EAI Endorsed Transactions
on Smart Cities

Research Article EAI.EU

Smart Tourism Ecosystem perspective on the Tourism Experience: A conceptual approach

Vaz Serra P.[1,2*], Seabra C.[1,2] and Caldeira A.[1,2]

[1]University of Coimbra, Portugal
[2]CEGOT – Geography and Spatial Planning Research Centre, Portugal

Abstract

The smart tourism ecosystem concept, in addition to integrating various components, processes, and actions in the design of a place, advocates certain results through the convergence of technological resources, business environments, and value-inducing experiences. This conceptual paper should result in theoretical contributions regarding the specificity of the tourist experience within the framework of a smart tourism ecosystem, with a view to the competitiveness and sustainability of accommodation and destinations. From the perspective of a smart tourism ecosystem, the production and consumption of tourist value − which, hopefully, should be socially, culturally, environmentally, and economically sustainable −, is shared, and generate distinctive experiences, and the corresponding interactions are promoted by technology, through the collection, processing, and communication of data. The suggested approach has relevant implications at the management level, given the need to obtain differentiating factors, mediated by technology, with the incorporation of added value for the stakeholders.

Keywords: smart tourism ecosystem, tourism experience, value co-creation.

Received on 16 November 2022, accepted on 16 December 2022, published on 27 December 2022

doi: 10.4108/eetsc.v6i4.2857

1. Introduction

The tourism experience, with its multidisciplinary nature, as well as its remarkable and structural contribution to the evolution of tourism, namely to the competitiveness and sustainability of accommodation units [1] and destinations [2], has taken on increasing importance in the literature [3].

Associated with the tourist experience, the concept of a smart tourism ecosystem emerges [4], which, in addition to integrating various components, processes, and actions in the design of a place, advocates certain results through the virtuous convergence of technological resources, business environments and value-inducing experiences [5].

Smart tourism ecosystems are systems of actors that aim to (i) use pre-existing technology and institutions for the co-creation of value, in the short term; (ii) create technologies, through innovation, or new institutions — praxis, social rules, values — in the long term [6].

A smart tourism ecosystem is, therefore, a tourism system that takes advantage of smart technology in the creation, management, and delivery of smart tourism experiences and is characterized by intensive information sharing and value co-creation [4].

Considering the relevance of the combination between the tourism experience and the perspective of a smart tourism ecosystem — where the relationship between decision-making and interaction processes, as well as its influences and outcomes, is highlighted [7] —, this conceptual approach proves to be opportune for the concepts it incorporates and theoretical relevant for the current and prospective scenarios it enshrines.

The suggested approach, supported by literature review, has relevant implications at the management level, given the need to obtain differentiating factors, with the incorporation of added value for the parties involved,

*Corresponding author. Email: pedrovazserra@hotmail.com

capable of achieving and renewing balance between supply and demand, using technology, which today is unavoidable.

The structure of the paper contemplates the conceptual approach to the tourism experience, followed by the highlighting of the transition from a product/producer-oriented view to a service-oriented one, linked to the perspective of the smart tourism ecosystem, and its relationship with the tourism experience, before the concluding remarks.

2. The tourism experience

Currently, several authors contribute to the evolution of the concept of tourist experience (see Table 1).

Table 1. Tourism experience: evolution of the concept nowadays (2007-2015)
Source: [8] – adapted.

Reference	Concept
[9]	The past, personal, travel-related event that is sufficiently memorable to enter long-term memory
[10]	It results from a model, classified into four dimensions: pleasure, rediscovery, authenticity, and knowledge
[11]	It stems from micro-oriented structures, psychological, and macro-oriented models, sociological

For [9], experience translates into ascendancy in consumers, even to the detriment of the products or services themselves, or diluting them [12], and, in the same sense, neuroscience suggests that consumers are less driven by functional arguments rather than internal sensory and emotional elements [13].

The work of [10] stands out for its attempt to understand the process of experience itself as a precursor of experiences. For [11], studying experience implies understanding the meaning that the cultural norms of a group offer to the individual, as a way of interpreting and approaching its purpose and significance [8].

Thus, as experiences are personal, i.e., they occur in the individual's body and mind, the result depends on how the consumer, contextualized by a specific situation and mood, reacts to the enacted encounter [14].

As for the dimensions of the tourist experience, investigations are usually structured in their phases, influences, and outcomes [15].

In this sense, the model developed by [16] and applied to tourism [17][18] constitutes an essential reference, which includes five distinct but related phases: anticipation, travel to the destination, activity at the destination, return trip, and remembrance, bearing in mind that reading and the effect of experiences change over time [19] and, therefore, must be approached from a multiphase perspective [20].

