Constructing a Smart Destination Framework: A Destination Marketing Organization Perspective

Smart destinations have emerged as a means of integrating physical and technological infrastructure to create seamless experiences for tourists and to improve the quality of life for residents. However, the operationalization of the smart destination concept, and especially the roles and functions of Destination Marketing Organizations (DMOs), remain poorly understood. This study uses interviews with experts in destination marketing, place management and technology, alongside analysis of Destination Marketing Systems (DMSs) to identify how DMOs can lead and facilitate the development and effective governance of smart innovations. The data are used to examine several key themes including: the potential for a 'smart vision' of the destination; the contributions of DMO leadership in smart destination strategies; the functions and utility of DMSs; the involvement of key destination stakeholders; and the supporting pillars of information technology infrastructure, sustainability, livability, and governance as the foundations for smart destination development. The article concludes by providing a conceptual framework that can help to comprehend and evaluate both the components of smart destinations and the roles of DMOs in their implementation and management.

Keywords: destination management, DMOs, smart cities, smart destinations, information and communication technology

1. Introduction

The growing complexity of urban centers has increased pressure on existing infrastructure, making the application of information and communication technologies

(ICTs) ever more important for effective urban governance (Jiang et al., 2020). The integration of technology into every aspect of urban life has evolved into the concept of smart cities, which aims to create new opportunities, thus achieving higher levels of efficiency and sustainability. The vision behind smart cities is to construct 'an urban environment which… is able to offer advanced and innovative services to citizens to improve the overall quality of life' (Piro et al., 2014, p. 169).

Smart city initiatives led to the creation of smart destinations, which utilize advanced technologies within the physical infrastructure of a particular geographical boundary to enhance the competitiveness of the destination. This involves 'the integration of a network of organizations and smart features that engage in interoperable and interconnect systems to simplify and automate daily activities and to add value throughout the ecosystem for all stakeholders' (Buhalis & Leung, 2018, p. 43). In this context, interoperability refers to the ability of different systems to engage with one another to ensure flawless information exchange. Technologically intelligent destinations may enhance and sustain their long-term competitiveness in the marketplace and overcome one of the major challenges faced by many destinations, namely, effective management of diverse industry stakeholders (Fyall, 2011).

Despite growing attention, studies examining the practical application of smart destination concepts differ substantially in their scope and focus (Baggio et al., 2020; Boes et al., 2016; Buhalis & Amaranggana, 2013; Ivars-Baidal et al., 2019; Ivars-Baidal et al., 2021; Sigalat-Signes et al., 2020). Conceptions of smart destinations vary from one place to another depending on the diverse visions of the interested stakeholders (Borges-Tiago et al., 2022). Researchers have emphasized various aspects of smart destinations

including the livability of communities (Harrell et al., 2014), sustainability efforts (Gonzalez-Reverte, 2019; Shafiee et al., 2019), the role of entrepreneurs (Williams et al., 2020), and the importance of self-service technologies on smart destinations (Jeong & Shin, 2020). Moreover, a key challenge lies in evaluating the effectiveness of smart destinations and measuring their level of 'intelligence' (Fermin-Serra & Ivars-Baidal, 2021; Rucci et al., 2021). Williams et al. (2020) advocated for a more thorough understanding of smart destinations by stating: 'An imprecise understanding of smart tourism as a development tool (both in conceptual and practical terms) can lead to ambiguity in its use in tourism strategies for destinations' (p. 8).

Smart destination research would benefit from moving beyond overviews and generalized critiques, to in-depth studies that offer a deeper understanding of specific destinations, management organizations, projects, and stakeholders (cf. Johnson & Samakovlis, 2019; Jovicic, 2019; Mehraliyev et al., 2020; Shafiee et al., 2019). A more comprehensive understanding of the concept could facilitate the development of clear operational definitions in research, which are essential to the practical implementation of smart initiatives, and evaluation of their success, which currently remain limited (Ivars-Baidal et al., 2021). Moreover, as Gretzel (2022) argued, it is necessary to develop a stronger understanding of what the operationalization of smart initiatives means for Destination Marketing Organizations (DMOs), including what 'a smart DMO needs to be or do to realize smart tourism development' (p. 3).

As such, the limitations of past work in terms of their varying focus, conceptualization and attention to application and evaluation, have two profound consequences that can reverberate through future academic and industry smart destination

efforts. Firstly, researchers may not be able to advance knowledge about the concept or are doing so at a much slower pace, which may restrict substantial shifts in the field. Secondly, the application of the concept to the daily operations of tourism destinations cannot be possible without a holistic understanding of what constitutes smart destinations that sets clear boundaries to the concept. The fragmented and disjointed efforts of researchers and practitioners alike could fail to deliver the progress many destinations aspire to achieve.

Importantly, it is also crucial for researchers to fully appreciate and understand the role that DMOs play in the development and implementation of smart initiatives (Gretzel, 2022). Some studies acknowledge DMOs' unique position for the coordination, facilitation, and governance of smart tourism because these organizations offer extensive connections within and beyond the industry (Gretzel et al., 2016). Femenia-Serra et al. (2019) recognized that many of the smart technologies, which are expected to serve as experience enhancers for the tourists, are contingent upon DMOs' promotion and implementation strategies. They particularly emphasized the new role of DMOs in smart ecosystems, and the need to reshape the essential functions of these organizations for the management of the so-called 'hype-cycle' of smart destinations.

Sheehan et al. (2016) argued that DMOs are critical in bringing together various stakeholders, coordinating activities, interpreting data, and engaging in knowledge management. The aforementioned authors proposed a model whereby DMOs interact with the external environment by promoting the destination, disseminating knowledge, and gathering knowledge related to trends, opportunities and threats. Additionally, they interact with internal destinations by gathering financial resources, information,

connecting industry networks, establishing partnerships, and disseminating knowledge to external stakeholders. Given the importance of DMOs as 'keystone organizations' (Iansiti & Levien, 2004) in the development of smart destinations (Gretzel et al., 2016), the present research utilizes a composite data set, generated through a multimethod strategy, to develop a framework that places DMOs as the central actor responsible for implementing smart initiatives, thus stressing their developmental roles and management responsibilities.

The adopted multimethod strategy and the incorporation of multiple DMOs' perspectives set this study apart from the prior research. This is the first study with the ambition to bring various aspects of smart destinations together to form a more complete understanding of the concept through the lenses of the core industry player (i.e., DMO). While some of the aspects of smart destinations have been explored previously and brought to light by research, the accumulated knowledge remains fragmented thus far. Accordingly, this study additionally contributes to the tourism field by synthesizing existing knowledge and uncovering previously unexplored areas of the smart concept and its implementation through an in-depth methodological approach, focusing on internationally renowned examples of the emerging smart destinations.

The current study's multi-stakeholder approach contributes to the understanding of smart tourism destinations as complex adaptive system, characterized by a high degree of interaction between its constituent elements, including DMOs, but also local governments, residents, and the various industry players (Baggio and Sainaghi, 2011). By placing the DMO at the centre of its analysis, this study responds to recent calls to better understand the roles and functions of DMOs in smart innovation and the sustainable

governance of smart destinations (Gretzel, 2022). More specifically, the study's unique insights serve to comprehend and assess how DMOs can connect the practices of disparate stakeholders in developing and managing smart destinations. Furthermore, the empirical findings are used to identify the potential for DMOs to enact what is identified here as 'smart vision' and 'smart leadership' in driving the effective deployment of smart initiatives to benefit destination stakeholders.

The primary data are also used to show and assess how Destination Marketing Systems (DMSs) contribute to DMOs' integrative practices. Finally, the framework developed through this empirical study has both sensitizing and evaluative functions for research and practice. Firstly, it creates a sensitizing framework for future work seeking to conceive and capture the scope and scale of DMO practices in smart destination management. Secondly, the proposed framework provides criteria with which to assess DMOs' knowledge, understanding and implementation of smart technologies.

The researchers propose the following objectives with the aim of advancing knowledge in this emerging field:

(1) To understand the dimensions critical to smart destination and the key stakeholders involved;
(2) To explore in-depth the concept of smart destinations through the lenses of key stakeholders, particularly, DMOs;
(3) To develop a conceptual framework of smart destinations to advance current research, aid future development and evaluation of its implementation, with specific reference to the role of DMOs.

2. Conceptualizing the pillars of smart destinations

Researchers trace the origins of smart destinations to the development of smart cities which follow similar principles (cf. Borges-Tiago et al., 2022; Jiang et al., 2020). However, smart destinations are also unique in that they pursue different objectives, thus requiring distinct strategies. The concept of smart destinations is broader because it is applied to both urban and rural areas and considers not only residents but visitors as well. Accordingly, the objectives of smart destinations are not limited to the improvement of the locals' quality of life. Instead, they additionally focus on such aspects as the sustainable development of tourists' areas and the increased quality of visitors' experiences at the destinations (Gretzel et al., 2015; Lopez de Avila, 2015).

