

# TOURISM, SUSTAINABILITY AND INNOVATION: A BIBLIOMETRIC STUDY OF ACADEMIC CONTRIBUTIONS AND RESEARCH FRONTIERS

## Abstract

This study conducts a comprehensive bibliometric analysis to explore the academic contributions and emerging research frontiers in the field of tourism sustainability and innovation. Utilizing data from the Scopus database, the study examines publication trends, collaboration networks, and the most influential articles and journals from 1999 to 2024. The findings highlight a significant increase in research output in recent years, particularly driven by the global emphasis on sustainable practices following the adoption of the UN Sustainable Development Goals in 2015. Key countries, institutions, and authors leading the discourse on tourism sustainability are identified, with a notable representation from Europe. The study underscores the interdisciplinary nature of research in this field, with significant contributions from various sectors including hospitality, environmental sciences, and business management. The analysis reveals critical insights into the evolving nature of sustainable tourism and the role of innovation in addressing environmental, social, and economic challenges. This bibliometric study provides a foundational understanding of the current state of research, identifies key gaps, and suggests future directions for scholars and policymakers aiming to promote sustainable tourism practices globally.

**Keywords:** Tourism Sustainability, Innovation, Bibliometric Analysis, Sustainable Tourism, Academic Contributions, Sustainable Development Goals.

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## **I. INTRODUCTION**

Tourism sustainability and innovation are increasingly important topics in research. Studies highlight the need for balancing economic, social, and environmental factors in tourism development (Hernández Esquivel et al., 2022; Santos et al., 2021). Innovation is seen as crucial for sustainable tourism growth, with technology playing a key role (Loureiro, 2019; Ali & Frew, 2014). However, challenges remain, particularly in addressing aviation's environmental impact (Peeters et al., 2006). Researchers suggest rethinking basic assumptions about sustainable tourism (Moscardo, 2008) and exploring new business models (Elmo et al., 2020). Family businesses in tourism show potential for adopting sustainable practices, though implementation of innovative strategies remains limited (Elmo et al., 2020). The hospitality sector is also embracing innovation, with integrated management systems contributing to organizational innovation (Carvalho & Costa, 2011). Overall, the literature emphasizes the need for continued research and practical applications of innovation in sustainable tourism development (Santos et al., 2021; Ali & Frew, 2014).

### **1. Importance of Sustainability in Tourism**

Sustainability in tourism has gained significant importance over the past few decades, evolving from environmental concerns to encompass social and economic dimensions (Butler, 1999; Saarinen, 2013). The concept aims to balance tourism development with responsible resource use, addressing issues such as climate change, energy consumption, and water resources (Kasemsap, 2020). Sustainable tourism practices are increasingly seen as crucial for destinations, particularly in developing countries, to achieve economic growth while preserving natural and cultural assets (Mowforth & Munt, 1997). The implementation of sustainable tourism involves various stakeholders, including governments, businesses, and local communities, and covers aspects like destination management, infrastructure, and supply chain (Amoiradis et al., 2023). Education plays a vital role in promoting sustainability in tourism, with initiatives like the BEST Education Network and Tourism Education Futures Initiative leading the way (Moscardo, 2015). As tourism continues to grow globally, fostering sustainability becomes increasingly critical for the sector's long-term viability (Landthaler, 2014).

### **2. The Role of Innovation in Driving Sustainable Practices Within the Tourism Sector**

Innovation plays a crucial role in driving sustainable practices within the tourism sector. Research highlights various forms of innovation, including green products and services (Hjalager, 1996), digital technologies (Elkhwesky et al., 2022), and eco-innovations (Pikkemaat et al., 2019). These innovations address environmental, social, and economic needs (Elmo et al., 2020) and contribute to sustainable development (Ali & Frew, 2014). Key drivers of innovation include environmental awareness (Hjalager, 1996), collaboration networks (Carlsen & Edwards, 2008), and sustainability strategies (Carvalho & Costa, 2011). However, challenges persist, such as limited implementation of innovative strategies in family businesses (Elmo et al., 2020) and the need for more research on innovation in small and micro enterprises (Pikkemaat et al., 2019). To foster innovation, the tourism sector should focus on knowledge management systems (Moscardo, 2008), explore synergies with other economic activities (Moscardo, 2008), and consider sustainability performance indicators (Moscardo, 2008).