However, in addition to the multiphase nature, personal influences and outcomes must be considered, as the traveller arrives at a destination with ideas about the types of experiences that can occur, resulting from the social construction of an individual and that can include information, or perceptions, taken from communication networks and digital channels, product images, expectations, knowledge and previous travel experiences, in addition to activities in which it participates and the types of interaction, with various environments and social dynamics, even informal, which occur [21][22].

Thus, [15] propose a conceptual model of influences and outcomes of the tourist experience (see Figure 1), considering that this corresponds to what happens during a tourist event.

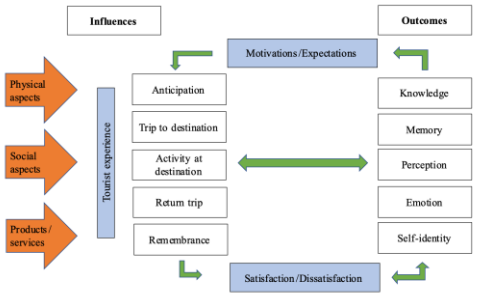

Figure 1. Influences and outcomes of the tourist experience.
Source: [15] – adapted.

In this model, which comprises their phases, considering that the experience is planned before a trip takes place and remembered long after it has ended, with the assumption that, during the outward trip, the tourists can still be involved in the process of developing expectations, in the same way, that, when returning, they can reflect on what they experienced [15].

Considering the models and theoretical foundations, a conceptual framework emerges that includes personal and internal factors, but also influencing and external factors, which interact at various stages [15].

This framework influences the perception of the global tourist experience, i.e., the process in which the stimuli related to experience are processed, organized, and interpreted, and knowledge of internal factors is considered fundamental to effectively managing external factors [9].

Thus, the most relevant influences are the physical environment, the staff, other tourists, and the products available [23][21], from which the complex nature of tourist experiences can be inferred.

Therefore, the tourist experience — which constitutes the core of most products and services offered by

hospitality and tourism companies [24] and creates a competitive advantage that is difficult to imitate and replace [25] — can encompass cognitive, sensory, affective, and social dimensions, likely to be pleasant, exciting, satisfying, and meaningful [26] [27].

3. Redefining services and value exchanges

With the aim of redefining services and value exchanges, the evolution from a product/producer-oriented view to a service-oriented one led to the development of various theories of Service [28].

The Service-Dominant Logic [29] and the Service Science [30], later named General Theory of Science, Management, and Service Engineering, are of particular importance, having identified, from different angles and with an impact on organizational configurations, the main elements involved in the exchange of services.

In the Service-Dominant Logic [29] three concepts are presented, through a service-for-service view: i) service and the relationship between goods and services; ii) the customer-supplier relationship; iii) the value. The exchange of services, which generates benefits for all actors, stems from the resources of each stakeholder, with users being considered active participants, actor-to-actor, and, as such, resource integrators that shape service delivery depending on the specific context [29].

Thus, from the Service-Dominant Logic, the co-creation of value is the result of the exchange of resources, according to a participatory approach, in which users are, at the same time, producers and consumers and become determinants of a value that is no longer be produced exclusively by the suppliers [6].

In turn, Service Science represents an application of the main premises of the Service-Dominant Logic, where the practices, as well as their implications, for the implementation of new service systems are revealed [30]. Service Science, an interdisciplinary research stream, advances in the elaboration of models for the application of scientific principles to the provision of services, promoting the creation of new knowledge to improve the planning and management the delivery, in terms of productivity, effectiveness, and efficiency [30].

Thus, service systems emerge on the provision of services and the exchange of resources, which emphasize the role of technology [6], later renamed smart service systems, precisely given the widespread impact of information and communication technologies (ICT). And emerge also smart service ecosystems (see Figure 2), which define the social bonds underlying co-creation, i.e., to the system, the focus is on technology, and to the ecosystem, is on the social [6].

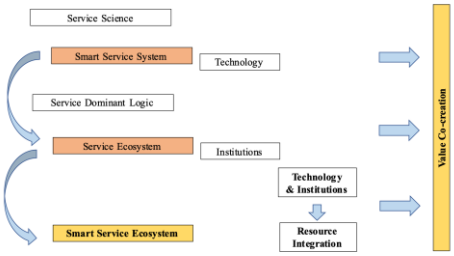

Figure 2. Integrated framework for a smart service ecosystem.
Source: [6] – adapted.

So, systems allow a micro analysis of service-for-service exchanges, and interactions between users who share information through technology [6]. In turn, ecosystems have a macro perspective, of the global interactions of the network between the different social systems, expanding the field of vision, including social prerequisites, i.e., the promoters of the exchange of synergistic resources that, in the long term, can generate value co-creation and new knowledge [6].

