WHERE IS THE TOURISM AND HOSPITALITY SUSTAINABILITY RESEARCH HEADING AFTER THE COVID-19 PANDEMIC

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Abstract
Recently, the sustainability concept has become a prominent topic in the tourism and hospitality field, particularly after the COVID-19 pandemic. In response, this study undertook a systematic review of 176 articles to identify the research trends in sustainability within the tourism and hospitality area in the post-COVID-19 era. Using thematic analysis, this study identified five key research trends. The findings offer a thorough overview of the changing research landscape regarding sustainability in the field of tourism and hospitality. Consequently, the study provided recommendations for practitioners and researchers aiming to promote sustainability in the industry.

Keywords Tourism and hospitality sustainability, research trends, COVID-19 Pandemic, emerging research trends.

1. Introduction
The tourism industry faced immediate repercussions from the COVID-19 pandemic, marked by a substantial decline in travel and tourism activities. Globally, nations were compelled to shut their borders, enforce travel restrictions, and implement social distancing measures, leading to a pronounced reduction in tourist numbers (Breier et al., 2021; Couto et al., 2020; Everingham & Chassagne, 2020). Nevertheless, it is imperative for the tourism industry to integrate sustainable practices for its ongoing viability. Sustainable tourism not only entails mitigating negative environmental impacts but also ensuring that local communities partake in the economic benefits generated by tourism. Sustainability has become a focal point in the tourism industry, with numerous stakeholders acknowledging the necessity to operate in a more responsible and sustainable manner (Vuong et al., 2021). The COVID-19 pandemic has underscored the importance of sustainability, emphasizing the interconnectedness of economic, social, and environmental factors during crises (Cavallo & Olivieri, 2022).
The objective of this systematic review is to offer a comprehensive overview of the literature concerning sustainability in tourism and hospitality post-COVID-19. The review delves into the emerging trends in sustainability research within the tourism and hospitality sectors, evaluates the pandemic's impact on the industry, and explores the strategies and initiatives being employed to foster sustainable tourism practices in the aftermath of the pandemic.

The review encompasses a diverse array of academic and industry sources. The methodology comprises a systematic search of electronic databases utilizing pertinent keywords. This is succeeded by a thorough screening and selection process to pinpoint the most pertinent sources. The concept of sustainability has garnered significant attention in the tourism industry, with the objective of harmonizing the social, economic, and environmental facets of tourism. Sustainability, as a multi-dimensional concept, extends beyond minimizing negative impacts to encompass the promotion of positive ones. While numerous studies have delved into tourism sustainability (Aswathy, 2023; ACHSA et al., 2022; Roberts et al., 2022; Seabra & Bhatt, 2022), there remains a need to systematically synthesize and analyze these studies. This report aims to provide a systematic review of the literature on tourism sustainability, elucidating key themes and identifying research gaps.

In summary, this systematic review research seeks to enhance our comprehension of the challenges and opportunities confronting the tourism industry in the post-pandemic era. It aspires to offer insights into the strategies and initiatives that can foster a more responsible and sustainable tourism industry.

2. METHODOLOGY
This systematic review of COVID-19 research in tourism and hospitality was conducted to discover post-pandemic trends in sustainability research within the industry. In essence, its goal is to summarize, analyze, and synthesize studies related to COVID-19 that address sustainability in tourism and hospitality. The aim is to identify gaps in the existing research and highlight areas for future investigation.

The study followed the reporting checklist outlined by Liberati et al., (2009), known as PRISMA, which stands for the Preferred Reporting Items for Systematic Reviews and Meta-Analyses. Therefore, an extensive literature search was conducted to identify the COVID-19 published papers in the tourism and hospitality field. Specifically, all related papers published in Scopus, Emerald, ScienceDirect, and Google Scholar. The protocol developed for this search is: TITLE-ABS-KEY((sustainab*) AND covid AND (tourism OR hospitality)) AND (LIMIT-TO(PUBSTAGE, "final")) AND ( LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")).

The results encompassed articles that referenced COVID-19 in connection with tourism and hospitality sustainability, appearing in the title, abstract, or keywords. The search was restricted to
English-language articles, on the other hand, conference papers, reviews, book chapters and articles accepted for publication during the data collection stage were excluded. The final search was conducted on January 12, 2021. The study gathered information including authors' names and affiliations, paper abstracts, titles, publication years, keywords, citations of identified records and journal names. The dataset was refined by removing duplicated and irrelevant records. The screening process involved evaluating titles and abstracts, excluding papers that were clearly unrelated to tourism or hospitality or not centered on the post-COVID-19 era. Following this, the eligibility assessment entailed a thorough examination of the full text of the remaining articles.