### 3. The need for Bibliometric Study

Bibliometric studies have emerged as a crucial tool for understanding the evolution and impact of research across various fields. These studies analyse publication patterns, citations, and research trends to provide comprehensive overviews of academic domains (Janik et al., 2021; Roblek et al., 2022). They have been applied to diverse areas such as social innovation (Janik et al., 2021), organizational agility (Roblek et al., 2022), health informatics (Liang, 2010), climate change (El Omari Alaoui et al., 2024), blockchain (Dabbagh et al., 2019), education for sustainable development (Grosseck et al., 2019), and social entrepreneurship (Dionisio, 2019). Bibliometric analyses help identify key authors, institutions, and publications, as well as emerging trends and research gaps (Ale Ebrahim, 2016; Dionisio, 2019). These studies often employ various tools and methodologies, including co-citation analysis, bibliographic coupling, and network analysis (Janik et al., 2021; Roblek et al., 2022). By providing valuable insights into the structure and development of research fields, bibliometric studies guide future research directions and inform policy-making (El Omari Alaoui et al., 2024; Grosseck et al., 2019).

### 4. Objectives

- To map the academic contributions in the field of tourism, sustainability, and innovation.
- To assess the impact and influence of scholarly work in shaping the discourse on sustainable tourism.

## II. LITERATURE REVIEW

### 1. Sustainable Tourism

The concept of sustainable tourism emerged in the late 20th century, evolving from concerns about tourism's environmental and social impacts (Hardy et al., 2002; Butler, 1999). Initially focused on economic aspects, the paradigm shifted towards balancing economic, environmental, and social dimensions (Körössy, 2008; Roblek et al., 2021). Definitions of sustainable tourism have been imprecise and conflicting, leading to debates about its practical application (Butler, 1999; McCool et al., 2013). The concept has traditionally emphasized environmental protection and economic development, with calls for greater community involvement (Hardy et al., 2002). As global conditions change, some argue for reformulating sustainable tourism to enhance community resilience (McCool, 2016; McCool et al., 2013). The evolution of sustainable tourism has led to the development of various related concepts, such as ecotourism and alternative tourism (Bac, 2014). Despite its widespread adoption in tourism planning, questions remain about the concept's relevance and practicality in addressing contemporary global economic and environmental challenges (Butler, 2020; McCool et al., 2013).

### 2. Key Challenges and Opportunities in Implementing Sustainable Tourism Practices

Implementing sustainable tourism practices faces several key challenges and opportunities. Major issues include high energy and water consumption, habitat destruction, and balancing

growth with sustainability (Pan et al., 2018; Pigram & Wahab, 1997). The fragmented nature of the tourism industry and conflicting stakeholder interests complicate the application of sustainable development principles (Berno & Bricker, 2001). However, opportunities exist in adopting green technologies, smart solutions, and cross-disciplinary approaches to address these challenges (Pan et al., 2018). Strategies for implementation include policy reforms, institutional support, financial incentives, and cultural shifts (Pan et al., 2018; Jovičić, 2014). The COVID-19 pandemic has introduced new challenges for sustainable tourism development (Štreimikienė et al., 2020). Despite progress in sustainable initiatives, accurately quantifying their impact remains difficult (Veiga et al., 2018). Ecotourism principles and practices offer valuable lessons for broader sustainable tourism implementation (Wood, 2002). Balancing competitiveness with sustainability is crucial for the sector's long-term viability (Štreimikienė et al., 2020).

### **3. The Role of Innovation in Promoting Sustainability**

Innovation plays a crucial role in promoting sustainability across various sectors. At both micro and macro levels, technological progress and innovation contribute to sustainable growth through improved energy efficiency (Škare & Porada-Rochoń, 2021). While innovation is necessary for long-term sustainability, it is not sufficient on its own (Škare & Porada-Rochoń, 2021). Implementing innovation for environmental sustainability in universities can lead to successful experiences and good practices (Filho et al., 2019). Small and medium-sized enterprises (SMEs) also have significant potential to innovate environmentally, despite facing barriers (Biondi et al., 2002). To foster innovation for sustainability, organizations need to establish an ethical climate that supports sustainability (Arnaud & Sekerka, 2010). In the agro-food system, the relationship between innovation and sustainability is complex, requiring a focus on sustainable innovation (Bilali, 2018). Public policy plays a crucial role in encouraging technological innovation and sustainability by creating an enabling environment and stimulating research and development (Mahardhani, 2023).

### **4. Case Studies or Examples of Innovative Practices in Sustainable Tourism**

Innovative practices in sustainable tourism encompass a range of strategies aimed at balancing economic, social, and environmental concerns. Case studies highlight the importance of collaboration networks in supporting innovation (Carlsen & Edwards, 2008) and the need for continuous learning and evolving worldviews (Warren et al., 2018). Rural tourism development has shown promise in revitalizing post-conflict destinations and contributing to sustainable economic growth (Coroş et al., 2017). Family businesses in tourism, while slow to adopt innovative strategies, demonstrate potential for sustainable practices (Elmo et al., 2020). Examples of sustainable tourism initiatives include eco-lodges in Peru and Brazil (Sloan et al., 2012), community-based ecotourism in the Amazon (Sloan et al., 2012), and the implementation of integrated management systems in hotels (Carvalho & Costa, 2011). Marketing sustainable tourism requires understanding the co-productive process between consumers and producers, as well as addressing the complex social, environmental, and economic impacts of tourism in vulnerable regions (Eiseman, 2018).