Smart service systems are conceived as organizational models that benefit from the application of modern technologies to the design and delivery of services, to promote real-time interactions, accelerate co-creation processes and induce systematic innovation, based on renewal, continuous improvement, and exchange of knowledge [31], and they optimize their goals through self-configuration, to enable lasting behaviour, capable of satisfying all the members involved [31].

The vision of ecosystems, in turn, adopts two perspectives [29]: i) reductionist, which identifies the vectors of value co-creation; ii) holistic, which considers the emergence of innovation at a broader level and considers the importance of social norms in the formation of exchanges and in the generation of new value.

Based on the aforementioned fundamentals and models, the transposition tot tourism is carried out, with four key dimensions of a smart tourism ecosystem — human, technological, social, and interactive — which is made up of: i) actors, who exchange skills, experiences and knowledge; ii) institutions, which promote the integration of resources, based on a common set of social arrangements; iii) technology, which generates and renews social arrangements [4].

In summary, smart tourism ecosystems are systems of actors that aim to i) use pre-existing technology and institutions for the co-creation of value, in the short term; ii) create modern technologies, through innovation, or new institutions, praxis, social rules, values, in the long term [6].

4. The Smart Tourism Ecosystem Perspective

Smart business networks are an integral part of the smart tourism system as, with the destination and smart technology infrastructure, they form a smart tourism ecosystem [4].

A smart tourism ecosystem is constituted (i) by systems, which include actors, who exchange resources with each other; (ii) by institutions, which promote the integration of resources, based on a common set of social arrangements; (iii) by technology, which generates and renews social arrangements [4].

Tourists, who use technology to explore the resources of this ecosystem, actively contribute data inherent to their movements, consultations, and uploads, and thus integrate their key actors, such as operators, the government, residents, and means of communication, among others [4].

The resources that actors own, and exchange between can be (i) tangible or intangible, such as tools, software, and information; (ii) human, such as skills, knowledge, and virtual communities; (iii) relational, between partners and suppliers — any stakeholder is an actor with the objective of interacting and exchanging resources with other actors for the co-creation of value [32].

A smart tourism ecosystem is, therefore, a tourism system that takes advantage of smart technology in the creation, management, and delivery of smart tourism experiences and is characterized by intensive information sharing and value co-creation [4].

To unleash innovation and support productivity in the business ecosystems themselves, it is essential to recognize their insertion in communities and the creation of shared value that, at the same time, allows for increased competitiveness and the improvement of economic and social conditions [33].

Thus, there are four dimensions of a smart tourism ecosystem — human, technological, social, and interactive [6].

An ecosystem implies, among other principles, the existence of a shared objective [34], here related to the production and consumption of tourist value, culminating in significant tourist experiences. Economic and environmental sustainability are also inherent priorities at the system level, as these resources are essential for its viability. Thus, the shared objective is the availability of enriched, high-added value, meaningful and sustainable tourist experiences [35].

By enabling a plug-and-play business environment, the ecosystem facilitates continuous and open innovation, as new service providers can connect and add value to the network, in a permanent and fluid way [36].

Thus, the collection, processing, and exchange of tourism-relevant data — that is, the informatisation of tourism because of the integration of smart technology [37][38] — is a central function of the ecosystem.

However, the ecosystem, although centred on tourism, includes a variety of elements that integrate it and go beyond it, such as (i) tourist and residential consumers; (ii) tourism providers; (iii) tourism intermediaries, such as tour operators and agents; (iv) support services such as telecommunications, banking/payment services, platforms, and social networks; (v) regulatory bodies and NGOs; (vi) carriers; (vii) technology and data companies; (viii) consulting services; (ix) tourist and residential infrastructure, such as swimming pools, parks, museums, among others; (x) and companies normally attributed to other sectors, such as medical services, or commerce [4].

Given the opportunity, actors proactively seek advantages from value creation and new actors enter, or emerge, from the cross between them.

It thus becomes evident that it is extremely difficult to delineate the limits of a smart tourism ecosystem — the so-called *BioBlitz*, the activity aimed at identifying and counting species in an ecosystem, appears to be useful, but difficult to achieve in its fullness [4].

Although the smart tourism ecosystem corresponds to a fluid and heterogeneous set of connections and interactions, tourists have a crucial role, as co-creators, highlighting the main objectives to be achieved in relation to them, (i) anticipation of their needs, with the ability to make suggestions for context-specific activities, such as points of interest, meals, and recreation; (ii) improving experiences by providing information, personalized and location-based interactive services; (iii) allowing and encourage the sharing of their experiences, interfering in the decision-making process of others, but also reliving and reinforcing experiences, as well as building their own image on social networks [39][40].

