and consumers (disintermediation) as well as through the emergence of a plethora of new intermediaries (reintermediation) (Buhalis et al., 2019; Figueiredo et al., 2018; IEEE, 2017).

The rapid pace of development in the ICT field and the growing attention given to concepts such as smart tourism and smart destination have created several opportunities to re-think the development of the tourism sector based on substantively altered business models firmly anchored on

sustainable-friendly premises. However, bringing smartness into tourism destinations requires interconnecting stakeholders dynamically through a technological platform on which information relating to tourism activities could be exchanged instantly (Zhang et al., 2018). In view of the rapid growth of technological developments, tourist destinations should improve their smartness. They should acknowledge and understand the behavior of the new generation of tourists as an opportunity to make destinations and tourism companies more competitive, based on memorable experiences and co-creation of information relating to tourism activities (Fan et al., 2019). Information supported by technology apps can be exchanged and upgraded instantly and in real time (Buhalis & Sinarta, 2019). These co-creations reinforce the motivation of those inclined to choose a destination and increase tourist satisfaction and competitiveness. Tourists affiliated with the Millennial generation are dependent on technology, as their generation has never lived without a smartphone. They will travel more and spend more than their ancestors, and influence others and their spending behavior in the process of choosing a destination (Buhalis, Parra López & Martínez-Gonzalez, 2020).

Smart tourism emerged to provide the infrastructure for value cocreation (Buhalis & Amaranggana, 2015; Boes et al., 2016; Gretzel et al., 2015). All suppliers and intermediaries, the public sector and consumers, are becoming dynamically networked, which co-produces value for all operators and stakeholders interconnected within the ecosystem (Buhalis, 2019). Interoperability and ubiquitous computing ensure that everybody is interconnected. Processes are integrated towards generating value through dynamic cocreation, personalization, and adaptation to the new global context facing the tourism sector (Buhalis & Foerste, 2015; Buhalis & Sinarta, 2019).

This chapter 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 bridges the theoretical foundations of smart tourism with empirical research focused on less studied insular geographical settings. Hence the chapter interprets operators' attitudes regarding several key factors affecting the development of smart tourism in Madeira, Portugal. This includes policy-making aspects, supply-side elements, and in-house technical competencies. Valuable insights regarding strengths, weaknesses, and challenges discuss the current state of affairs and devise a coherent and comprehensive methodology to adopt a progressive agenda focused on smart tourism on islands.

Smart cities and smart tourism

The concept of 'Smart City' is relatively new in the scientific literature. It has emerged in the last two decades (Albino et al., 2015). It deals mainly with the economic and social aspects of transforming a city into a sustainable urban environment based on smart solutions (Winters, 2011; Manville et al., 2014). Caragliu et al. (2011) defined the smart city as concurrent with a harmonious coexistence of social investment, human capital, communications, and infrastructures with a view of promoting sustainable and efficient socio-economic development through the deployment of ICT tools. 'Smart' stands out and is a prefix in several buzzwords. Terms and concepts such as 'smart citizen', 'smart policy', 'smart networks', 'smart buses', etc., are used increasingly in city management. There is clear evidence of the wide acceptance and prominence of the Smart City concept in a wide range of policymaking related fields.

Achieving success in working in a sustainable and integrated manner is one of the main challenges of the twenty-first century, as their position as the epicenter of urban life is reinforced. The concept of a Smart City represents an environment where technology is embedded within the city management tools. This concept is well placed to synergize a city's social components to improve citizens' quality of life, while also improving city services' efficiencies, such as optimizing the use of energy and better traffic monitoring (Vicini et al. 2012; Figueiredo et al., 201). The smart city has become a common ground for the urban discourse, whose tenet has been received with enthusiasm in the media and the institutional and academic sphere. However this ideal city entails considerable challenges. Many of these hurdles are linked with the six dimensions or pillars posited by the model: population, environment, mobility, economy, quality of life, and governance (Enerlis et al., 2012; Giffinger et al., 2007; Giffinger & Gudrun, 2010). The smart city cannot succeed without the greater involvement of citizens, as smart people.

The highly complex urban structure, that has long been associated only with large cities, has changed with the new demographic. Urban settlements of this kind have slower population growth rates than other relatively smaller urban centers (Bouskela et al., 2016). Thus, intermediate cities have also grown at an accelerated pace. However, medium cities cannot be delimited exclusively based on variables such as demographic size or geographical area. The most appropriate approaches at the territorial level go beyond the classical ways of classifying and delimiting intermediate cities. They mainly focus on the intermediary functions performed by this type of cities in the territory and their vocation to articulate specific spaces with other nodes and territories in the local and regional scope (Signes et al. 2020).