## 5. Previous Bibliometric Studies

Bibliometric studies on tourism sustainability have proliferated in recent years, reflecting growing interest in this field. These studies analyze publication trends, key authors, institutions, and research themes using databases like Web of Science and Scopus (Chané de Bruyn et al., 2023; Angels Niñerola et al., 2019). Common methodologies include citation analysis and visualization software like VOSviewer (William Quezado de F. Cavalcante et al., 2021; Mercedes Jiménez-García et al., 2020). Research on sustainable tourism has increased significantly since the late 1990s, with a notable surge following the 2015 UN Sustainable Development Goals (L. Seguí-Amortegui et al., 2019; L. Mota et al., 2018). Key topics include destination planning, competitiveness, and marketing (Laura Serrano et al., 2019; Valentina della Corte et al., 2019). While the United States and Spain are leading contributors, global interest is evident (Angels Niñerola et al., 2019; William Quezado de F. Cavalcante et al., 2021). These studies highlight the evolving nature of sustainable tourism research and its increasing complexity.

## 6. Identification of Gaps in Existing Research

Recent bibliometric analyses have highlighted the growing importance of sustainability in tourism research. These studies have examined various aspects, including marketing (Cavalcante et al., 2021), sports tourism (Jiménez-García et al., 2020), and smart tourism (Madeira et al., 2023). The literature on tourism sustainability has expanded significantly, with the United States and Spain emerging as leading contributors (Niñerola et al., 2019; de Bruyn et al., 2023). Key research clusters focus on sustainable tourism, innovation, and smart cities (Madeira et al., 2023). However, gaps remain in the analysis of polar and mountainous areas (Sánchez-Cañizares et al., 2018). The field lacks a core group of highly productive researchers, despite several prolific authors (Niñerola et al., 2019). Recent trends indicate a shift from competitiveness to sustainability in tourism management, aligning with consumer demands and the 2030 Agenda (Hernández-Garrido Rocio et al., 2023). These studies collectively emphasize the need for continued research on tourism planning and sustainable development (Mota et al., 2018).

## III. METHODOLOGY

### 1. Selection of Databases

While Web of Science and Scopus are commonly used, integrating multiple databases can provide a more comprehensive view of research in a given field (Alencar et al., 2018; Xiang et al., 2009). The Study utilised the Scopus Database. Each database has unique characteristics in terms of journal coverage, exportable record limits, and data management capabilities (Moral-Munoz et al., 2020; Suela et al., 2021). The dependence of bibliometric indicators on the source database highlights the need for caution when interpreting results (Quoniam et al., 1995). Researchers should consider factors such as database coverage, data consistency, and available metrics when selecting a database for bibliometric analysis (Thompson & Walker, 2015). In addition, interdisciplinary differences in database coverage can affect bibliometric research outcomes (Frandsen & Nicolaisen, 2008).

## 2. Keywords and Search Criteria

The table 1 provided outlines the search criteria and keywords used to extract relevant literature for a bibliometric analysis from the Scopus database. The search focused on articles that included the Keywords "Tourism," "Sustainability," and "Innovation" within their titles, abstracts, or keywords.

**Table 1:** Keywords and Search Criteria

Database	Scopus
Search Field	Article title, Abstract, Keywords
Keywords	"Tourism" AND "Sustainability" AND "Innovation"
Time Period	1 January 1999 -30 August 2024
Document type	Article
Source title	All
Source type	Journal
Language	English
Results Found	502

## 3. Bibliometric Techniques

- Description of the Bibliometric Methods** (e.g., bibliographic coupling citation analysis and co-citation analysis): Bibliometric methods are widely used to analyse scientific literature and evaluate research trends. These methods include citation analysis, co-citation analysis, bibliographic coupling, co-authorship analysis, and co-word analysis (Zupic & Čater, 2014; Chang & Huang, 2012; Osareh, 1996). Citation analysis examines the frequency and patterns of citations, while co-citation analysis explores relationships between cited documents or authors (Hjørland, 2013). Bibliographic coupling links documents that share references, and co-authorship analysis investigates collaboration patterns (Chang & Huang, 2012). Co-word analysis examines the co-occurrence of keywords to map research topics (Saes, 2005). These methods can be used to study interdisciplinarity, map knowledge structures, and evaluate research impact (Ellegaard & Wallin, 2015; Miguel et al., 2007). While bibliometric approaches offer valuable insights, they have limitations and should be used in conjunction with other evaluation methods (Osareh, 1996). The bibliographic coupling, citation analysis and co-citation analysis are used in this study.
- Tools and Software:** Bibliometric analysis employs various tools and software for data collection, processing, and visualization. VOSviewer and CiteSpace are used for this study. Popular citation tracking tools include Web of Science, Scopus, and Google Scholar (Jayasree & Baby, 2019). Software such as VOSviewer and CiteSpace are widely used for bibliometric analysis and visualization (Moral-Munoz et al., 2020; Maliha, 2024; Colina Vargas et al., 2022). These tools offer features like network analysis, geospatial mapping, and thematic clustering (Alhuay-Quispe et al., 2022). The data treatment process typically involves four stages: recovery, preparation, processing, and analysis (Alhuay-Quispe et al., 2022). While bibliometric software tools have made significant contributions to research, their visibility in scholarly