On the side of companies and other stakeholders, expectations regarding the benefits of the ecosystem lie in (i) process automation; (ii) efficiency gains; (iii) development of new products; (iv) demand forecast; (v) crisis management and, in general, (vi) value co-creation [39][40].

In this context, tourists assume the role of active participants in its creation because, in addition to consuming, they also create, comment on, or improve data, which constitute the basis of the experience, for example through photographs or videos, using their digital self. to access destination information infrastructure or add value through mobile computing [32].

Among these elements, digital ecosystems stand out, characterized by an open, flexible, demand-driven, interactive network and collaborative architecture [41], focused on interactions between technological elements — such as devices, databases, or programs — and related information flows, forming the infrastructure for digital business ecosystems [42].

Technological advances, which allow system interoperability and the dynamic exchange of information, are fundamental to establishing interconnectivity, from the ecosystem perspective [4].

Thus, the digital ecosystem, in the context of tourism, is described as a smart tourism system, which supports autonomous nodes, with dynamic network configurations, in heterogeneous and distributed environments, which supports flexible communication and allows access to

information at any location. anywhere and anytime, covering complete consumer lifecycles and all business phases, with different users [4][32][43].

Technology, increasingly evolved and sophisticated, appears, also in the smart tourism ecosystem, to have enormous and wide-ranging potential, such as, for example, the use of small unmanned aerial vehicles [44][45][46][47][48].

5. A Smart Tourism Ecosystem Perspective on Tourism Experience

Smart tourism is also a social phenomenon, resulting from the convergence of ICTs with the tourist experience [49], whose co-creation process corresponds to the sum of the psychological events that a tourist goes through when actively contributing through physical and/or mental participation in activities, and interacting with other subjects in the experience environment [40][41].

The smart tourism experience, where meaning is enhanced, is identified with the purpose of the dynamically interconnected actors that make up a smart tourism ecosystem, translated into access, or improvement, of differentiating, meaningful and sustainable experiences, guided by the digitization of key business processes and organizational agility [37].

In fact, the smart tourism experience, where meaning is praised, is identified with the purpose of the actors, dynamically interconnected, that integrates a smart tourism ecosystem, translated into the access, or improvement, of differentiating, significant and sustainable experiences, guided by the digitization of key business processes and organizational agility [37][50].

Therefore, its technological base is unavoidable, as the experience is improved, or optimized, through smart technology, associated with wi-fi/mobile connectivity and big data, which allows recommendations enriched by meaning, identified with the context and value aggregators [37][50].

It should be noted, however, that the integration of a single technology, within an accommodation or tourist destination, will not be enough to make it a smart destination, requiring a multifaceted construction of intelligence to create value for stakeholders and increase competitiveness [51].

Thus, the smart tourism experience is characterized by being mediated by technology [4][37] and optimized through personalization, awareness of context and real-time monitoring [52].

It is important, therefore, to recognize active participation and interaction in co-creation experiences, considering that local tourism experiences involve parts connected in multiple ways — emotional, cognitive, physical, and social —, in proximity and intensity [41].

In this context, products and services are dynamically designed and structured by companies and users, creating differentiating markets and experiences, highlighting that a smart tourism system is built on trust, scalability, and openness toward participants and services [4].

It should be noted that, although the literature consecrates the importance of a differentiated tourist experience and, therefore, value-generating [52], there are few approaches to the potential cognitive overload and the effort required to navigate a smart destination scenario, where not all tourists have the skills, or desire, to constantly interact with information.

Other equally prominent issues are related to security and privacy [53][54], as well as excessive exposure to and dependence on technology, not least because of location-based services that, especially useful for travellers, make them vulnerable, although privacy in tourism is a special case, as the interaction with suppliers and, therefore, with their applications is usually of short duration, which limits the construction of a process of trust, which is often underestimated [55].

It should also be noted that the issues of trust and privacy — in addition to the digital divide, which not only applies to consumers but also to tourism providers [49] — underlying the smart tourism info structure, are complex and require knowledge investment, control, and responsibility [49].

Advanced technology and contemporary innovations encourage suppliers and users to implement solutions against malicious attacks, leading to the provision of new dynamic provisioning, monitoring, and management of IT capabilities [56].

In fact, information security receives attention from both academia and industry for the purposes of prevention, integrity, and data modification, with traditional and mathematical security models being implemented to deal with information-related issues, with Computational Intelligence emerging as a security technique, inspired in biological development [57].

A more critical perspective on smart tourism experiences, more information on the psychological and health risks of permanent exposure to data from context-sensitive systems, and insights into consumer attitudes towards the various aspects of smart tourism, including its willingness to cooperate and create, as well as its willingness to enjoy such processes and the real dimensions of the use value generated by consumers [32].