3. Results
The selection process for the current study is outlined in Figure 1. Initially, an exploration of literature across the mentioned search engines and databases yielded a total of 589 records. Among them, 254 were excluded as they did not address issues related to the COVID-19 pandemic in tourism and hospitality sustainability, even though they included the protocol ingredients keywords. Following a thorough screening of the entire text of the remaining 335 papers, 176 were included for analysis, while 159 were excluded for not meeting the criteria.

![Figure 1. Articles selection process](image)
To produce a visually impactful report with thorough state-of-the-art reviews, the researchers utilized the revolutionary VOSviewer software for science mapping. This software employs co-citation analysis to create a visual map displaying correlations between scientometric indicators. In addition, the software employed advanced thematic analysis techniques to extract frequently occurring noun phrases.

The findings of the review as presented in Figure 2 and Table 1 suggest the concept of tourism sustainability encompasses multiple dimensions, including environmental, social, and economic aspects. The studies were categorized into five main themes: (1) Managing tourism development for sustainability, (2) Environmental and tourism sustainability, (3) Tourism Sustainability and Risk Management, (4) Leadership and Governance of Tourism Sustainability, and (5) Responsible Sustainability. The initial theme examines the managerial perspective on sustainable tourism development, aiming to secure its sustainable viability while mitigating adverse effects on the ecosystem. The second theme explores options for creating a more sustainable and resilient future, addressing both environmental considerations and the well-being of the tourism and hospitality sector. The third theme examines rethink its approach to sustainability and risk management. The fourth theme analyzes the role of sustainable leadership and governance in the industry's recovery and long-term sustainability. The fifth theme explores ethics and responsible sustainability of tourism and hospitality.

Fig 2. Results of thematic analysis

3.1 Theme (1) Managing tourism development for sustainability:
Tourism, a vital sector of the global economy, has faced severe repercussions due to the COVID-19 pandemic. As vaccines are developed and restrictions ease, the industry is anticipated to recover in the foreseeable future. Nevertheless, it is imperative to oversee tourism development sustainably, ensuring its sustainable viability and mitigating negative environmental and cultural impacts. The studies produced several suggestions for managing tourism development for sustainability after COVID-19.

In order to prioritize sustainability, sustainability should be at the heart of tourism development policies, strategies, and actions (Cevik, 2023). Local communities, environmental concerns, and cultural preservation must be given priority, and all development projects should be designed to enhance sustainability. Also, responsible tourism should be encouraged, this includes encouraging tourists to act responsibly and sustainably when they travel. This can be achieved by promoting environmentally friendly and culturally respectful travel practices and discouraging harmful activities.

Additionally, it is essential to foster community engagement incorporating local communities into the formulation of tourism projects and empowering them to actively participate in the planning, decision-making, and implementation processes (Daniels & Tichaawa, 2021). This approach guarantees the equitable distribution of tourism benefits and prevents the marginalization of local communities (Cumming et al., 2021).

Moreover, it is critical to adopt sustainable tourism practices, such as energy-efficient hotels, natural resources conservation, waste reduction, waste management, and support for local businesses (Fernández-Villarán & Uresandi, 2022). Moreover, public and private sector have to invest in education and training stakeholders on sustainable tourism practices, environmental conservation, and cultural preservation. This will help to build capacity and foster a culture of sustainability in the tourism and hospitality field (Núñez-Ríos et al., 2022). Likewise, collaboration and sharing knowledge with stakeholders in this industry, such as local authorities, NGOs, and the private sector, to share knowledge and best practices for sustainable tourism development (Scheyvens & Cheer, 2022). Finally, monitoring and evaluating the impact of tourism development projects on the environment, local community, and the economy by establishing mechanisms for this purpose (Foley et al., 2022). This will help to identify problems and opportunities for improvement and ensure that sustainability is maintained.

Table 1. thematic analysis of the main themes

<table>
<thead>
<tr>
<th>Themes</th>
<th>Terms</th>
</tr>
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<tbody>
<tr>
<td>Managing tourism development for sustainability</td>
<td>Business</td>
</tr>
<tr>
<td>business development</td>
<td>mobility</td>
</tr>
<tr>
<td>cultural heritage</td>
<td>numerical model</td>
</tr>
<tr>
<td>domestic tourism</td>
<td>overtourism</td>
</tr>
<tr>
<td>entrepreneur</td>
<td>research work</td>
</tr>
<tr>
<td>Term</td>
<td>Future Prospect</td>
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<tr>
<td>Heritage Tourism</td>
<td>Rural Tourism</td>
</tr>
<tr>
<td>Hospitality Industry</td>
<td>Safety</td>
</tr>
<tr>
<td>Innovation</td>
<td>Social Media</td>
</tr>
<tr>
<td>Internet</td>
<td>Strategic Approach</td>
</tr>
</tbody>
</table>