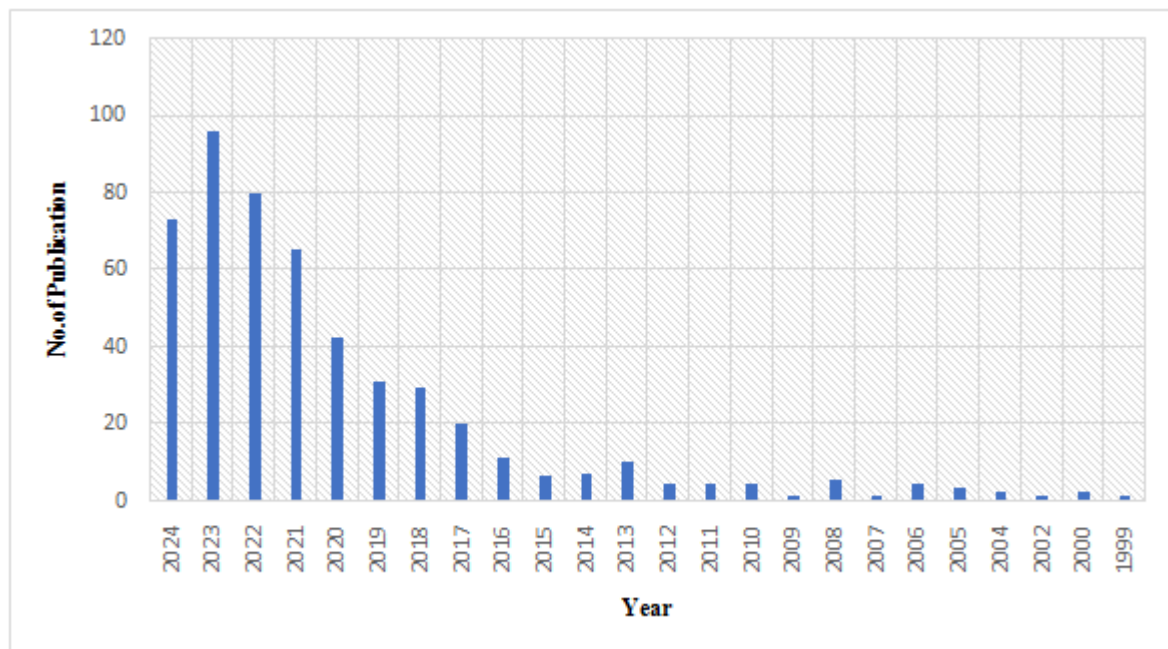
publications through citations and keywords remains limited (Tomaszewski, 2023). Researchers from various disciplines are increasingly adopting bibliometric approaches, highlighting the need for proper training in these methods and tools (Alhuay-Quispe et al., 2022; Ferreira & Silva, 2019).

#### 4. Potential Challenges and Limitations of the Methodology

Bibliometric analysis is a valuable tool for examining research trends and patterns in various fields (Faizan Ali et al., 2022; Ibrahim Alshawabkeh et al., 2024). However, it has several limitations and challenges. The quality of data and database coverage can affect results (Faizan Ali et al., 2022; Punam Raj et al., 2023). Bibliometric analysis focuses on quantitative metrics, potentially overlooking qualitative aspects of research (J. Wallin, 2005; M. Hemmingsen et al., 2023). It may not capture clinical significance or answer specific research questions (M. Hemmingsen et al., 2023). The method requires technical skill, critical thinking, and domain knowledge for accurate interpretation (J. Wallin, 2005). While bibliometric analysis can identify research gaps and trends (Edi Supriyadi et al., 2023; Ayşe Aslı Yılmaz & S. Tuzlukaya, 2023), it should not replace critical analysis or in-depth literature review (S. Greener, 2022). Despite these limitations, when used appropriately, bibliometric analysis can provide valuable insights into research landscapes and guide future studies.

