Chapter 57
Eco-Innovation in Tourism: An Overview of a Promising Field of Research

Pasquale Del Vecchio, Giustina Secundo, and Antonello Garzoni

Abstract This paper aims to contribute to the debate on sustainable tourism from the perspective of eco-innovation. Focusing on the challenges of sustainability in tourism, both for companies and destinations, this paper provides a critical reading of the literature on eco-innovation in tourism to derive a state-of-the art and depict roots for the future development of the research. As a complex and integrated system of products and services, tourism is an industry with a large impact on the environment and local communities, and for this reason, it is called on to implement sustainable strategies of development and growth. The challenges of sustainability in tourism can benefit from eco-innovation as a driver for reducing its impacts on the environment, thus contributing to the implementation of a circular economy. Framed in these premises, this paper presents the results of a critical review identifying the main trends structured into (1) energy efficiency and smart mobility; (2) governance, key performance indicators, and socioeconomic performances; (3) industrial ecology and eco-certifications; (4) rural development and circular economy; and (5) intangibles and knowledge-based enablers. Implications arise for theory and practice in terms of eco-innovation strategies and enablers, servitization, and digital transformation.

Keywords Eco-Innovation · Sustainable tourism · Circular economy · Eco-Design · Green tourism experience

P. Del Vecchio (✉) · G. Secundo · A. Garzoni
Department of Management, Finance and Technology, University LUM Giuseppe Degennaro, Casamassima, BA, Italy
e-mail: delvecchio@lum.it

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57.1 Introduction

The recent pandemic emergence due to COVID-19 has increased the attention of public opinion on sustainable tourism by highlighting the need for radical change in the management of tourism companies and destinations (Chang et al. 2020). This trend is associated with the growing interest reserved by policymakers and citizens toward the Sustainable Development Goals of the United Nations (United Nations 2015), as well as with the popularity of issues such as ecological transition and the circular economy.

In the meantime, there is a greater awareness of the impact that tourism can have on the environment and local communities (Hamaguchi 2020). In representing an opportunity for the economic growth of territories with tourist vocation in terms of gross domestic product (GDP) and employment, tourism is also identified as one of the most polluting industries (Sun et al. 2021). In this direction, several recent reports (i.e., Ernest and Young (2021); Booking.com 2022) have registered a growing interest in tourism demand for sustainable tourism experiences.

The tourism industry, businesses, and destinations are also called to explore the opportunities associated with the embracement of a sustainable development strategy. From this perspective, eco-innovation can represent an opportunity for innovating sustainable tourism by creating positive and emotional journeys and tourism consumption experiences. In 2015, the European Commission defined eco-innovation as follows: "changing consumption and production patterns and market uptake of technologies, products and services to reduce impact on the environment."

Research on eco-innovation has investigated its micro (i.e., Kiefer et al. 2021), meso (i.e., Mazzoni 2020), and macro (Hazarika and Zhang 2019) perspectives, moving toward industrial and organizational settings (Yan et al. 2022). Eco-innovation has also been demonstrated to be a useful lens for the analysis of innovation performance at the regional and country levels (Rama et al. 2022). Eco-innovation has also been considered a managerial practice supporting the servitization of firms' business models (Munodawafa and Johl 2019), and in this direction, it is aligned with the debate on digital transformation and data-driven value creation processes (Bag et al. 2022). All this debate makes the topic of eco-innovation a promising paradigm for the sustainability challenges that are interesting to tourism. However, while eco-innovation is largely recognized as a useful approach for achieving sustainable development growth in manufacturing and other complex industries, the debate on eco-innovation in tourism results is under-considered (Wang et al. 2020). These premises highlight the relevance of eco-innovation in the current debate on tourism and destination management. However, while this can be intuitively proven, the literature on the meaning and implications of eco-innovation in tourism is still fragmented. Some reviews have been conducted on the topics of eco-innovation and tourism, but they have been more focused on the technical or managerial issues of eco-innovation, with a limited exploration of their implications in tourism management. Accordingly, eco-innovation in tourism is far from being fully achieved, which is the main motivation behind this preliminary research study.

Moving from this premise, the paper presents the results of a critical review of the literature on eco-innovation in tourism aimed at providing answers to the following research questions: *How is the literature on eco-innovation in tourism developing? What is its thematic focus? What are the implications for future research?*

The remainder of the paper is structured as follows: Sect. 57.2 describes the research methodology and the phases of the study; in Sect. 57.3, findings are presented in terms of bibliographic trends and thematic areas of specialization; and in Sect. 57.4, conclusions recall evidence collected and areas for future research.