Considering the previously noted differences, the following discussion examines the principles of smart cities to understand their applicability in the smart destination context. Informed by the smart cities literature (Lombardi et al., 2012), the present study proposes four pillars that form the foundation of smart destinations: IT infrastructure, e-governance, sustainability, and livability. Accordingly, the subsequent conceptualization of core smart destination principles will primarily consider how these dimensions help make destinations more competitive and create better visitor experiences, while also accounting for their contribution to wider smart cities ambitions including improved livability and governance (cf. Sigalat-Signes et al., 2020; Jiang et al., 2020).

INSERT FIGURE 1 AROUND HERE

Figure 1: The Foundation of Smart Destination

Governance or e-governance is imperative for concerted efforts in creating smart destinations that engage multiple stakeholders. Stakeholder engagement necessitates effective management of all interactions to ensure the pursuit of the common objective – a smart destination. The achievement of this objective is likewise dependent on the ability of destinations to make current and future tourism developments sustainable. Advanced technologies should assist destinations in preserving cultural and natural resources through measures such as effective crowd and pollution control. Lastly, smartness should underpin the livability of destinations making them safer and mobile places to live in and visit (Castro, 2017). The following sections will further discuss the importance of each of these pillars.

2.1. Smart Information Technology (IT) Applications

As with smart cities, technology is central to smart destinations, and therefore, IT constitutes one of the pillars of the framework that is proposed in this study. IT has introduced new business models and continues to shape the business world through innovations that converge virtual and physical identities and models with the real world (Mendelson, 2015). In the tourist industry, IT is now a prerequisite for the staging and co-creation of tourists' experiences, where technologies can enable, create, attract, and enhance those experiences (Neuhofer et al., 2012; Xiang et al., 2021).

The central role of information technology for smart destinations is emphasized in the following definition by Lopez de Avila (2015), who defines a smart destination as: 'an innovative tourist destination, built on an infrastructure of state-of-the-art technology guaranteeing the sustainable development of tourist areas, accessible to everyone, which

facilitates the visitor's interaction with and integration into his or her surroundings, increases the quality of the experience at the destination, and improves residents' quality of life' (Gretzel et al., 2015, p. 180). Thus, the core characteristic of a smart destination is the integration of technology into the existing physical infrastructures, so that technology is entrenched within the surrounding environment making it pervasive and all-embracing.

The smartness of destinations depends on the availability and sophistication of three technological components: the Internet of Things (IoT), Cloud Services, and end-user Internet services (Wang et al., 2013; Zhang et al., 2012). The IoT is a network of physical objects (i.e., people to people, people to things/devices, and things/devices to things/devices) that interact through the Internet (Patel & Patel, 2016), and examples include sensors and wearable devices.

To support the immense amount of information utilized by IoT platforms, smart destinations require Cloud Services designed to provide convenient access to applications, software, and data (Wang et al., 2013). Another important technological component of smart destinations is the End-User Internet services. The connectivity aspect is critical to the functioning of smart tourism systems (Gretzel, 2018). This encompasses all applications and equipment necessary to provide customers and organizational stakeholders with access to Cloud Computing Services and IoT platforms (Wang et al., 2013).

Destination smartness is also driven by immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR) (Ivars-Baidal et al., 2019). Van Kleef et al. (2010) define AR as 'a technique that combines a live view in real-time with virtual computer-generated images, creating a real-time 'augmented' experience reality'

(Cranmer & Jung, 2014, p. 22). In contrast, VR constitutes 'the use of a computer-generated 3D environment – called a 'virtual environment' (VE) – that one can navigate and possibly interact with, resulting in real-time simulation of one or more of the user's five senses' (Guttentag, 2010, p. 638). A number of studies have confirmed that immersive technologies such as AR and VR have potential not only to enhance interactive and memorable tourism experience (Cranemr & Jung, 2014; Han et al., 2018; Jung et al., 2015; tom Dieck & Jung, 2017) but also increase visitor engagement (Olya et al., 2020; tom Dieck et al., 2018).

A final technological development shaping the future of tourism destinations is Artificial Intelligence (AI) (Ivars-Baidal et al., 2019). Such technology may 'understand complex content, engaging in natural dialogs with people, enhancing human cognitive performance (also known as cognitive computing) or replacing people on the execution of nonroutine tasks' (Gartner, n.d., p. 1). AI can be used to analyze extensive information that includes travel reviews, location descriptions, blogs, images, and videos to understand and help create desirable travel experiences.

2.2. E-Governance

The effectiveness of stakeholder collaboration depends on the governance of smart destinations. However, the meaning assigned to governance here extends beyond mere effectiveness: 'Meijer and Bolívar (2016) suggest that smart city governance is not just about good administration of smart cities but involves a transformation of governing bodies and governance processes' (Gretzel, 2018, p. 178; Meijer & Bolívar, 2016). In line with this argument, this study proposes to view governance as a transformation of tourism entities to function effectively within the emerging smart ecosystem.

In the context of smart cities, this governance is known as e-governance or smart governance, which relies on ICTs to improve the provision of public services (Belli et al., 2020). E-governance can involve the exchange of information and knowledge between social actors and governmental organizations. E-governance may also create opportunities for the engagement and participation of these actors in collective decision-making concerning critical public matters. Smart or e-governance is viewed as an essential attribute of a smart city that relies on citizens' engagement and public-private partnerships (Lee et al., 2020). Accordingly, e-governance will be considered as another critical element of the smart destination framework, since the vision of becoming a smart(er) destination could not be achieved without effective governance of tourism, place, and its stakeholders.

Bertot et al. (2016) suggested that e-governance should be transparent, participatory, anticipatory, co-created, personalized, context-aware, and context-smart. Arguably, some of these characteristics overlap, therefore an alternative view of smart destination e-governance qualities are: transparent, participatory, co-created, personalized, and context-smart. Transparency implies openness and accountability of smart governance, requiring governments to proactively provide information to citizens via various channels, in multiple formats, regarding their operations and decisions. The participatory characteristic of e-governance lies in the establishment of ICT platforms for the engagement of social actors into governmental decision-making processes. Consequently, participatory governance moves beyond simplistic one-way communication with its citizens to a more engaged two-way interaction (Bertot et al., 2016).

In this study's proposed framework, anticipatory e-governance will be treated as part of personalized e-governance since both strive to achieve customization of provided public services. Anticipatory e-governance is based on understanding the needs of various publics depending on their characteristics (e.g., demographic or psychographic), while personalized e-governance involves creating customized interactions with governments using individual profiles and preferences. Personalization should be additionally facilitated by context-smart e-governance, similar to personalized e-governance, which integrates context-awareness. Context-smart e-governance applies intelligence that considers personal preferences and relies on complex analytics, which evaluates trends, contexts, and individual needs to ensure that the most relevant information and services are provided (Bertot et al., 2016).

2.3. Sustainability

Sustainability is commonly referenced in discussions of smart cities and destinations and is often viewed as the core goal of any smart initiative (e.g., Lee et al., 2020). The role of ICTs to support and achieve sustainability in tourism destinations has been acknowledged by researchers due to its potential impact on the tourism industry. For instance, the use of ICT as an innovative tool to improve sustainability was recommended by Ali & Frew (2014), and the positive impact of ICT on various aspects of sustainability was found in the tourism context (Benckendorff et al., 2019; Gössling, 2017).

The wealth of many cities becomes increasingly dependent on tourism and the quality of their natural resources, especially when these resources are scarce. The utilization of natural resources, therefore, must be sustainable to guarantee their

preservation. However, Whyte (2017, p. 7) argued that ‘the problem with sustainable development, as with most of the key issues of our time, is that it requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus building.’

These critical objectives could be achieved through building ‘smarter’ destinations that unite currently fragmented sustainability efforts and ensure the involvement of all key stakeholders. Therefore, the third pillar that forms the foundation of smart destinations is sustainability. The sustainability of smart destinations, however, is not limited to ecological or environmental sustainability, but should additionally integrate social, cultural, and economic sustainability (Shafiee et al., 2019). Indeed, some view sustainable or green tourism as ‘the green practice for addressing poverty, employment, and economic diversification’, and this is especially true in the case of developing countries (Pan et al., 2018, p. 454).

The economic sustainability of tourism destinations requires ‘generating prosperity at different levels of society and addressing the cost-effectiveness of all economic activity,’’ whereas social sustainability refers to such aspects as the provision of equal opportunities for all and equal distribution of resources within destinations (Goeldner & Ritchie, 2012, p. 372). Lastly, sustainable development may not be possible without a culture that constitutes ‘an enabler and a driver of the economic, social and environmental dimensions of sustainable development’ (UNESCO, n.d., p. 1). As the indispensable part of any sustainable development, cultural preservation is also essential to smart tourism initiatives that, together with other forms of sustainability, build the foundation of smart destinations.

2.4. Livability

Smart destinations aspire to be places where residents enjoy a good quality of life. The livability concept is primary to the design and implementation of smart city initiatives as many conceptualizations of smart cities evolve around this aspect. Harrell et al. (2014) describe a livable community as one that is safe and secure. Similarly, a livable destination can be defined as a destination that is safe and secure for residents and tourists alike. Safety alone, however, could not ensure the livability of communities and destinations. Douglass (2002) also suggests viewing the livability of cities as a 'clean environment for daily living' (p. 133) with Herman and Lewis (n.d.) adding mobility as another aspect, which implies the ability of people to move around various places freely. Romao et al. (2018) acknowledged that there are several definitions for the concept of 'livability'. However, some important elements include access to health care, safety, cost of living, and the work environment.