## IV. RESULTS

### 1. Overview of the NUMBER of PUBLICATIONS OVER TIME



**Figure 1:** Publication Trends

Source(s): Scopus Database

The Figure.1 titled "Publication Trends" illustrates the number of publications over a period from 1999 to 2024, based on data extracted from the Scopus Database. The trend reveals a general increase in the number of publications over time, with a few fluctuations. Especially, the number of publications sharply rises in recent years, particularly from 2020 to 2024. For example, in year 2024, there were 73 publications, a slight decrease from 96 in 2023 but still significantly higher than earlier years. This upward trend indicates growing interest and research output in the field. The early years, from 1999 to around 2007, show very few publications, often just one or two per year, which suggests that the field or topic being studied gained more academic attention and relevance in subsequent years. The data highlights a marked increase in research activity starting around 2015, with the numbers steadily climbing each year, reflecting the expanding scholarly engagement in this area.

## 2. Collaboration Network of Research on Tourism, Sustainability and Innovation

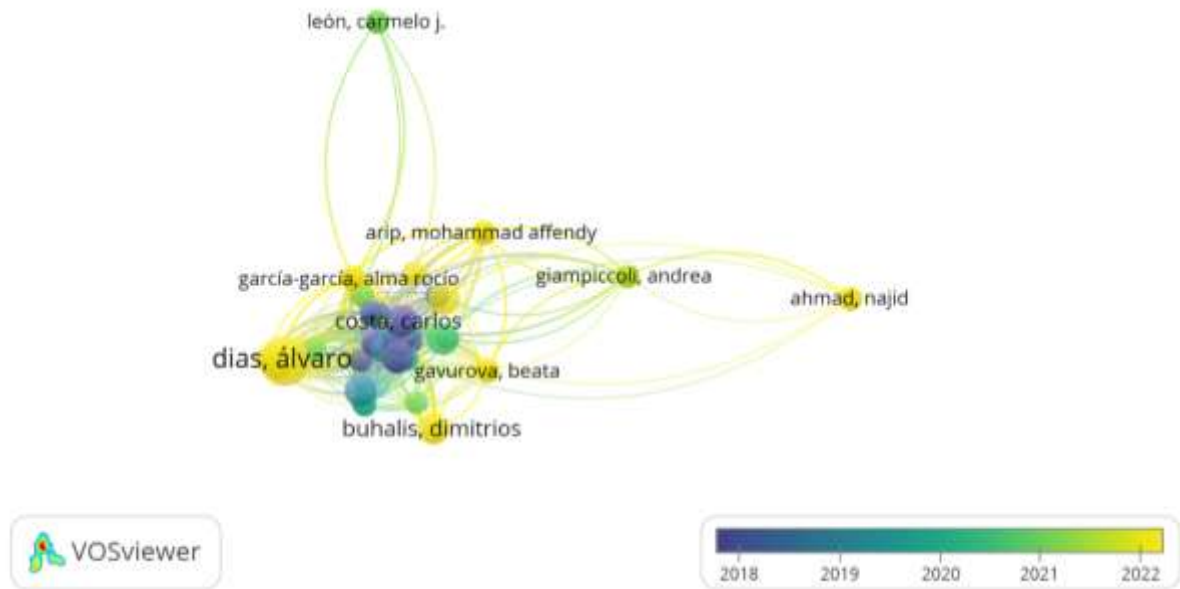
- a. Prominent Authors:* The table 2 ranks authors according to their publication output, along with associated citations, institutions, and countries. The table lists the top ten authors who have made significant contributions in the field, with Álvaro Dias leading the list with five publications and 94 citations, affiliated with ISCTE Business School in Portugal. Following him, Dimitrios Buhalis, with three publications and 139 citations, is associated with Bournemouth University in the UK. Other notable authors include Carlos Costa from the University of Aveiro in Portugal, and Maria Della Lucia from the University of Trento in Italy, both with three publications and over 120 citations each. The table reflects a diverse geographic representation, with authors from Portugal, the UK, Italy, Finland, Japan, and China. The citation count varies significantly among authors, indicating differing impacts of their work, with João Romão from Hokkaido University in Japan having the highest citation count of 146 despite having only three publications. This suggests that some authors, despite having fewer publications, have produced highly influential work. The Figure 2 was prepared using VOSviewer 1.6.20, a tool for constructing and visualizing bibliometric networks.