### Environmental and Tourism Sustainability Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Biodiversity</th>
<th>Environmental Manager</th>
<th>National Park</th>
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</thead>
<tbody>
<tr>
<td>Carbon Dioxide</td>
<td>Environmental Policy</td>
<td>Planning</td>
<td></td>
</tr>
<tr>
<td>Carbon Emission</td>
<td>Environmental Protective</td>
<td>Protected Area</td>
<td></td>
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<tr>
<td>Carbon Footprint</td>
<td>Environmental Sustainable</td>
<td>Respiratory Disease</td>
<td></td>
</tr>
<tr>
<td>Climate Change</td>
<td>Food Security</td>
<td>Social Distancing</td>
<td></td>
</tr>
<tr>
<td>Economic Aspect</td>
<td>Government</td>
<td>Sustainable Developer</td>
<td></td>
</tr>
<tr>
<td>Economic Development</td>
<td>Income</td>
<td>Viral Disease</td>
<td></td>
</tr>
<tr>
<td>Economic Growth</td>
<td>Lockdown</td>
<td>Virus</td>
<td></td>
</tr>
<tr>
<td>Environmental Economy</td>
<td>Waste Management</td>
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</table>

### Risk Management Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Environmental Impact</th>
<th>Vulnerability</th>
<th>Risk Assessment</th>
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<tbody>
<tr>
<td>Adult</td>
<td>Human</td>
<td>Risk Factor</td>
<td></td>
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<tr>
<td>Conceptual Framework</td>
<td>Learning</td>
<td>Risk Management</td>
<td></td>
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<tr>
<td>Controlled Study</td>
<td>Male</td>
<td>Risk Perception</td>
<td></td>
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<tr>
<td>Decision Making</td>
<td>Mental Health</td>
<td>Theory of Planned Behavior</td>
<td></td>
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<tr>
<td>Disease Spread</td>
<td>Motivation</td>
<td>Tourism</td>
<td></td>
</tr>
<tr>
<td>Epidemiology</td>
<td>Perception</td>
<td>Tourist Behavior</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>Psychology</td>
<td>Travel</td>
<td></td>
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<tr>
<td>Health Risk</td>
<td>Public Health</td>
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### Leadership and Sustainability Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Crisis Management</th>
<th>Local Government</th>
<th>Tourism Market</th>
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<tbody>
<tr>
<td>Economic Impact</td>
<td>Recovery</td>
<td>Tourism Policy</td>
<td></td>
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<tr>
<td>Ecotourism</td>
<td>Resilience</td>
<td>Tourism Recovery</td>
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</table>
3.2 Theme (2) Environmental and tourism sustainability

The pandemic highlighted the significant influence of the tourism and hospitality practices on environmental sustainability. Researchers emphasized the importance of building a more sustainable and resilient future for both environment and tourism and hospitality industry (Jones & Comfort, 2020). The pandemic has disrupted international travel, leading many people to explore their own countries more. Encouraging local and domestic tourism can support local economies and reduce the environmental impact of long-haul travel (Seyfi et al., 2022).

Researchers encouraged investing in sustainable tourism infrastructure, developing tourism infrastructure that is sustainable and reduces carbon footprint is essential in preserving the environment (Baloch et al., 2023). Sustainable tourism development can also create job opportunities and bring in revenue to local communities (Ravikumar et al., 2022).

Encouraging responsible and sustainable tourism practices, to encourage travelers and tourism operators to prioritize responsible and sustainable practices, such as reducing plastic waste, minimizing energy consumption, and preserving natural habitats. Furthermore, encouraging sustainable transportation, such as promoting the use of public transport, cycling, or electric cars to reduce carbon emissions and minimize the environmental impact of tourism.

COVID-19 has made it even more important to protect and conserve natural habitats and wildlife. Supporting conservation efforts and promoting eco-tourism can help to protect the environment and biodiversity (KC, 2022). Besides, promoting sustainable food systems such as fostering local food sourcing, promoting sustainable fishing practices, and reducing food waste can all contribute
to sustainable tourism practices (Tahiri et al., 2022). Finally, incorporating technology in tourism management and environmental conservation could significantly reduce the negative impact of tourism. Examples could include the use of smart energy systems and eco-friendly transport modes (Choi et al., 2023).