Two final aspects that characterize destination livability include opportunity and engagement. The American Association of Retired People (AARP) stress that livable communities facilitate interactions among people, providing opportunities for residents to engage with others through social involvement or via Internet technologies. Feeling engaged with a large community alleviates social isolation making the community stronger and more livable (AARP, n.d.).

Recently Uysal et al. (2020) argued that designing for tourism should take into account the quality of life of its residents. Furthermore, they advocated for using the principles of co-creation, and experience design in developing destinations that serve tourists, residents, and other stakeholders. Technology and smart design were also

presented as possible solutions in relation to the issue of quality of life in tourism destinations (Uysal et al., 2020).

3. Smart destinations: The role of DMOs

While the pillars present the essential foundation of the framework, the examination of those pillars along with other critical elements may appear unattainable due to their perceived complexity and depth. Consequently, this study suggests focusing on DMOs to make assessment of their operationalization more feasible. DMOs are charged with promoting destinations and are major hubs connecting industry stakeholders. DMOs play key roles in the coordination, facilitation, and governance of smart tourism initiatives and smart destinations, and could offer extensive connections that extend beyond the tourism industry (Gretzel, 2022; Gretzel et al., 2016). Furthermore, the application of smart technologies depends on DMOs' promotion and implementation efforts (Femenia-Serra et al., 2019).

The DMOs also provide a common technological platform, where all industry stakeholders can connect and interact with one another and with organizations from other industries. As an essential part of DMOs' operations, technology platforms such as DMSs and technologies integrated within these platforms are expected to reflect the technological innovativeness of these organizations as DMOs mirror the innovativeness of the destinations that they market. While some exceptions to this may apply, they are likely to be rare because DMSs are the primary tool used by DMOs to fulfill their core functions. Accordingly, this study will examine smart destinations through DMOs' lenses, particularly through an assessment of their technological platforms (i.e., DMSs).

Wang and Russo (2007) argue that DMSs are assumed to fulfill the following core functions: (1) provision of travel information that is timely and accurate; (2) continuous and effective communication with destination visitors; (3) smooth and reliable completion of financial transactions; and (4) establishment and management of relationships with the industry stakeholders. More recent studies, however, suggest broader functionalities for DMSs with increasing availability of open data and application of Big Data techniques (Ivars-Baidal et al., 2019), all of which will be discussed later, in light of the study's new findings. The information function is the supporting pillar of all other internal destination development activities of DMOs. The seamless delivery of information via inflows and outflows is paramount since both are necessary to offer tailored experiences. Indeed, many people are now accustomed to sharing such general information about themselves as age and nationality in exchange for customized tourism experiences (Femenia-Serra et al., 2019).

However, information management alone could not guarantee the success of digital marketing. Information provision is facilitated by effective communication mechanisms to establish an understanding between consumers and local suppliers and to ensure smooth delivery of requested services and products (Wang, 2011). DMSs that facilitate a smart transaction function become a 'one-stop shopping' platform for destination visitors and are expected to be highly secure and easily navigable through different stages of the transaction process (Wang & Fesenmaier, 2006; Wang & Russo, 2007).

In addition, DMOs and their customers establish relationships, which encourage open communication and facilitate deeper commitment. This relationship represents a

dynamic exchange of highly customized information with different clients is expected to function on a one-to-one rather than on a one-to-many basis (Buhalis, 2003; Wang, 2011). This and other functions are necessary steps in the establishment of a successful partner-like relationship with customers, and ultimately in the brand promotion.

4. Research Methods

The study was conducted in two stages. The first focused on the DMSs operated by a sample of DMOs. The study argued that the technological sophistication of DMOs and their DMSs were reflective of the technological innovativeness of destinations that these organizations represented. The DMSs are influenced by integrated technology and the extent to which these organizations can fulfill their core functions in the digital environment (Li & Wang, 2010). Accordingly, the first stage involved assessing the content, scope, and capabilities of DMSs to identify functions and components that are essential to every smart destination.

Stage two involved interviews with a range of destination marketing stakeholders, including DMO and City Council representatives, academic experts, and practitioners from the key organizations involved in the development of smart tourism initiatives. Their input was essential to complement the information generated in stage one and to expand the theoretical framework of smart destinations into a more comprehensive (assessment) model.

As a qualitative study, the present research sought to identify novel themes and patterns from the data. Additionally, the previous literature served as broad sensitizing concepts for the development of codes which later facilitated the process of content

analysis. Consequently, this study's primary aim was to generate new perspectives and insights rather than theory confirmation.

4.1. Stage One: Assessing Destination Management Systems (DMSs)

The study adopted a purposive sampling strategy, focusing on the websites that constituted 'data rich' cases for the DMS content analysis and evaluation (Patton, 2015). Following Porter's (1990) argument that competitive advantage was driven by innovation, this study adopted the view that destinations could become more competitive through technological innovativeness, and therefore, were likely to constitute what was labeled here as 'smart'. Consequently, two inclusion criteria were used in sampling:

(1) the DMOs considered to have adopted some of the most advanced smart technologies; and
(2) destinations maintained a highly competitive market position compared to others in their class.

In contrast to other technologies, smart technologies take connectivity to the next level and embrace such advancements as 'sensors, near-field communication, augmented and virtual reality, ubiquitous connectivity through Wi-Fi and other networks and the use of mobile technologies' (Femenia-Serra et al., 2019, p.66). This distinction along with the examples of smart technologies guided the DMO selection process. The latter criterion was based on UNWTO data regarding destinations' tourist visitation and earnings.

The DMOs selected for the final analysis were: Visit Britain, Visit the USA, Visit Manchester, and Discover Hong Kong. These DMOs integrated some of the latest technologies in destination management and marketing. For example, Visit Britain was successful in integrating social media channels and mobile applications for creating

highly intense technological and co-creation experiences for destination visitors (Neuhofer et al., 2014), whereas Discover Hong Kong was one of the first in the world to introduce a travel application with augmented reality technology (Neuhofer et al., 2012). Visit the USA recently demonstrated its innovative orientation by integrating a VR tool into a new marketing campaign (Rice, 2016), and Visit Manchester not only integrated some of the advanced technologies (e.g., smart ticketing) but strived towards a broader goal to make Manchester as a smart city (Manchester City Council, n.d.).

Besides the integration of progressive technologies in the management and marketing of the destinations, the selected DMOs represented some of the most competitive destinations in their class. Visit the USA, Visit Britain, and Discover Hong Kong were among the top destinations according to international tourist arrivals and/or international tourism receipts (UNWTO, 2019). Like other popular destinations, Manchester was one of the most visited cities in the United Kingdom; and, according to the inbound tourism statistics, it was the third after London and Edinburgh (Visit Britain, 2019). The inclusion of country-level and city-level DMOs in the analysis additionally facilitated the quality of the collected information and assisted in the development of a more comprehensive perspective on their adoption of smart technologies.

The first step involved collecting textual, visual, audio, and other information available via DMOs websites. Initial cycles of data collection and analysis were combined, and the collection was stopped after saturation. While the DMOs' websites may offer seemingly endless volumes of new information, the type of the presented information becomes repetitive over time. For example, places to see and to stay, businesses to buy from, and things to try all of which fall eventually into similar

categories. Accordingly, this information no longer offers new insights signaling that the data collection has achieved the point of saturation. For Visit Britain this point was reached after collecting 642 files (i.e., website screenshots), for Visit the USA at 793, for Discover Hong Kong at 554, and Visit Manchester at 884 files. The total number of coded segments (i.e., textual, visual, and/or audio) was over 10,050.

Data were coded and ordered using the MAXQDA software, with two researchers analyzing the data independently and sequentially, using the smart pillars and DMS functions identified above as an initial sensitizing framework. The framework served as the foundation for the initial code system, where all themes and subcodes were accompanied by a memo with relevant descriptions and examples to ensure their consistent application. For instance, the 'brand promotion' code had the following description and examples in its memo: any attempt to promote the brand (e.g., brand logo or #brand name). An excerpt from the developed codebook is presented in the following table:

INSERT TABLE 1 AROUND HERE

Table 1: Excerpt from the Coding Framework

Considering the framework complexity, the amount of information available on the DMOs' websites, and time constraints imposed by the study's multi-stage methodology, intercoder agreement was assessed using a smaller subset of data. Similar to analogous studies (e.g., Torres & Kline, 2013), the first coder completed the initial analysis, and the second coder analyzed a randomly selected 33% sample of that data. The level of intercoder reliability was calculated likewise in the MAXQDA software

based on the occurrence of codes (i.e., 71% agreement) in the document and the code frequency in the document (i.e., 69% agreement).

The initial analysis cycles were consequently used to assess intercoder agreement and this 'consensual coding' procedure shaped discussions concerning conflicting or questionable codes, and whether modifications to coding were necessary (Kuckartz, 2014). During such discussions, the questionable codes were scrutinized to understand the source of disagreement (e.g., vague boundaries or the existence of other similar codes). Once the source was identified the issue was corrected through the clarification of a code's description, modification of the assigned label, or removal of the code. The data associated with the code was then recoded accordingly.