**Table 2:** Prominent Authors based on the number of publications

Rank	Author	Documents	Citations	Institutions	Country
1	Álvaro Dias	5	94	ISCTE Business School	Portugal
2	Dimitrios Buhalis	3	139	Bournemouth University	UK
3	Carlos Costa	3	124	University of Aveiro	Portugal
4	Maria Della Lucia	3	130	University of Trento	Italy
5	Elisa Giacosa	3	89	Universita di Torino	Italy
6	Mari Partanen	3	17	University of Oulu	Finland
7	Mafalda Patuleia	3	70	Lusófona University	Portugal
8	Francesca Pirlone	3	42	University of Genoa	Italy
9	João Romão	3	146	Hokkaido University,	Japan
10	Najid Ahmad	2	41	Hunan University of Science and Technology	China

Source: Author's own research by using VOSviewer 1.6.20





**Figure 2:** Overlay Visualisation of Prominent Authors in the Research field of Tourism, Sustainability and Innovation (Minimum 2 Documents)

Source: Author's own research by using VOSviewer 1.6.20

- b. Prominent Countries/regions:** The table 3 included the ten Prominent countries or regions based on the number of publications, as well as the total number of citations those publications have received.

**Table 3:** Top 10 Countries/regions based on the number of publications

Rank	Country	Documents	Citations
1	Spain	72	1688
2	Italy	56	2029
3	China	55	1066
4	Portugal	35	515
5	United Kingdom	34	989
6	Australia	32	1018
7	United States	31	782
8	Malaysia	22	630
9	India	20	272
10	Indonesia	18	86

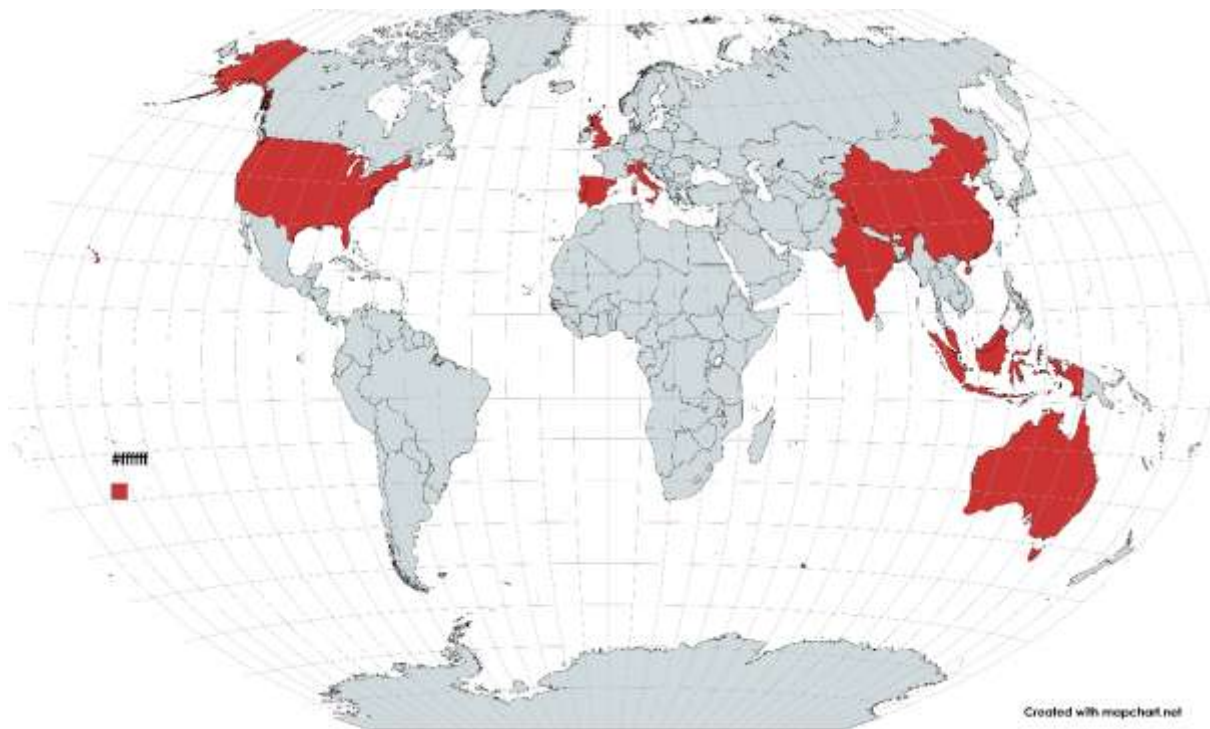
Source: Author's own research by using VOSviewer 1.6.20

Spain tops the list with 72 publications and 1,688 citations, indicating its leading role in the research domain. Italy follows closely with 56 publications, but it surpasses Spain in citations, with 2,029, suggesting that Italian research is highly influential and widely referenced.

China ranks third with 55 publications and 1,066 citations, showing significant research activity and impact. Portugal, the United Kingdom, and Australia also appear prominently, with Portugal contributing 35 publications and 515 citations, the United Kingdom 34 publications with 989 citations, and Australia 32 publications with 1,018 citations.

The United States, Malaysia, India, and Indonesia round out the list. The United States has 31 publications with 782 citations, Malaysia has 22 publications with 630 citations, India has 20 publications with 272 citations, and Indonesia has 18 publications with 86 citations.