Although with some latent limitations, or concerns, smart tourism is a promising scenario, which results in more convenient, safe, exciting, and sustainable living spaces for residents and tourists; more personalized and therefore more relevant tourist experiences; and even greater opportunities for new services, business models and markets to emerge because of more flexible structures and different perspectives on value creation [56].

5. Concluding Remarks

The tourism experience is a by-product of service design, since its precise determinants are not entirely under the control of the designer [8], and the empowerment of

consumers — as co-creators of their experiences, a notion to which companies desirably seek to respond — driven by ICTs, transform the role of consumers in the development, consumption, and experience of products and services.

With the internet and Web 2.0. — the tools associated with social networks generate unprecedented opportunities for consumer involvement along the value chain — to emerge as catalysts for change that, in addition to impacting the way companies and consumers interact, also transform the way [41][52].

Increasingly, companies and consumers collaborate with each other [57], with co-creation being a customer-centric approach based on the principle of putting the consumer first and recognizing him as the starting point of the experience. and value creation [29].

The smart tourism experience, where meaning is praised, is identified with the purpose of the actors, dynamically interconnected, that integrates a smart tourism ecosystem, translated into the access, or improvement, of differentiating, significant and sustainable experiences, guided by the digitization of key business processes and organizational agility [4][51][52].

The suggested approach will have relevant implications at the management level, given the role of the various stakeholders, and active participants in the co-creation of the experience, using their digital selves to access information infrastructure and/or add value.

The development of smart tourism is ongoing. In many ways, it evolves naturally from the widespread adoption of ICT in tourism. However, systematic, and widespread coordination and sharing, as well as the exploitation of tourism data for value creation, is still in its infancy.

The crux at this point is building viable smart tourism ecosystems [50], and the complexity of tourism makes it difficult to go beyond the specific platform service innovations. However, the technological push towards smart tourism is far-reaching and tourism is expected to provide the scenario that makes possible the pioneering of many of these smart technologies [35].

However, ecosystems cannot be created [4], as we are dealing with open and flexible structures that evolve over time. Implementing a smart tourism destination requires patience, strategic management, and continuous evaluation and change. Perceiving the destination as an ecosystem is essential, with the vision and a clear set of objectives for innovation being key enablers for smart tourism destinations.

These developments require the formation of new models of travel behaviour, new models of product design [58][59], and new models of research and evaluation which, in turn, establish a new paradigm of tourism management [60].

Acknowledgements.

This research received support from the Geography and Spatial Planning Research Centre (CEGOT), funded by national funds through the Foundation for Science and Technology (FCT) under the reference UIDB/04084/2020.

References

[1] Henrique de Souza L, Kastenholz E, Barbosa M de L de A. Relevant dimensions of tourist experiences in unique, alternative person-to-person accommodation—sharing castles, treehouses, windmills, houseboats or house-buses. International Journal of Hospitality & Tourism Administration. 2020 Oct 1; 21(4):390–421. Available from: https://doi.org/10.1080/15256480.2018.1511495

[2] Rasoolimanesh SM, Seyfi S, Hall CM, Hatamifar P. Understanding memorable tourism experiences and behavioural intentions of heritage tourists. Journal of Destination Marketing & Management. 2021 Sep 1; 21:100621. Available from: https://doi.org/10.1016/j.jdmm.2021.100621

[3] Kim J, Fesenmaier DR. Tourism Experience and Tourism Design. In: Design Science in Tourism. 2017. Available from: https://doi.org/10.1007/978-3-319-42773-7_2

[4] Gretzel U, Werthner H, Koo C, Lamsfus C. Conceptual foundations for understanding smart tourism ecosystems. Comput Hum Behav. 2015; 50(C):558–63. Available from: https://doi.org/10.1016/j.chb.2015.03.043

[5] Xiang Z, Stienmetz J, Fesenmaier DR. Smart Tourism Design: Launching the annals of tourism research curated collection on designing tourism places. Annals of Tourism Research. 2021 Jan 1; 86:103154. Available from: https://doi.org/10.1016/j.annals.2021.103154

[6] Polese F, Botti A, Grimaldi M, Monda A, Vesci M. Social Innovation in Smart Tourism Ecosystems: How Technology and Institutions Shape Sustainable Value Co-Creation. Sustainability. 2018 Jan; 10(1):140. Available from: https://doi.org/10.3390/su10010140

[7] Fesenmaier DR, Xiang Z, editors. Design Science in Tourism: Foundations of Destination Management. Springer International Publishing; 2017. (Tourism on the Verge). Available from: https://doi.org/10.1007/978-3-319-42773-7