The refinement of the smart brand promotion code, for example, required an addition of new typical and atypical exemplars to narrow down its boundaries. While some examples of the brand promotion were more straightforward, others like 'Love is Great' and 'Film is Great' in case of Visit Britain were more subtle and easier to miss in the coding process. After the clarification of the boundaries the data was reanalysed, and results compared to achieve an acceptable level of inter-coder agreement. Particularly, the codes were compared based on their presence in the same document (i.e., a screen shot), and the frequency of their occurrence. Considering the extent of the collected data, no further refinement was deemed necessary. Researcher triangulation was thus one strategy to ensure the quality and trustworthiness of the findings, which was also complemented by data triangulation in the second stage of the research.

The researchers employed both deductive and inductive approaches in the data analysis. The application of the initial framework was consistent with the deductive

approach, whereas the emergence and addition of new themes and codes reflected the inductive aspect of the analysis (Azungah, 2018). As a result, the initial framework was revised and expanded over multiple data collection and analysis cycles.

4.2. Stage Two: Industry Stakeholder Interviews

Stage two combined purposive with chain sampling, with inclusion being determined by the person's expertise and valuable insights regarding the study's objectives. The sample comprised ten DMO representatives, two City Council representatives, seven academic experts, and two industry professionals totaling twenty-one interviews. All interviewees were from US-based organizations except one UK technology professor. DMO representatives included Chief Marketing Officer, Marketing Director, Vice President of Marketing & Communications, and President/Chief Executive Officer (CEO). Academic informants included Assistant and Associate Professors specializing in smart developments and destination marketing/management. The two City Council representatives occupied director positions and were involved in a smart initiative. Finally, the two industry professionals were a director and chief strategist and likewise were engaged in some smart initiatives.

Informants, including those recommended by existing participants, were contacted via email and recruitment continued until saturation. The interviews were conducted in person or over phone/Skype depending on interviewees' preferences and availability. Interviews lasted between 30-80 minutes. With the informant's consent, the majority of the interviews were digitally recorded.

The semi-structured interview guide was developed through the literature review and DMOs' website content analysis, where major themes and subcodes formed the

foundation for the interview questions and the accompanying probes. For example, the technological aspect of smart destinations was reflected in the following question: 'What technologies are essential to smart tourism?', while the probes included such words as services, equipment, and infrastructure. The sustainability aspect was explored by posing the question of 'How could destinations become more sustainable through modern technologies?' with the probes focusing on various aspects of sustainability (e.g., environmental, social, and cultural). A similar question was targeted at the livability aspect: 'How could modern technologies improve the quality of life?'.

Some questions and procedures were subsequently refined through informants' testing. The interviews elicited general background information about participants and their spheres of expertise. Focused probing explored DMO involvement in the development of smart tourism and these organizations' functions in smart tourism initiatives. This information was solicited by asking respondents: 'How could your organization contribute to smart tourism?'. The interviews also explored which destinations informants considered smart (i.e., vision, values, and objectives), in order to attain their general awareness of the competitive environment and alternative dimensions of smart destination development and management.

Similar to stage one, two coders analyzed the interview data independently, using MAXQDA, with the second coder analyzing a random sample of the data. Intercoder agreement was also used here to determine whether further modification of the analysis and coding was necessary. The literature review and website analysis formed the foundation for the coding system used at this stage. Each code was assigned a memo and a description with relevant examples. The codes were associated with words, phrases,

sentences, and sometimes with whole paragraphs to emphasize the important information. The total number of the coded segments was 789. Although some codes were retained, the code system was substantially modified to include new themes and subcodes, thus reflecting both an inductive and deductive process.

The two strategies applied to create the new codes involved descriptive and In Vivo or 'literal coding'. The first strategy required summarizing a passage into a word or a phrase that would best reflect its meaning, while the second used the exact wording provided by the interviewees to label the codes (Saldaña, 2015). Some of the newly emerged themes and codes related to additional information obtained during the interviews. This information pertained to such aspects as the current trends shaping the industry, determinants of smart initiatives success, and the key elements of a smart destination vision.

5. Findings

5.1. Smart Vision

Among other aspects that will be discussed later in this section, the study also identified the vision necessary for destinations to become smart. A few elements such as efficient operations, the central role of tourists' experiences, and their personalization, and ubiquitous technology in the vision reflected some of the conceptualizations proposed earlier in the research literature (e.g., Lopez de Avila, 2015). For instance, one interviewee commented that smart would require 'connectivity among our technology and among the infrastructure' (City Council Director), while a DMO Executive/CEO described smart tourism as tourism that '… creates more demand and more yield.'

Offering a dissenting opinion, several informants pointed to different critical elements that should be additionally incorporated into the vision. One distinct finding related to the roles of locals and tourists. A DMO representative highlighted that 'smart tourism is also about the locals; it should not focus only on the visitors it has to find a balance on how to benefit the local communities and the visitors' (Vice President of Marketing). An interesting perspective was additionally offered by a DMO Chief Marketing Officer, who commented that:

> … the idea of a hard line between a visitor experience and a local experience is it's pretty blurry here ... And so, in some ways, we need to stop thinking about them as kind of distinct groups.

The critical need for an inclusive approach to smart destinations was summed up in the following comment by a DMO Executive Vice President:

> …we are not going into the right direction because we should also take into consideration the population and how technologies can also be useful and helpful for the local population as well as they are for tourists experience and while they are at the at the destination and before they come to the destination.

Moreover, the findings suggested a new meaning behind personalized tourist experiences, which should extend beyond customization to incorporate serendipity or random and exciting discovery elements. A Chief Strategist explained that destinations need to make sure 'that there's a certain element of what they call the power of serendipity. This kind of discoveries which actually is another loss from technology'. A

more elaborate explanation of the serendipity component was offered by a DMO representative:

> … I think the other balancing act that we need to strike is absolutely doing what we can to steer visitors away from sites that are over tourist … that they will still enjoy themselves and have a great experience but not to kind of overwrite itineraries … and to still leave open whether it's through content or technology the possibility of serendipity, and I think serendipity is a big part of the travel experience or how can we be thoughtful about preserving those opportunities (Director of Digital Strategy).

Considering this and other findings, the researchers developed the following conceptualization of the smart destination's vision:

> *The destination is smart where the application of the technology is ubiquitous and is ensured through a myriad of available technologies that are interconnected with the infrastructure in real-time. Smart destinations are focused on delivering highly personalized tourists' experiences that are context-specific and include serendipity or random and exciting discovery element. Smart destinations balance the needs of the local communities and the visitors, facilitate responsible tourism that is also sustainable, create an authentic brand that is aspirational, are efficient in their operations, and ensure ease of access to attractions by utilizing affordable and smart technologies.*

The vision along with other critical elements such as the pillars were all integrated into the conceptual framework of smart destinations underpinning DMO practices (Figure

2). The framework includes four layers, the first (success facilitating factors) influences the second represented by the pillars. These pillars in turn affect DMSs, their functionality, and the interconnected stakeholders. Finally, all the previous layers influence the top layer – smart destination vision, which should be at the core of DMO activities in their implementation and management of smart initiatives.

INSERT FIGURE 2 AROUND HERE

Figure 2: The Conceptual Smart Destination Framework

5.2. Structure of the Smart Destination Stakeholders

The findings of the website analysis served a two-fold purpose. First, they were used to confirm and expand the a priori framework (e.g., the addition of the key stakeholders) that emerged from the literature review; and second, they uncovered the current trends in the application of smart initiatives. The analysis pointed to an elaborate network of the stakeholders within the industry and beyond. The stakeholders were classified into the following eight categories: tourism organizations, user-generated and professionally generated content (UGC & PGC), IT companies, tourism industry, government, educational and financial institutions, and other non-tourism organizations. The examined DMOs collaborated with tourism organizations of different levels from local and regional to world and international. Not surprisingly, the extent and number of connections varied depending on the size of DMOs. Visit Britain and Visit the USA, the national organizations, were frequently linked to different levels of other tourism organizations. Whereas Discover Hong Kong and Visit Manchester, local organizations, had notably fewer connections, which were primarily local and regional organizations. The total

number of the coded segments varied from 12 for Discover Hong Kong to 158 in the case of Visit the USA.

There were many local and international tourism suppliers from various sectors: travel trade, transportation, attractions, accommodations, and food service. The travel trade sector was integrated within all DMSs except for Visit the USA indicating its position as a purely marketing organization. Transportation sectors and their subsectors (e.g., air, automobile, and rail) were represented differently across the cases. Rail transportation was predominant on Visit Britain and Visit Manchester websites, while air transportation dominated over other transportation subsectors in the case of Visit the USA and came out only second after water transportation for Discover Hong Kong. These findings not only showed how the transportation sectors developed in the destinations over time but also how the DMOs were able to integrate the subsectors to highlight their unique tourism offerings.