This data suggests that while some countries, like Italy and Australia, have fewer publications than Spain, their research tends to be more cited, indicating a higher impact. The wide geographic distribution of the countries reflects a global engagement with the research topic (Figure 3).



**Figure 3:** Prominent Countries/regions based on the number of publications

Source: Author's Compilation

### 3. Co-Citation Network of Research on Tourism, Sustainability and Innovation

- a. **Most Cited article:** The table 4 mentioned the top ten most cited articles based on their influence in the field. These articles focus on various aspects of tourism, sustainability, and digital transformation, reflecting the diverse range of research interests in the industry.

**Table 4:** Top 10 Most Cited articles

Rank	Title and Reference	Author Keywords	Citations
1	“Exploring the impact of COVID-19 on tourism: transformational potential and implications for a sustainable recovery of the travel and leisure industry” (Abbas J.; Mubeen R.; Iorember P.T.; Raza S.; Mamirkulova G.,2021)	Economic Crisis; Sustainability, Mental Health; Travel Risks, COVID-19 Impacts	323
2	“The digital revolution in the travel and tourism industry” (Pencarelli T.,2020)	Digital Traveler; Smart Destination; Smart Tourism	317
3	“Investigating influence of green innovation on sustainability performance: A case on Malaysian hotel industry” (Asadi S.; OmSalameh Pourhashemi S.; Nilashi M.; Abdullah R.; Samad S.; Yadegaridehkordi E.; Aljojo N.; Razali N.S.,2020)	Economic And Environmental Performance; Green Innovation; Hotel Industry; Sustainable Development	283
4	“Collaborative policymaking: Local sustainable projects” (Vernon J.; Essex S.; Pinder D.; Curry K.,2005)	Collaboration; Local Governance; Policy; Sustainability	197
5	“Using indicators to assess sustainable tourism development: a review” (Torres-Delgado A.; Saarinen J.,2014)	Impacts; Indicators; Indices; Planning; Set of Indicators; Sustainable Development	190
6	“Green inclusive leadership and green creativity in the tourism and hospitality sector: serial mediation of green psychological climate and work engagement” (Bhutto T.A.; Farooq R.; Talwar S.; Awan U.; Dhir A.,2021)	Cluster; Cultural Tourism Destination; Diversity; Explorative Knowledge; Interorganizational Relationships; Radical Innovation	181
7	“Social capital, tourism and regional development: SPCC as a basis for innovation and sustainability” (Macbeth J.; Carson D.; Northcote J.,2004)	Impacts Of Tourism Development; Innovation in Tourism Development; Regional Tourism; Social Capital; Sustainable Development	174
8	“A process-based perspective of smart tourism destination governance”	Conceptual Framework;	159

	(Balsalobre-Lorente D.; Driha O.M.; Leitão N.C.; Murshed M.,2021)	Destination Governance; Smart Governance; Smart Tourism	
9	“The diffusion of environmental sustainability innovations in North American hotels and ski resorts” (Smerecnik K.R.; Andersen P.A.,2011)	Diffusion Of Innovations; Hotel; Ski Resort; Sustainable Development; Sustainable Tourism	146
10	“Research streams on digital transformation from a holistic business perspective: a systematic literature review and citation network analysis” (Hausberg J.P.; Liere-Netheler K.; Packmohr S.; Pakura S.; Vogelsang K.,2019)	Citation-Network Analysis; Digital Transformation; Gephi; Systematic Review	133

Source: Author's own research by using VOSviewer 1.6.20

The most cited article is “Exploring the impact of COVID-19 on tourism: transformational potential and implications for a sustainable recovery of the travel and leisure industry” by Abbas et al. (2021), which has 323 citations. This article examines the economic crisis, sustainability, mental health, travel risks, and the impacts of COVID-19 on tourism, indicating its significant relevance during the pandemic.

The second-ranked article, “The digital revolution in the travel and tourism industry” by Pencarelli (2020), has 317 citations. It focuses on digital travelers, smart destinations, and smart tourism, highlighting the increasing importance of digital transformation in tourism.

Other prominent articles include research on collaborative policymaking for local sustainable projects, sustainable tourism indicators, green leadership in the hospitality sector, and the diffusion of environmental sustainability innovations in North American hotels and ski resorts.

The citations for these articles range from 323 for the most cited to 133 for the tenth-ranked article. This indicates a broad impact and ongoing scholarly interest in the themes of sustainability, digital transformation, and innovation within the tourism and hospitality sectors.

- b. Journal Co-citation Network:** The table 5 compiled the most cited journals in the field based on their co-citation frequency and impact factor. The co-citation frequency reflects how often these journals are cited together in the literature, indicating their prominence and influence within the research community.