[8] Pearce PL, Zare S. The orchestra model as the basis for teaching tourism experience design. Journal of Hospitality and Tourism Management. 2017 Mar 1; 30:55–64. Available from: https://doi.org/10.1016/j.jhtm.2017.01.004

[9] Larsen S. Aspects of a Psychology of the Tourist Experience. Scandinavian Journal of Hospitality and Tourism. 2007 May 1; 7:7–18. Available from: https://doi.org/10.1080/15022250701226014

[10] Gnoth J, Matteucci X. A phenomenological view of the behavioural tourism research literature. International Journal of Culture. 2014 Feb 25;8. Available from: https://doi.org/10.1108/IJCTHR-01-2014-0005

[11] Jensen Ø, Prebensen N. Innovation and Value Creation in Experience-based Tourism. Scandinavian Journal of Hospitality and Tourism. 2015 Aug 28; 15(sup1):1–8. Available from: https://doi.org/10.1080/15022250.2015.1066093

[12] Jensen JM. Shopping orientation and online travel shopping: The role of travel experience. International Journal of Tourism Research; 14(1):56–70. 2012. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1002/jtr.835

[13] Zaltman G. How Customers Think: Essential Insights into the Mind of the Market. Boston, Mass: Harvard Business School Press; 2003. 323 p.

[14] Walls A, Okumus F, Kwun D. An epistemological view of consumer experiences. International Journal of Hospitality Management - INT J HOSP MANAG. 2011 Mar 1; 30:10–