There were some similarities in how destinations positioned themselves. Discover Hong Kong, Visit Manchester, and Visit Britain offered cultural attractions primarily, whereas Visit Manchester, Visit the USA, and Visit Britain were similar in the extent to which they integrated entertainment attractions in their DMSs. Despite these similarities, each case provided a distinct set of attractions creating a unique destination appeal and a widely recognizable brand. The destinations may have little control over some attractions, and this is especially true in the case of natural resources that constitute the fundamental measure of supply (Goeldner & Ritchie, 2012). However, DMOs can control the way these attractions are integrated and represented via their DMSs through smart functions. This ability, along with the interconnectedness between the DMOs and the

many attractions, creates the necessary foundation for becoming a smart destination. The number of the coded segments in this category varied from 192 in the case of Visit Britain to 325 for Visit Manchester.

The organizations also had an extensive media presence via social networks (e.g., Facebook, Twitter, and Instagram), content-sharing websites (e.g., YouTube, and Flicker), review websites (e.g., Trip Advisor), blogs, and other media channels. Visit Manchester, and Discover Hong Kong seemed to be more proactive in integrating media channels in their DMSs compared to the others. Nonetheless, all cases provided ample opportunities for visitors and other stakeholders to connect via different media. The government was present in four cases; the DMOs were interconnected with City Councils, Leisure and Cultural Services Departments, or directly with the websites that provided, for example, necessary travel information such as visa requirements and applications. The latter was common for the national organizations (i.e., Visit Britain and Visit the USA).

Due to the supporting nature of services provided by the IT companies, their presence could not be accounted for in all the cases except for Visit Manchester, where New Mind | TellUs e-tourism company brand was integrated within the website (New Mind, n.d.). The last stakeholder type that emerged from the analysis were educational institutions. Though infrequently, educational institutions were connected to all DMOs. For example, Visit Britain was connected to such educational institutions as Imperial College and Cardiff University. Visit the USA seemed to have the most limited presence of educational institutions, among others.

Finally, it is important to note that the website analysis did not point to destination visitors as the key stakeholders. Consumer engagement was mostly ensured through media channels. Accordingly, the analysis could not directly account for visitors' presence on the websites since their engagement was mediated by the other stakeholder (i.e., media).

5.3. DMO/DMS Functions

Visit Manchester, Visit the USA, Discover Hong Kong, and Visit Britain's DMO/DMS functions reflected those identified through the literature-driven a priori theoretical framework. The only exception was the smart transaction function that had no or limited application for Visit the USA and Discover Hong Kong. In contrast, the smart transaction function was integrated by Visit Manchester and more heavily by Visit Britain (Figure 3). The exception could be explained by the different operational structures and positioning of these organizations compared to the other cases.

While interviews supported the five DMO functions proposed earlier, they also pointed to another function that did not emerge from the literature review or the website analysis. This function was smart leadership. According to the literature, DMOs play a key role in the development of smart tourism and smart destinations (Gretzel, 2022; Gretzel et al., 2016). However, the findings suggested that the role of DMOs could extend beyond that, and these organizations were expected to take the lead in smart tourism initiatives. As one of the DMO representatives explained:

> I feel that we are the leaders within our destination. So, we have to be thinking for a lot of small businesses that may not be able to afford certain

types of technology or to be more exploratory ... We have to be that leading force (Marketing Director).

Another emphasized the importance of having one leading force behind smart tourism initiatives by commenting that:

> …if we approach this from a very macro project, I think the decision-making process needs to be centralized. When you're making the big decisions … there will be a lot of different parties involved in this (Professor of technology and tourism).

The necessity to have a central DMS that would integrate all the Smart functions was additionally supported by some respondents. As one industry professional described:

> … you'll have like a parking map. And then you have an app for the museums, and then you have an app for a concert hall, an app for food. There's like 20-30 different apps. Same thing for the airport. You have 10-20 different apps, so there's a logistical nightmare for people. So, the more forward-looking cities what they're trying to do is collapse into one interface. (Chief Strategist).

INSERT FIGURE 3 AROUND HERE

Figure 3: Smart DMO/DMS Functions

5.4. Smart Destination Pillars

The only pillar identified through the DMS platform analysis was Smart IT applications. The other pillars – sustainability, e-governance, and livability – were not reflected by the DMS in ways that could be assessed and included in the analysis. The online platforms provided some information regarding sustainable practices and other initiatives that could

improve, for example, the livability of destinations. The information, however, was generally limited to important facts about the initiatives and was rarely linked to any additional sources of information.

Despite that, this finding should not be perceived as an argument against their existence, but rather as a website analysis limitation. DMOs' websites are consumer-centered and may not fully reflect the complexity of their DMSs, especially the aspects that relate to other industry stakeholders and initiatives. On the contrary, the online platforms should reflect the degree to which these organizations integrate and foster usage of the more advanced IT technologies by their consumers. This assumption was supported by the findings of the website analysis.

INSERT FIGURE 4 AROUND HERE

Figure 4: Presence of the Smart IT Applications

These technology applications were integrated to varying degrees. For example, connected technologies, Cloud Services, and web media technologies (i.e., visual and audio elements) were heavily present compared to the other, more advanced technologies. This finding indicated that the sample DMOs were adopting immersive AR, VR, and AI technologies. The integration of web media technology via visual and audio elements was similar across cases with little variability. The connected technologies were frequently available via the DMOs' online platform except for Visit Britain. Primarily, the connected technologies were represented by Google Maps linked to the platforms. However, DMOs such as Discover Hong Kong offered various online applications (e.g., My Guide and My Culture) that also constituted connected technologies. The total

number of coded segments in this category varied from 377 for Visit Britain to 571 for Visit Manchester.

INSERT FIGURE 5 AROUND HERE

Figure 5: Smart IT Applications

Immersive technologies were present on Discover Hong Kong and Visit Manchester's websites. Discover Hong Kong launched the Virtual Heritage Tour VR Experience, while Visit Manchester offered an AR experience of the city via their 'buzzin' app. Visit Britain and Visit the USA had information regarding some AR and VR initiatives, but no direct presence on their online platforms. AI had the most limited application compared with other technologies. Discover Hong Kong was the only organization that had an AI presence. The DMS was connected to EdCast, the AI and machine learning platform, which provides knowledge management and personalized learning (EdCast, n.d.).

Unlike the website analysis, all the smart destinations pillars were identified in the interviews, and no other potential pillars were uncovered, thus suggesting their exhaustiveness based on the collected data. The importance of sustainability and its four different aspects – environmental, cultural, economic, and social – were supported across multiple interviews. However, even though all four aspects were referenced by participants, they viewed sustainability primarily as environmental and economic issues. This finding suggested that destinations striving to become smart needed a broader perspective on sustainability that incorporated social and cultural aspects.

Discussion of IT services referred to 'connected', 'immersive', 'intelligent', and 'web media technology', which was relabeled as 'digital content' consistent with the

terminology used by the interviewees. Another term, ‘accessible technology’ was frequently referenced by the respondents. For example, some respondents mentioned ‘smart sensors,’ ‘beacons technology,’ ‘smart cards’ that helped tourists access multiple attractions and transportation options.

The new issues identified through the interview analysis concerned ‘data’, ‘analytical platforms’, ‘robotics technology’, and ‘autonomous vehicle technology’. Specifically, some respondents discussed the importance of Big Data and data mining in making informed decisions concerning stakeholders. Others also commented on the essential role of the analytical platforms, for example, Adora and Arrivalist, which were necessary to aggregate and manage extensive volumes of the travel data, with one DMO representative explaining:

> Analytics, in my opinion, needs to show you the opportunity, needs to tell you what you're doing right and tell you what you're doing wrong and then help you to forecast what you need to be doing in the future. (Digital Marketing Manager)

The other two notable findings involved the integration of robotics technology and autonomous vehicle technology, which resonated with the conclusions reached by Ivars-Baidal et al. (2019). According to one of the interviewees, it was ‘not going to be uncommon to have robotics intertwined with room service and service delivery’; however, ‘we haven't gotten a strong grasp on robotics yet to the point where it's cost-effective for all industries to invest in…’ (Restaurant and Lodging Association Director). These comments showed that some sectors of the tourism industry were more advanced

in the adoption of robotics technology compared with others and the high costs of this technology were a strong influence.

Autonomous vehicle technology was likewise viewed as a critical component of smart destinations. Some interviewees discussed this type of technology and how it could enhance destination mobility. For example, one industry professional said that 'it will have a huge impact because the autonomous vehicles … have artificial intelligence in them, and they have mapping' along with other advanced technologies (Chief Strategist). The other interviewee commented that:

> Smart destinations [should be] for Connected Car connectivity in their forward-looking view. And I think as we consider routing travelers within and throughout destination that will be a part of transportation planning (City Council Director).

Although autonomous vehicles and robotics technology were not mentioned as frequently as other technologies, this finding showed them as the emerging technology trends that could shape the future of the industry and contribute to a smart destination.