**Table 5:** Most Cited Journals with Co-Citation Frequency and Impact Factor

Rank	Journal	Occurrence	Impact Factor
1	Sustainability	905	3.3
2	Tourism Management	762	10.9
3	Journal of Sustainable Tourism	585	6.9
4	Annals of Tourism Research	499	10.4
5	Journal of Cleaner Production	307	9.7
6	Inte. Journal of Contemporary Hospitality Manag.	241	9.1
7	Current Issues in Tourism	229	5.7
8	International Journal of Hospitality Management	221	9.9
9	Journal of Travel Research	193	8.0
10	Tourism Review	179	7.3

Source: Author's own research by using CiteSpace 6.3. R1 and Thomson Reuters

The Journal "Sustainability," with 905 occurrences and an impact factor of 3.3, highlighting its significant role in research related to sustainable development. "Tourism Management" ranks second, with 762 occurrences and a high impact factor of 10.9, making it one of the most influential journals in the tourism field. This journal's high impact factor suggests that it publishes highly impactful and widely cited research.

This table, derived from research using CiteSpace 6.3 R1 and Thomson Reuters data, highlights the leading journals that shape the academic discourse in tourism, sustainability, and hospitality management. The combination of high co-citation frequency and impact factor underscores these journals' critical role in advancing research and influencing scholarly debates.

#### **4. The Interdisciplinary Nature of Research on Tourism, Sustainability, and Innovation**

Recent research highlights the interdisciplinary nature of tourism, sustainability, and innovation studies. Tourism innovation research has expanded, focusing on processes, contexts, knowledge, and eco-innovations (Pikkemaat et al., 2019). Sustainable tourism research has become more interdisciplinary, though primarily defined by tourism and business management disciplines (Nunkoo et al., 2021). Scholars emphasize the need for integrated approaches to address complex urban challenges (Sukheswala, 2024) and advance sustainable development goals (Santos et al., 2021). The interrelationships between tourism and sustainability involve green energy, transportation, buildings, and smart technologies (Pan et al., 2018). Resilience, sustainability, and innovation are interconnected concepts, with resilience focusing on processes, sustainability on outcomes, and innovation as a pathway to both (Zupancic, 2022). Integrated sustainability indicators for tourism are emerging, emphasizing public participation and systemic approaches (Kristjánsdóttir et al., 2018). Future research should explore tourism's interdependencies in innovation creation (Narduzzo & Volo, 2018) and adopt longitudinal, multi-scale, and interdisciplinary approaches.

## V. DISCUSSION

This bibliometric study on tourism sustainability and innovation offers several critical insights into the evolving academic discourse in this field. The analysis of publication trends reveals a significant increase in research output over the past two decades, particularly from 2015 onwards. This surge can be attributed to the global emphasis on sustainability, especially after the adoption of the UN Sustainable Development Goals in 2015, which has prompted a re-evaluation of tourism practices to align with environmental, social, and economic sustainability principles.

The collaboration networks highlight the interdisciplinary nature of research on tourism sustainability and innovation. The involvement of diverse countries, institutions, and researchers underscores the global recognition of the importance of sustainable tourism. Particularly, countries like Spain and Italy lead in both the number of publications and citations, indicating their strong academic presence and influence in this field. The prominence of these countries also suggests that European academic institutions are at the forefront of sustainable tourism research, likely due to the region's long-standing commitment to environmental sustainability and policy-driven research initiatives.

The co-citation analysis identifies key journals and articles that have shaped the discourse on tourism sustainability and innovation. Journals such as 'Sustainability' and 'Tourism Management' play pivotal roles in disseminating research, with high impact factors reflecting their influence in guiding academic and practical discussions. The most cited articles, particularly those addressing the impact of COVID-19 on tourism, underscore the sector's responsiveness to global crises and the need for adaptive and innovative strategies in promoting sustainable tourism recovery.

## VI. CONCLUSION

The findings of this bibliometric study confirm that tourism sustainability and innovation have become central themes in academic research, reflecting the increasing global awareness and urgency to address the challenges posed by unsustainable tourism practices. The growth in publications and the interdisciplinary nature of the research demonstrate a broadening of the field, with significant contributions from various countries and institutions. But the study also highlights the need for continued research, particularly in underrepresented areas and among less prolific researchers.

As tourism continues to evolve, the role of innovation in driving sustainable practices will be crucial. Future research should focus on exploring new and emerging areas of sustainable tourism, fostering greater international collaboration, and addressing the identified gaps to ensure a more comprehensive and inclusive approach to sustainable tourism development. The insights gained from this study provide a solid foundation for guiding future research directions and informing policy-making in tourism sustainability and innovation. These findings highlight the importance of sustained and focused research efforts to support the transition towards more sustainable tourism practices worldwide, ensuring that the industry can contribute positively to environmental, social, and economic sustainability for future generations.

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