21. Available from: https://doi.org/10.1016/j.ijhm.2010.03.008
[15] Quinlan Cutler S, Carmichael B. The dimensions of the tourist experience. In: The Tourism and Leisure Experience. Channel View Publications; 2010. p. 3–26. Available from: https://doi.org/10.21832/9781845411503-004
[16] Clawson M, Knetsch J. Economics of outdoor recreation. John Hopkins University Press. Baltimore; 1966.
[17] Cohen E. A Phenomenology of Tourist Experiences. Sociology. 1979 May 1; 13(2):179–201. Available from: https://doi.org/10.1177/003803857901300203
[18] Graburn NHH, Barthel-Bouchier D. Relocating the Tourist. International Sociology. 2001 Jun 1; 16(2):147–58. Available from: https://doi.org/10.1177/0268580901016002001
[19] Borrie B, Roggenbuck J. The Dynamic, Emergent, and Multi-Phasic Nature of On-Site Wilderness Experiences. Journal of Leisure Research. 2001 Jun 1; 33:202–28. Available from: https://doi.org/10.1080/00222216.2001.11949938
[20] Agapito D. The senses in tourism design: A bibliometric review. Annals of Tourism Research. 2020 Jul 1; 83:102934. Available from: https://doi.org/10.1016/j.annals.2020.102934
[21] Nickerson NP. Some Reflections on Quality Tourism Experiences. Quality Tourism Experiences. Butterworth-Heinemann. 2006; 227–235. Available from: https://doi.org/10.1016/B978-0-7506-7811-7.50023-7
[22] Vaz Serra P, Seabra C. Digital Influencers and Tourist Destinations: Cristiano Ronaldo and Madeira Island, from Promotion to Impact. In: Guarda T, Portela F, Santos MF, editors. Advanced Research in Technologies, Information, Innovation and Sustainability. Cham: Springer International Publishing; 2021. p. 302–317. Available from: https://doi.org/10.1007/978-3-030-90241-4_24
[23] Mossberg L. A Marketing Approach to the Tourist Experience. Scandinavian Journal of Hospitality and Tourism. 2007 May 1; 7(1):59–74. Available from: https://doi.org/10.1080/15022250701231915
[24] Miao L, Lehto X, Wei W. The Hedonic Value of Hospitality Consumption: Evidence From Spring Break Experiences. Journal of Hospitality Marketing & Management. 2014 Feb 5; 23:99–121. Available from: https://doi.org/10.1080/19368623.2013.766582
[25] Manthiou A, Lee S (Ally), Tang L, Chiang L. The Experience Economy Approach to Festival Marketing: Vivid Memory and Attendee Loyalty. Journal of Services Marketing. 2014 Feb 4; 28:22–35. Available from: https://doi.org/10.1108/JSM-06-2012-0105
[26] Kim D, Perdue RR. The effects of cognitive, affective, and sensory attributes on hotel choice. International Journal of Hospitality Management. 2013 Dec 1; 35:246–57. Available from: https://doi.org/10.1016/j.ijhm.2013.05.012
[27] Tung V, Ritchie JR. Exploring the essence of memorable tourism experiences. Annals of Tourism Research - ANN TOURISM RES. 2011 Oct 1; 38:1367–86. Available from: https://doi.org/10.1016/j.annals.2011.03.009
[28] Lovelock C, Gummesson E. Whither Services Marketing?: In Search of a New Paradigm and Fresh Perspectives. Journal of Service Research. 2004 Aug 1; 7(1):20–41. Available from: https://doi.org/10.1177/1094670504266131
[29] Vargo S, Akaka M. Value Cocreation and Service Systems (Re)Formation: A Service Ecosystems View. Service Science. 2012 Sep 1; 4:207–17. Available from: https://doi.org/10.1287/serv.1120.0019
[30] Maglio, P., Spohrer, J. Fundamentals of service science. Journal of the Academy of Marketing Science. 2007. 36: 18–20. Available from: https://doi.org/10.1007/s11747-007-0058-9
[31] Barile S, Ciasullo MV, Troisi O, Sarno D. The role of technology and institutions in tourism service ecosystems. The TQM Journal. 2017 Jan 1; 29(6):811–33. Available from: https://doi.org/10.1108/TQM-06-2017-0068
[32] Gretzel U, Sigala M, Xiang Z, Koo C. Smart tourism: foundations and developments. Electron Markets. 2015 Sep 1; 25(3):179–88. Available from: https://doi.org/10.1007/s12525-015-0196-8
[33] Porter ME, Kramer MR. Creating Shared Value. Harvard Business Review. 2011 Jan 1; Available from: https://hbr.org/2011/01/the-big-idea-creating-shared-value
[34] Boley H, Chang E. Digital Ecosystems: Principles and Semantics. 2007. 398 p. Available from: https://doi.org/10.1109/DEST.2007.372005
[35] Buhalis D, Amaranggana A. Smart Tourism Destinations Enhancing Tourism Experience Through Personalisation of Services. In: Tussyadiah I, Inversini A, editors. Information and Communication Technologies in Tourism 2015. Cham: Springer International Publishing; 2015. p. 377–89. Available from: https://doi.org/10.1007/978-3-319-14343-9_28
[36] Calatrava Moreno M del C, Hörhager G, Schuster R, Werthner H. Strategic E-Tourism Alternatives for Destinations. Information and communication technologies in tourism 2015. 2015 Dec 1; 405–17. Available from: https://doi.org/10.1007/978-3-319-14343-9_30
[37] Guo Y, Liu H, Chai Y. The embedding convergence of smart cities and tourism internet of things in China: An advance perspective. Advances in Hospitality and Tourism Research. 2014 Jun 1; 2:54–69. Available from: https://dergipark.org.tr/en/download/article-file/372557
[38] Zhang Y, Xiong Y, Lee TJ. A culture-oriented model of consumers' hedonic experiences in luxury hotels. Journal of Hospitality and Tourism Management. 2020 Dec 1; 45:399–409. Available from: https://doi.org/10.1016/j.jhtm.2020.07.009
[39] Sigala M. Collaborative commerce in tourism: implications for research and industry. Current Issues in Tourism. 2015 May 26; 1–10. Available from: https://doi.org/10.1080/13683500.2014.982522
[40] Yoo KH, Sigala M, Gretzel U. Exploring TripAdvisor. In: R Egger, I Gula, & D Walcher (Eds), Open Tourism – Open Innovation, Crowdsourcing and Collaborative Consumption challenging the tourism industry. Heidelberg: Springer Verlag.; 2015. Available from https://doi.org/10.1007/978-3-642-54089-9_17
[41] Campos AC, Mendes J, Valle PO do, Scott N. Co-creation of tourist experiences: a literature review. Current Issues in Tourism. 2018 Mar 4; 21(4):369–400. Available from: https://doi.org/10.1080/13683500.2015.1081158
[42] Bajarin B. Why It's All About the Digital Ecosystem. Tech.pinions. 2011. Available from: https://techpinions.com/why-its-all-about-the-ecosystem/4567
[43] Werthner H. Intelligent Systems in Travel and Tourism. 2003. 1620 p.
[44] Hassan MA, Ullah SI, Salam A, Ullah AW, Imad M, Ullah F. Energy efficient hierarchical based fish eye state routing protocol for flying Ad-hoc networks. Indonesian Journal of Electrical Engineering and Computer Science. 2021 Jan 1; 21(1):465–71. Available from:

https://ijeecs.iaescore.com/index.php/IJEECS/article/view/22392

[45] Ahmad S, Hassan MA. Secure Communication Routing in FANETs: A Survey. In: Ouaissa M, Khan IU, Ouaissa M, Boulouard Z, Hussain Shah SB, editors. Computational Intelligence for Unmanned Aerial Vehicles Communication Networks. Cham: Springer International Publishing; 2022. p. 97–110. (Studies in Computational Intelligence). Available from: https://doi.org/10.1007/978-3-030-97113-7_6