New issues were also identified for the livability pillar to complement existing sub-themes: safety, clean environment, mobility, opportunity, and engagement. Informants referred to health (i.e., mental, and physical wellbeing), information access, crowd control, and traffic as specific aspects of mobility. Information access emerged in multiple discussions. The same DMO representative described it as 'having all the information about services and products available but having this information in a simple way' (Executive Vice President). Another elaborated that this aspect was essential to smart destinations for effective risk management:

> If something urgent happened such as disasters, unexpected events, epidemics, how do you make sure information is delivered to all kinds of related stakeholders in a timely manner, inform them, and help them to make decisions to be safe. (Professor of technology and tourism)

As noted above, crowd control and traffic were two specific domains of practice that could be critical to smart destinations. The importance of technologies (e.g., smart sensors) for traffic management was seen as crucial: 'so they know where congestion is happening, and if accidents happen, they can monitor in real-time and make quick decisions' (Professor of technology and tourism). The Crowd Control aspect, in turn, was reflected in comments such as the one offered by a DMO representative:

> How can we direct traffic at a destination [and]… make the whole city enjoy the value and benefit. People can enjoy more of the sort of experience the citizens enjoy the more laid back and sort of direct connection to the individual. (Director of Digital Strategy)

Another DMO representative commented:

> … technology will enable businesses as well as organizations, public organizations to manage tourist flows according to the resource, to the necessary conditions for the practice, for example of some sports. And in terms of, for example, … if there is one area, there is a bit crowded at the moment, and they [tourists] will have their information in anticipation. … And [attractions] will be able to direct or to influence tourists' flows by communicating [with] them [tourists] that if they go into that direction, they will have to wait for some time (Executive Vice President).

Several new issues were identified regarding e-governance. As one DMO representative commented:

> So, I think what's going to make us smart is to continue to be able to advance that type of research and those types of analytics for the purpose of better serving and anticipating the needs and wants and meeting the need and wants of the potential visitor. (Digital Marketing Management)

Personalization, along with contextualization, was frequently associated with the visitors' experiences and not with e-governance. The finding emphasized the difference between the smart city and the smart destinations approach, where the focus was primarily on the tourists' experiences. Consequently, these sub-themes have been integrated within the smart vision theme earlier.

The other aspects of the e-governance pillar – 'transparency', 'participatory', and 'co-created' remained prominent issues. For example, a Restaurant and Lodging Association Chapter Director explained that 'services should be more open and governance more transparent', with a DMO representative elaborating this point:

> So, I think in terms of governance, specifically, if funding is involved, people need to be transparent and open on what they are exactly doing with the money. (Executive Vice President)

Importantly, transparency and open data access, seemed to raise a privacy concern. In one of the interviews, a DMO representative warned about some repercussions that could follow:

> The average person on the street is going to… there's going to be a… for lack of a better term, rebellion. Because people are starting to wake up and say

> hey, wait a minute, I don't want people to know. That I don't want people to anticipate what I want to buy… That could have incredible repercussions not only our industry but any industry that sells directly (Digital Marketing Manager).

Another respondent raised a similar concern: 'people will heavily rely on their smart phones, [and] it will raise some privacy issues' (President/CEO).

E-governance was primarily viewed as participatory; this principle was reflected in the following approach adopted by a DMO: 'We have a tourism masterplan that involves around 2,000 community leaders. We develop and update this plan based on their vision' (City Council Director). Many interviewees offered similar comments with a City Council Director stating: 'I think some of those design and development decisions need to be inclusive'. Lastly, the e-governance of smart destinations was viewed as co-created, where the destination engaged with the stakeholders in 'the shared decision making' (City Council Director). As a DMO representative explained:

> I think that it is … about planning and doing it together. And some of that strategic partnership … where we might be lacking comes from a lack of across-the-board destination-wide support for certain things. And I think that we would be so much more successful if there was a plan for the future in place. And everyone was a part of, and everyone felt their role, and everybody was pushing forward from the top to the bottom (Marketing Director)

When discussing smart stakeholders, tourists and locals were acknowledged to be key destination stakeholders. A few respondents specifically pointed to the locals or local communities being one of the key players and that a smart destination framework should

include them due to the importance of the 'residents' opinions, acceptance, perceptions, [and] needs' during destination transition from the traditional to smart (Professor of technology and tourism). This and other findings were incorporated in the previously developed framework leading to a more comprehensive understanding of smart destinations.

6. Discussion

The interview analysis offered an in-depth view of the technologies that could shape the future of smart destinations. That is, the interviewees suggested that among other smart technologies, they expect analytical platforms, robotics, and autonomous vehicles to drive the smart destination trend. According to Ivars-Baidal et al. (2019), these technologies will have a moderate to high impact on tourism lasting anywhere from five to ten years and potentially even longer. The contribution of this study, however, extends beyond the confirmation of those technological trends. Particularly, the study found that while DMOs selected for the analysis were the most competitive in their class, they were slow to integrate even more widespread smart technologies such as immersive technology.

O'Neill (2019, p. 24) explains that 'smart personalization and data-driven strategies are no longer good-to-haves for travel brands. Both are essential for success.' Accordingly, the surge of interest and the rising hope that smart destinations may resolve ever-present issues like overcrowding does not seem to translate into actual practice. The adoption of smart technologies is alarmingly slow, with the pandemic placing additional pressure on the evolving but already stumbling trend. Thus, the study contributes to the

research by drawing attention to the critical need to merge a comprehensive theoretical knowledge of the concept with its practical application, focusing on DMO roles.

The interviews and their analysis likewise uncovered critical implications for theory and practice. One such finding pointed to the need for DMOs to fulfill an additional function – smart leadership. Femenia-Serra et al. (2019) argued likewise that DMOs will play a new role in smart ecosystems, which requires reshaping of their essential functions for the management of smart destinations. In addition to this acknowledgment, the study offers a particular direction for this change. The lack of specialized knowledge and resources could prevent these organizations from becoming the leading force in these initiatives; nevertheless, DMOs have the potential to become that force.

The interviews additionally discovered some critical differences in the conceptualizations of smart cities and smart destinations. One notable finding relates to the balance between the needs of locals and tourists in the case of smart destinations. This finding presents a sharp contrast to some earlier smart city conceptualizations, where the design of such entities was targeted at the local population exclusively and their quality of life without considering visitors (Caragliu et al., 2009). Furthermore, the findings highlight the need for balance that was not present in other definitions offered in the tourism literature (cf., Gretzel et al., 2015). Those differences call for a more in-depth examination of the concept to help assess whether all the critical aspects have been sufficiently considered in their implementation and evaluation.

Another critical point of departure is related to the tourist experiences aspect in the proposed conceptualization. Xiang et al. (2021), for example, view smart destinations

as ‘a dynamic collective of interrelated actors, each affording visitors the opportunity to co-create unique and meaningful experiences within the context of place’ (p.5). The meaning assigned to the personalized experiences here extended beyond mere customization, which is seemingly viewed as the key to ‘unique’ experiences, to incorporate serendipity or random and exciting discovery element. That is, this study concludes that customization of tourist experiences may no longer be enough and is the first to call attention to this aspect.

The new requirement presented critical challenges along with opportunities for tourism destinations. Particularly, the ability to create not only customized but unique experiences might substantially enhance destination image and contribute to the creation of authentic brands. The discovery of serendipity along with other essential aspects such as affordable technologies and responsible practices contributed to the development of a more comprehensive conceptualization of smart destinations that could aid both researchers and practitioners.

Finally, the study proposes four major pillars of every smart destination, the exhaustiveness of which has been applied as a sensitizing framework and supported in the findings. While the adopted research approach had several limitations, the results of the analysis DMOs’ platforms and interviews with these stakeholders suggested their existence and potential exhaustiveness. Therefore, this study advocates for the wider applicability of the pillars in tourism research and practice.

7. Conclusions, limitations and implications

The growing application of technologies in tourism signified the transition from smart cities to smart destinations. Some suggested that smart destinations were special cases of

smart cities (Gretzel et al., 2015). In contrast, this study argued that despite similarities, smart destinations were unique entities with distinct objectives, which required the development of a specialized conceptualization of these entities.

The theoretical and practical knowledge of smart destinations is growing but remains limited in the tourism field (Johnson & Samakovlis, 2019; Jovicic, 2019; Mehraliyev et al., 2020; Shafiee et al., 2019). Despite growing interest in smart tourism and destinations (Baggio et al., 2020; Boes et al., 2016; Borges-Tiago et al., 2022; Ivars-Baidal et al., 2019; Sigalat-Signes et al., 2020), there remains the need to develop transferable frameworks conceptualizing dimensions of smart destination, based on empirical work, which recognize the central role of DMOs in the implementation processes. This study addressed this gap in knowledge by developing a conceptual framework of smart destinations based on data generated from multiple real-world cases and a variety of experts.

The conceptual framework developed through this empirical study is original and important for several reasons. First and foremost, it placed the DMO at the center of its analysis, thus helping to understand their potential roles in connecting the interests and activities of disparate stakeholders in developing and managing smart destinations. Second, extending the previous point, the study identified the potential for DMOs to enact ‘smart vision’ and ‘smart leadership’ in driving the implementation and effective deployment of smart initiatives to benefit destination stakeholders, serving societal as well as economic interests. As part of this, the findings have shown in particular how the DMS contributes to these DMOs’ integrative practices. Third, the framework developed through this empirical study has both sensitizing and evaluative functions for research

and practice. Specifically, identifying smart vision and smart leadership, and showing the relevance of the four smart pillars, creates a sensitizing framework for future work seeking to capture and understand the scope and scale of DMO (and their DMS) practices in smart destination management.