57.2 Methodology

This paper is based on a critical and qualitative literature review as a useful approach for deriving a deeper comprehension of the state of the debate on a certain topic (Cortellazzo et al. 2019); moreover, a critical literature review is considered a suitable approach for discussing and evaluating the state of the art, for identifying areas of specialization and for future research investigations (Saunders and Rojon 2011). The review has been conducted with the aim of identifying and including the most relevant contributions associated with the topics of eco-innovation and tourism. The study consisted of three main phases related to (1) research design, with the identification of research gap, the definition of research questions, and the planning of the research activities; (2) review analysis, with the extraction of the paper from Scopus database according to the keywords "eco-innovation" and "tourism" and including only articles and book chapters, the definition of criteria for their analysis (in terms of content analysis, thematic specialization, methodological approach, results, and implications), cleaning and preliminary check; and (3) research writing, in terms of statistics, content analysis, and the definition of a conceptual framework.

The original sample extracted from Scopus included 31 papers. After a preliminary screening aimed at verifying the thematic coherence of papers, a final sample of 25 items was identified by excluding conference proceedings and book series.

57.3 Results and Discussions

The final sample included in the analysis was composed of 25 documents, including 21 articles and four book chapters. Trends in terms of the timing of publication, subject areas, authors and geography, keyword recurrence, and thematic clusters of specialization are provided. Regarding the timeframe (Fig. 57.1a), publications cover a period of 9 years (from 2013 to 2022), showing a fluctuating increment of published papers from 2016 with a peak in 2019. Considering the average number of papers published during the whole period, interest in the topic remains limited (a maximum of five papers in 2019). For the subject areas, Scopus allows us to identify seven clusters (Fig. 57.1b).

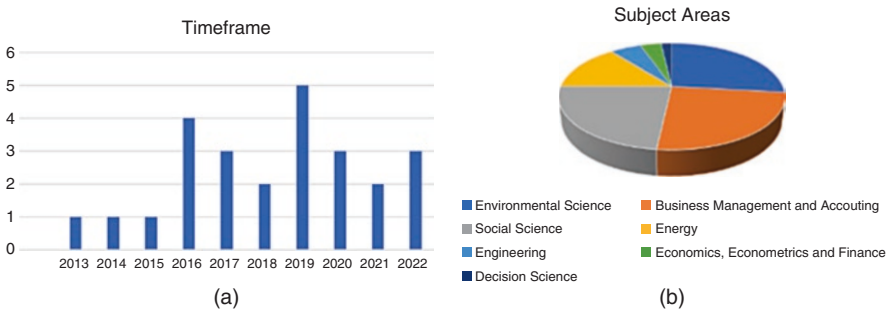

Fig. 57.1 (**a**) The publication trend and (**b**) the subject area of the papers included in this review sample

Considering that the same paper can be included in different areas, the sample highlights the following clusters: Environmental Science (15 papers), Business Management and Accounting (14 papers), Social Science (13 papers), Energy (8eight papers), Engineering (three papers), Economics, Econometrics and Finance (two papers), and Decision Science (one paper).

Other information can be derived about the publication venue. Journals with more than two papers published are only Sustainability (five papers) and Journal of Cleaner Production (two papers). The remainder of the sample results are located in journals and books with a prevalence of managerial and technical issues and without a clear specialization in tourism management. Additionally, the authorship results are very dispersed, while for geographic specialization, the sample shows the leadership of Spain (eight papers), followed by China (five papers), Taiwan (three papers), Italy, Mexico, and the UK (with two papers).

Focusing on the thematic areas of specialization, important evidence arises from the analysis of keywords offered by Scopus. The sample presents more than 200 keywords with a very large coverage of issues and perspectives. However, considering a recurrence higher than two, the keywords most frequently used are Eco-Innovation (14), Innovation (11), Sustainability (six), Ecotourism (five), Sustainable Development (five), Tourism (five), Hospitality (four), Sustainable Tourism (three), and Tourist Destination (three). Additionally, in this case, the sectorial focus results are marginally interested in the research being demonstrated to be included more in the context of the application of the single study than as a primary focus. A deeper analysis of the research areas included in the sample is presented in Table 57.1, where highlights of the key contributions of the paper are reported.

Table 57.1 Research areas of eco-innovation in tourism

Research area	Paper	Main contributions
Energy efficiency and smart mobility	Sun et al. (2021)	Econometric evaluation of the tourism and ecological innovation on carbon emissions and ecological footprint in Turkey
	Robaina and Madaleno (2019)	Literature review on eco-innovation in tourism and implications in terms of shift toward renewable energies
	Buijtendijk et al. (2018)	Evaluating the effectiveness of a collaborative approach to production in a Dutch travel industry through actor network theory
	José-Luis et al. (2021)	Energy efficiency as driver for cost saving strategy and the implementation of eco-innovation – Quantitative analysis of data.
	Wei and Lihua (2022)	Analysis of short- and long-term relationships about carbon emissions ASEAN countries' tourism – Quantitative data collection with interviews.
	Amendola et al.	Integrated methodology for urban mobility and sustainable tourism mobility – Case study
Governance, key performance indicators, and socioeconomic performances	Pikkemaat et al. (2019)	Literature review on eco-innovation in family firms and SMEs, consumer-driven innovation, mechanisms of governance.
	García-Pozo et al. (2016)	Quantitative analysis on employees' productivity and impact of eco-innovation in Spain. Analysis of seven good practices with a focus on financial and socioeconomic indicators
	Martínez-Pérez et al. (2015)	Social capital and networking as drivers for knowledge exploitation for the eco-innovation in Spanish company – Survey
	Wu et al. (2019)	Hierarchical framework for sustainable tourism based on three critical dimensions related to socioeconomic, socioenvironmental and eco-efficiency value – Structural modeling
	Vidickienė et al. (2020)	Transformative tourism development through policies of regional development – Survey
Industrial ecology and eco-certifications	Lucchetti and Arcese (2014)	Literature review on the meaning and opportunities of application of industrial ecology for tourism management
	Tang et al. (2019)	Exploration of the dilemma tourism innovation and ecological participation – Pressure state response model
	Miret-Pastor et al. (2011)	Qualitative review for the conceptualization and measurement of eco-innovation supported by three environmental certifications (ISO 14001, EMAS, and Eco-label)