[46] Hassan MA, Ullah SI, Khan IU, Hussain Shah SB, Salam A, Ullah Khan AW. Unmanned Aerial Vehicles Routing Formation Using Fisheye State Routing for Flying Ad-hoc Networks. In: The 4th International Conference on Future Networks and Distributed Systems (ICFNDS). New York, NY, USA: Association for Computing Machinery; 2021. p. 1–7. (ICFNDS '20). Available from: https://doi.org/10.1145/3440749.3442600

[47] Hassan MA, Javed AR, Hassan T, Band SS, Sitharthan R, Rizwan M. Reinforcing Communication on the Internet of Aerial Vehicles. IEEE Transactions on Green Communications and Networking. 2022 Sep; 6(3):1288–97. Available from: https://ieeexplore.ieee.org/abstract/document/9729883

[48] Hassan M, Imad M, Hassan T, Ullah F, Ahmad S. Impact of Routing Techniques and Mobility Models on Flying Ad Hoc Networks. In 2022. p. 111–129. Available from: https://doi.org/10.1007/978-3-030-97113-7_7

[49] Hunter W, Chung N, Gretzel U, Koo C. Constructivist Research in Smart Tourism. Asia Pacific Journal of Information Systems. 2015 Feb 28; 25:105–20. Available from: https://doi.org/10.14329/apjis.2015.25.1.105

[50] Gretzel U, Reino S, Kopera S, Koo C. Smart Tourism Challenges. Journal of Tourism. 2015 Jan 1; 16:41–7. Available from: https://www.researchgate.net/publication/301295363_Smart_Tourism_Challenges

[51] Boes K, Buhalis D, Inversini A. Smart tourism destinations: ecosystems for tourism destination competitiveness. Ulrike Gretzel LZ and CK, editor. International Journal of Tourism Cities. 2016 Jan 1; 2(2):108–24. Available from: https://doi.org/10.1108/IJTC-12-2015-0032

[52] Neuhofer B, Buhalis D, Ladkin A. Smart technologies for personalized experiences: a case study in the hospitality domain. Electron Markets. 2015 Sep 1; 25(3):243–54. Available from: https://doi.org/10.1007/s12525-015-0182-1

[53] Ullah F, Imad M, Hassan M, Ahmad I. Navigation System for Autonomous Vehicle: A Survey. 2021 Jan 10; 2:20–35. Available from: https://www.al-kindipublisher.com/index.php/jcsts/article/view/538

[54] Andrejevic M, Burdon M. Defining the Sensor Society. Television & New Media. 2015 Jan 1; 16(1):19–36. Available from: https://doi.org/10.1177/1527476414541552

[55] Anuar FI, Gretzel U. Privacy Concerns in the Context of Location Based Services for Tourism. In Innsbruck, Austria; 2011. Available from: http://ertr.tamu.edu/enter-2011-short-papers/

[56] McCurdy A, Peoples C, Moore A, Zoualfaghari M. Waste Management in Smart Cities: A Survey on Public Perception and the Implications for Service Level Agreements. EAI Endorsed Transactions on Smart Cities. 2021 May 27; 5(16): e4–e4. Available from: https://publications.eai.eu/index.php/sc/article/view/1099

[57] Romero D, Molina A. Collaborative Networked Organisations and Customer Communities: Value Co-Creation and Co-Innovation in the Networking Era. Production Planning & Control. 2011 Jul 1; 22:447–72. Available from: https://doi.org/10.1080/09537287.2010.536619

[58] Imad M, Abul Hassan M, Hussain Bangash S, Naimullah. A Comparative Analysis of Intrusion Detection in IoT Network Using Machine Learning. In: Ouaissa M, Boulouard Z, Ouaissa M, Khan IU, Kaosar M, editors. Big Data Analytics and Computational Intelligence for Cybersecurity. Cham: Springer International Publishing; 2022. p. 149–63. (Studies in Big Data). Available from: https://doi.org/10.1007/978-3-031-05752-6_10

[59] Hassan MA, Ali S, Imad M, Bibi S. New Advancements in Cybersecurity: A Comprehensive Survey. In: Ouaissa M, Boulouard Z, Ouaissa M, Khan IU, Kaosar M, editors. Big Data Analytics and Computational Intelligence for Cybersecurity. Cham: Springer International Publishing; 2022. p. 3–17. (Studies in Big Data). Available from: https://doi.org/10.1007/978-3-031-05752-6_1

[60] Merbek A. Tourism on the Verge Analytics in Smart Tourism Design Concepts and Methods. 2017; Available from: https://doi.org/10.1007/978-3-319-44263-1