Moreover, the proposed framework also has a potential evaluative function, providing criteria with which to assess DMOs' knowledge, understanding and implementation of smart technologies, while also helping to question DMOs' roles and functions in driving innovation for the benefit of multiple stakeholders. This can form the basis of academic and applied research, helping to identify good practice and to diagnose areas requiring improvement among practitioners. Consequently, it can form the basis of comparative research across multiple destinations and DMOs and act as a benchmarking tool shaping competitive and strategic decisions.

The research study was accomplished in two stages with the first stage focusing on several prominent DMOs. The study adopted the DMOs' perspective as these organizations were viewed as central to the development of smart initiatives and the design of smart destinations (Femenia-Serra et al., 2019; Gretzel et al., 2016). The analysis of their DMSs as a proxy for destination advancements in smart initiatives was therefore deemed essential to understanding the concept.

One important limitation that emerged from this stage of the analysis is the inability to account for a key stakeholder, the tourist. Future research can build on the findings of the current study by examining visitor perceptions of smart destination attributes, including their engagement with and appraisal of DMO roles. Furthermore, research can extend the analysis by adopting performance-importance analysis to assess

DMO performance in specific domains and the extent to which this influenced other outcomes, for example, satisfaction, return intentions and recommendation behavior.

The perspectives on smart destinations and DMO roles presented here can also be enriched further by expanding the sample to incorporate other stakeholders. Specifically, future research should examine the perspectives of locals and tourism business operators to form a more comprehensive conceptualization of smart destinations, evaluate the perceived effectiveness of smart investments and their contributions to value creation/destruction for specific destination stakeholders. Examining these perspectives can subsequently inform future investment decisions and shape implementation strategies for destinations looking to expand their smart capabilities.

Moreover, future research studies may additionally probe into the role of serendipity in tourists' experiences, which was first identified in this study, and how destinations could design experiences that, in addition to personalization, involve serendipity or random and exciting discovery in them. The analysis of the interviews suggested this new and critical element could be incorporated into visitors' experiences, it remains unclear what technologies have the capability to facilitate these types of extraordinary events and how this component could be integrated to create unique, memorable experiences. The possibilities to incorporate or even orchestrate serendipitous experiences could therefore be studies through technology focused field experiments.

Lastly, the second stage of the research (i.e., interviews) was primarily conducted with the US participants. Accordingly, tourism researchers are encouraged to expand their sample to the participants from other regions and countries, who could likewise contribute to a more comprehensive knowledge of the concept. The initiatives vary from

one place to another (Ivars-Baidal et al., 2021), and the level of involvement in such initiatives could likewise vary from limited exposure to full immersion. The potential variations may present some limitations, yet they could also offer opportunities for the further development of smart destination knowledge through uncovering previously unknown aspects or views.

References

AARP. (n.d.). *AARP Livability Index.* Retrieved from: https://livabilityindex.aarp.org/

Ali, A. and J. Frew, A. (2014). ICT and sustainable tourism development: an innovative perspective. *Journal of Hospitality and Tourism Technology, 5*(1), 2-16.

Azungah, T. (2018). Qualitative research: Deductive and inductive approaches to data analysis. *Qualitative Research , 18* (4), 383-400.

Baggio, R., Micera, R., & Del Chiappa, G. (2020). Smart tourism destinations: A critical reflection. *Journal of Hospitality and Tourism Technology, 11*(3).

Baggio, R., & Sainaghi, R. (2011). Complex and chaotic tourism systems: Towards a quantitative approach. *International Journal of Contemporary Hospitality Management*, 23(6), 840–861.

Belli, L., Cilfone, A., Davoli, L., Ferrari, G., Adorni, P., Di Nocera, F., ... & Bertolotti, E. (2020). IoT-Enabled Smart Sustainable Cities: Challenges and approaches. *Smart Cities*, *3*(3), 1039-1071.

Benckendorff, PJ., Xiang, Z., & Sheldon, PJ. (2019). *Tourism Information Technology*, 3rd ed., Oxford: CAB International.

Bertot, J., Esrevez, E., & Janowski, T. (2016). Universal and contextualized public services: Digital public service innovation framework. *Government Information Quarterly, 33*, 211-222.

Boes, K., Buhalis, D., & Inversini, A. (2016). Smart destinations: ecosystems for tourism destination competitiveness. *International Journal of Tourism Cities*, *2*(2), 108-124.

Borges-Tiago, T., Veríssimo, J.M.C. and Tiago, F. (2022). Smart tourism: A scientometric review (2008- 2020). *European Journal of Tourism Research* 30, 3006.

Buhalis, D. (2000). Marketing the competitive destination of the future. *Tourism Management, 21*, 97-116.

Buhalis, D. (2003). *eTourism – Information Technology for Strategic Tourism Management.* Harlow, UK: Pearson Education.

Buhalis, D., & Amaranggana, A. (2013). Smart destinations. In Z. Xiang, & I. Tussyadiah (Eds.), *Information and Communication Technologies in Tourism 2014* (pp. 553-564). Springer International Publishing.

Buhalis, D., & Amaranggana, A. (2015). Smart Destinations Enhancing. In I. Tussyadiah, & A. Inversini (Eds.), *Information and Communication Technologies in Tourism* (pp. 377-389). Springer International Publishing.

Buhalis, D., & Leung, R. (2018). Smart hospitality—Interconnectivity and interoperability towards an ecosystem. *International Journal of Hospitality Management , 71*, pp. 41-50.

Castro, C. (2017). *Orlando: The future of Smart & sustainable cities.* Orlando, Florida, USA.

Cranmer, E., & Jung, T. (2014). Augmented reality (AR): Business models in urban cultural heritage tourist destinations. *Proceedings of APacCHRIE Conference*, (pp. 21-24).

Douglass, M. (2002). Globalization, intercity competition and the rise of civil society: Towards livable cities in Pacific Asia. *Asian Journal of Social Science, 30*(1), 129-149.

EdCast (n.d.). *Future of work is here with EdCast's AI-powered knowledge cloud*. Retrieved from https://www.edcast.com/

Femenia-Serra, F., Perles-Ribes, J., & Ivars-Baidal, J. (2019). Smart destinations and tech-savvy millennial tourists: Hype versus reality. *Tourism Review*, 63-81.

Femenia-Serra, F., & Ivars-Baidal, J. A. (2021). Do smart tourism destinations really work? The case of Benidorm. *Asia Pacific Journal of Tourism Research,* 26(4), 365-384.

Femenia-Serra, F., Neuhofer, B., & Ivars-Baidal, J. A. (2019). Towards a conceptualisation of smart tourists and their role within the smart destination scenario. *The Service Industries Journal,* 39(2), 109-133.

Fyall, A. (2011). Destination Management: Challenges and Opportunities. In Y. Wang, & A. Pizam (Eds.), *Destination Marketing and Management* (pp. 340-357). CABI.

Goeldner, C. R., & Ritchie, J. B. (2012). *Tourism: principles, practices, philosophies* (12 ed.). John Wiley and Sons, Inc.

Gonzalez-Reverte, F. (2019). Building sustainable smart destinations: an approach based on the development of Spanish smart tourism plans. *Sustainability*, 11(23), 6874.

Gössling, S. (2017) Tourism, information technologies and sustainability: an exploratory review. *Journal of Sustainable Tourism, 25*(1), 1024-1041.

Gretzel, U. (2022). The Smart DMO: A new step in the digital transformation of destination management organizations. *European Journal of Tourism Research*, *30*, 3002-3002.

Gretzel, U. (2018). From Smart destinations to Smart tourism regions. *Regional Research, 42*, 171-184.

Gretzel, U., Zhong, L., & Koo, C. (2016). Application of Smart tourism to cities. *International Journal of Tourism Cities, 2* (2).Guttentag, D. (2010). Virtual reality: Applications and implications for tourism. *Tourism Management, 31*, 637-651.

Han, D. I., tom Dieck, M. C. and Jung, T. (2018). User experience model for augmented reality applications in urban heritage tourism. *Journal of Heritage Tourism*, 13(1), 46-61.

Harrell, R., Lynott, J., Guzman, S., & Lampkin, C. (2014). *What is livable? Community preferences of older adults.* Retrieved from AARP Public Policy Institute: http://www. aarp. org/

Henwood, K. L., & Pidgeon, N. F. (1992). Qualitative research and psychological theorizing. *British Journal of Psychology*, 83(1), 97-111.

Herrman, T., & Lewis, R. (n.d.). *Research initiative 2015-2017: Framing livability.* Retrieved from sci.uoregon.edu:

https://sci.uoregon.edu/sites/sci1.uoregon.edu/files/sub_1_-_what_is_livability_lit_review.pdf

Iansiti, M., & Levien, R. (2004). Strategy as ecology. *Harvard Business Review*, *82*(3), 68-78.

Ivars-Baidal, J., Celdran-Bernabeu, M., Mazon, H., & Perlers-Ivars, A. (2019). Smart destinations and the evolution of ICTs: A new scenario for destination management? *Current Issues in Tourism , 22* (13), 1581-1600.