(continued)

Table 57.1 (continued)

Research area	Paper	Main contributions
Rural development and circular economy	Jeong and Ramírez-Gómez (2017)	Eco-design and eco-innovation for the protection of water and rural areas and the development of a rural-housing in a case study reservoir area under tourism and mass tourism
	Chen et al. (2022)	Rural community as eco-innovation suitable context and opportunity for developing an educational program in coherence with SDGs – Case study
	Alonso-Almeida et al. (2016)	Literature review suggesting the opportunity of deepening the implication of eco-innovation and circular economy for tourism through the exploration of eco-innovation typologies and empirical cases
	Liu et al. (2017)	Small farms into the rural areas as educational institutions and attractor for tourism development
Intangibles and knowledge-based enablers	Chung et al. (2019)	Analysis of the impact of green technologies on CSR and reputation of museums. Technology based innovation for reducing footprint – Lean square method
	Bell and Ruhanen (2016)	The role of opinion leaders and change agents in influencing the adoption of eco-innovation – Interviews
	Pace and Miles (2019)	Impact of KIBS and client interactions on firms' absorptive capacity and role of business partnership in the adoption of eco-innovation
	Wang et al. (2020)	Analysis of the dynamic capabilities managers' attitudes and stakeholders' engagement – Square structural equation modeling
	Avellaneda-Rivera et al. (2020)	Open innovation as stakeholders' involvement as knowledge-based opportunity for eco-innovation in tourism – Quantitative data analysis
	Velázquez-Castro et al. (2016)	Identification of eco-adopters and enablers of eco-innovation in the Mexican hotels – Quantitative data
	Velazques-Castro et al.	Structured literature review on eco-innovation in service, business process analysis and modeling

57.4 Discussions and Conclusions

The brief review of the literature contributes to the understanding of the state-of-the art of eco-innovation in tourism. The critical review based on a final sample of 25 papers demonstrates that the debate on eco-innovation in tourism is still fragmented and far from the achievement of a consolidated and systemic view. Specifically, it has been possible to verify that the large debate on eco-innovation, fluorescent in the recent literature, has marginally interested the community of scholars in the field of tourism management. In this direction, the thematic areas of specialization cover

different issues, including (1) energy efficiency and smart mobility; (2) governance, key performance indicators, and socioeconomic performance; (3) industrial ecology and eco-certifications; (4) rural development and circular economy; and (5) intangibles and knowledge-based enablers. In confirming the fragmentation of the research field, this large noun of topics is coherent with the versatility of eco-innovation and with its relevance from micro, meso, and macro perspectives, and at the same time, it allows us to highlight the need for further studies in the tourism field. Accordingly, implications for future research can be identified at different levels. First, it is necessary to achieve a clear understanding of what eco-innovation can mean in tourism, both for companies and destinations, and how it can support tourism in the achievement of sustainability issues. By considering the nature of complex industries based on the integration of products and services, it could be useful to understand how eco-innovation can allow sustainable results to be achieved in terms of servitization and value co-creation. Considering the digital transformation that has interested tourism, it could also be interesting to understand how digital technologies such as big data, artificial intelligence, virtual and augmented reality, and blockchain can be adopted as an eco-innovation strategy in tourism destination management.

Further areas of speculation on eco-innovation in tourism could be identified in the different definitions of sustainable tourism by focusing on the circular economy, green tourism, slow tourism, etc. Each of them could suggest exploration with a plurality of methods, including quantitative and qualitative studies.

The paper presents several limitations. From the methodological point of view, some limitations can be identified in the qualitative nature of the review, in the single database considered, and in the criteria for exclusions adopted. Despite the rigor and references supporting the choices in this direction, for the actuality of the issues, it is not possible to exclude that some promising contributions could be missed. In the same direction, the keywords (such as "eco-innovation" and "tourism") adopted for the selection of papers from the Scopus database could represent another limitation characterizing the current version that could be overcome in the future development of the research. Despite all of them, the authors hope that the evidence collected can contribute to the achievement of a greater awareness of the opportunities for eco-innovation in tourism and inspire the future work of scholars and researchers in tourism management.

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