Ivars-Baidal, J. A., Celdrán-Bernabeu, M. A., Femenia-Serra, F., Perles-Ribes, J. F., & Giner-Sánchez, D. (2021). Measuring the progress of smart destinations: The use of indicators as a management tool. *Journal of Destination Marketing & Management,* 19, 100531.

Jeong, M., & Shin, H. H. (2020). Tourists' experiences with smart tourism technology at smart destinations and their behavior intentions. *Journal of Travel Research,* 59(8), 1464-1477.

Jiang, H., Geertman, S., & Witte, P. (2020). Smartening urban governance: An evidence-based perspective. *Regional Science Policy and Practice*. DOI: 10.1111/rsp3.12304.

Johnson, A. G., & Samakovlis, I. (2019). A bibliometric analysis of knowledge development in smart tourism research. *Journal of Hospitality and Tourism Technology*.

Jovicic, D. Z. (2019). From the traditional understanding of tourism destination to the smart tourism destination. *Current Issues in Tourism*, *22*(3), 276-282.

Jung, T., Chung, N., & Leue, M. C. (2015). The determinants of recommendations to use augmented reality technologies: The case of a Korean theme park. *Tourism management*, 49, 75-86.

Kuckartz, U. (2014). *Qualitative text analysis: A guide to methods, practice and using software.* Sage.

Lee, J., Hancock, M., & Hu, M. (2014). Towards an effective framework for building Smart cities: Lessons from Seoul and San Francisco. *Technological Forecasting & Social Change , 89*, 80-99.

Lee, P., Hunter, W. C., & Chung, N. (2020). Smart tourism city: Developments and transformations. *Sustainability*, *12*(10), 3958.

Li, X., & Wang, Y. (2010). Evaluating the effectiveness of destination marketing organizations' websites: Evidence from China. *International Journal of Tourism Research, 12*, 536-549.

Lopez de Avila, A. (2015). *Smart destinations: XXI century tourism*. The ENTER2015 Conference on Information and Communication Technologies in Tourism. Lugano, Switzerland.

Manchester City Council (n.d.). *Manchester Smarter City Programme*. Retrieved from http://www.manchester.gov.uk/info/500315/Smarter_city/7013/manchester_Smarter_city_programme

Meijer, A., & Bolívar, M. P. R. (2016). Governing the smart city: a review of the literature on smart urban governance. *International Review of Administrative Sciences*, *82*(2), 392-408.

Mehraliyev, F., Chan, I. C. C., Choi, Y., Koseoglu, M. A., & Law, R. (2020). A state-of-the-art review of smart tourism research. *Journal of Travel & Tourism Marketing*, *37*(1), 78-91.

Neuhofer, B., Buhalis, D., & Ladkin, A. (2012). Conceptualising technology enhanced destination experiences. *Journal of Destination Marketing & Management, 1*, 36-46.

Neuhofer, B., Buhalis, D., & Ladkin, A. (2014). A typology of technology-enhanced tourism experiences. *International Journal of Tourism Research, 16*, 340-350.

New Mind (n.d.). *Destination Management System* (DMS). Retrieved from https://www.newmind.co.uk/products-and-services/destination-management-system

Olya, H., Jung, T., tom Dieck, MC., and Ryu, K. (2019). Engaging visitors of science festivals using augmented reality asymmetrical modelling. *International Journal of Contemporary Hospitality Management, 32*(2), 769-796.

O'Neill, S. (2019). *Megatrends defining travel*. Skift. Retrieved from https://skift.com/wp-content/themes/skift/img/megatrends-2019/Skift-Megatrends-2019.pdf

Pan, S., Gao, M., Kim, H., Shah, K., P. S., & Chiang, P. (2018). Advances and challenges in sustainable tourism toward a green economy. *Science of the Total Environment , 535*, 452-469.

Patel, K., & Patel, S. (2016). Internet of Things-IOT: Definition, Characteristics, Architecture, Enabling Technologies, Application & Future Challenges. *International Journal of Engineering Science and Computing , 6* (5), 6122-6131.

Patton, M. (2015). *Qualitative Research & Evaluation Methods: Integrating Theory and Practice* (4th ed.). Sage Publications Inc.

Piro, G., Cianci, I., Grieco, L., Boggia, G., & Camarda, P. (2014). Information centric services in Smart cities. *Journal of Systems and Software , 88*, 169-188.

Porter, M. (1990). The competitive advantage of nations. *Harvard Business Review, 68*(2), pp. 73-91.

Rice, K. (2016). *Virtual Reality is Starting to Knock the Socks Off Travel Industry Marketers.* Retrieved from: http://www.destinationmarketing.org/blog/virtual-reality-starting-knock-socks-travel-industry-marketers

Romao, J., Kourtit, K., Neuts, B., & Nijkamp, P. (2018). The smart city as a common place for tourists and residents: A structural analysis of the determinants of urban attractiveness. *Cities,* 78, 67-75.

Rucci, A. C., Moreno-Izquierdo, L., Perles-Ribes, J. F., & Porto, N. (2021). Smart or partly smart? Accessibility and innovation policies to assess smartness and competitiveness of destinations. *Current Issues in Tourism,* (just-accepted). https://doi.org/10.1080/13683500.2021.1914005

Saldaña, J. (2015). *The coding manual for qualitative researchers.* Sage.

Shafiee, S., Ghatarib, A., Hasanzadeha, A., & Jahanyan, S. (2019). Developing a model for sustainable Smart destinationSmart destinations: a systematic review. *Tourism Management Perspectives , 31*, 287-300.

Shafiee, S., Ghatari, A. R., Hasanzadeh, A., & Jahanyan, S. (2021). Smart tourism destinations: A systematic review. Tourism Review*, 76 (3), 505-528.*

Sheehan, L., Vargas-Sánchez, A., Presenza, A., & Abbate, T. (2016). The use of intelligence in tourism destination management: An emerging role for DMOs. *International Journal of Tourism Research,* 18(6), 549-557.

Sigalat-Signes, E., Calvo-Palomares, R., Roig-Merino, B., & García-Adán, I. (2020). Transition towards a tourist innovation model: The smart tourism destination: Reality or territorial marketing?. *Journal of Innovation & Knowledge*, *5*(2), 96-104.

tom Dieck, M. C. & Jung, T. (2017). Value of Augmented Reality at Cultural Heritage sites: A Stakeholder Approach. *Journal of Destination Marketing and Management, 6*, 110-117. DOI:10.1016/j.jdmm.2017.03.002

tom Dieck, M. C., Jung, T. & Rauschnabel, P. (2018). Determining Visitor Engagement through Augmented Reality at Science Festivals: An Experience Economy Perspective. *Computers in Human Behavior, 82*, 44-53.

Torres, E., & Kline, S. (2013). From customer satisfaction to customer delight: Creating a new standard of service for the hotel. *International Journal of Contemporary Hospitality Management, 25* (5), pp. 642-659.

UNESCO (n.d.). *Culture for sustainable development.* Retrieved from https://en.unesco.org/themes/culture-sustainable-development

UNWTO (2005). *Sustainable development of tourism.* Retrieved from http://sdt.unwto.org/content/about-us-5

UNWTO (2019). *UNWTO World Tourism Barometer and Statistical Annex, August/September 2020*.Retrieved from https://www.e-unwto.org/toc/wtobarometereng/18/5

Uysal, M., Berbekova, A., & Kim, H. (2020). Designing for Quality of life. A*nnals of Tourism Research,* 83, 102944.

Visit Britain (2019). *Inbound town data.* Retrieved from https://www.visitbritain.org/town-data

Van Kleef, N., Noltes, J., & van der Spoel, S. (2010). Success factors for augmented reality business models. *Study tour Pixel*, 1-36.

Wang, D., Li, X., & Li, Y. (2013). China's "smart tourism destination " initiative: A taste of the service-dominant logic. *Journal of Destination Marketing & Management, 2*, 59-61.

Wang, Y., & Fesenmaier, D. (2006). Identifying the success factors of web-based marketing strategy: An investigation of convention and visitors bureaus in the United States. *Journal of Travel Research, 44*, 239-249.

Wang, Y., & Russo, S. M. (2007). Conceptualizing and evaluating the functions. *Journal of Vacation Marketing, 13* (3), 187-203.

Whyte, P. (2017, August 15). *Overtourism issues can no longer be brushed aside as someone else's problem*. Skift. Retrieved from https://skift.com/2017/08/15/overtourism-issues-can-no-longer-be-brushed-aside-as-someone-elses-problem/

Williams, A. M., Rodriguez, I., & Makkonen, T. (2020). Innovation and smart destinations: Critical insights. *Annals of Tourism Research,* 83, 102930.

Xiang, Z., Stienmetz, J., & Fesenmaier, D. R. (2021). Smart Tourism Design: Launching the annals of tourism research curated collection on designing tourism places. *Annals of Tourism Research*, *86*, 1-7.

Zhang, L., Li, N., & Liu, M. (2012). On the basic concept of smarter tourism and its theoretical system. *Tourism Tribune, 27*(5), 66-73.