3.3 Theme (3) Tourism Sustainability and Risk Management

The pandemic compelled businesses and destinations to reevaluate their operations and strategies. As a result, there have been several emerging research trends related to tourism sustainability and risk management in the post-COVID-19 era. The crisis has highlighted the need for sustainable tourism practices, and there is a growing interest in the integration of sustainability principles into tourism recovery strategies (Bosone & Nocca, 2022). Researchers are exploring how tourism can be managed in a way that balances economic, social, and environmental concerns (ÖZgit & Akanyeti, 2022). The pandemic has also emphasized the critical role of effective risk management and crisis response in the tourism industry (Thakur & Hale, 2022). Researchers are exploring how destinations can better prepare for and respond to crises, including pandemics, natural disasters, and political instability. Moreover, the pandemic has expedited the integration of digital technologies in the tourism sector, prompting researchers to investigate their potential for improving sustainability and risk management (Esposito et al., 2022). For example, digital platforms can be used to improve communication and coordination during crises (Thapa, 2023), while virtual and augmented reality and other emerging technologies can contribute to the development of more immersive and sustainable tourism practices (Shaju, 2023; Oncioiu & Priescu, 2022).

The pandemic has highlighted the significance of local community participation in tourism and social responsibility in the realm of tourism. Researchers are exploring how tourism can benefit local communities while minimizing negative impacts, such as over-tourism and cultural commodification (Wijesinghe, 2022). Finally, the pandemic has created a heightened awareness of health and safety in the tourism industry has sparked increasing interest in research related to health and safety protocols, traveler behavior, and risk perception.

Theme (4) Leadership and Governance of Tourism Sustainability

The pandemic has significantly impacted the tourism and hospitality industry, highlighting the critical role of sustainable leadership and governance in its recovery and long-term sustainability. Leaders in the tourism industry should prioritize sustainable development, considering economic, social, and environmental dimensions. This could involve investing in green infrastructure, supporting local businesses, and promoting responsible tourism practices (Olszewski-Strzyżowski, 2022). Moreover, effective leadership in tourism sustainability requires collaboration with stakeholders such as governments, local communities, and industry associations. By working
together, leaders can create a shared vision for a sustainable tourism industry and develop strategies to achieve it (Thananusak & Suriyankietkaew, 2023).

Additionally, the pandemic has expedited the integration of new technologies and innovative business practices in the tourism industry. Leaders should embrace innovation to create more sustainable and resilient tourism models, such as digital platforms that reduce the need for physical travel. The pandemic has also highlighted the importance of employee well-being in the tourism industry. Leaders should prioritize the health and safety of their employees, as well as offering training and support to help them adapt to evolving circumstances (Altinay & Arici, 2022). Finally, leadership in tourism sustainability requires engaging with consumers (tourists and guests) and educating them about sustainable tourism practices. This could involve providing information about eco-friendly accommodation options, promoting local culture and heritage, and encouraging responsible behavior while traveling.

In conclusion, effective leadership and governance of tourism sustainability after COVID-19 requires a multi-stakeholder approach, innovative thinking, and a commitment to sustainable development. By prioritizing these key factors, leaders in the tourism sector have the potential to construct a future for the industry and the communities it serves that is both more resilient and sustainable.

 Theme (5) Responsible Sustainability

Following the pandemic, a noticeable shift in research focus has highlighted the crucial need for responsible sustainability within the tourism and hospitality sector. Ethical sustainability dictates that prioritizing the safety of travelers and employees is paramount, with established measures to safeguard both (Hu et al., 2021). Additionally, tourists must demonstrate respect for local cultures and traditions, refraining from activities that could harm the environment, local wildlife, or communities (Adom, 2019). Therefore, tourism should not exploit vulnerable groups, and should provide fair and equitable employment opportunities for locals (Hutchison et al., 2021).

In respect of responsible sustainability, tourism and hospitality businesses should adopt sustainable practices, such as reducing energy consumption, reducing waste, and using environmentally-friendly products (Duarte et al., 2023). Likewise, Tourists should be encouraged to make sustainable choices, such as using public transportation, reducing water consumption, and supporting local businesses. Additionally, the tourism and hospitality sector should strive for a circular economy model, aiming to minimize waste and promote the recycling of resources (Camilleri, 2021).

In addition, the pandemic has highlighted the need for the industry to be flexible and adaptable. Businesses should be prepared to respond quickly to changing circumstances and be willing to adjust their operations to ensure the safety and wellbeing of all involved. While the tourism and hospitality sector holds the promise of delivering economic advantages to communities globally, it is crucial to balance these benefits with ethical considerations and the adoption of responsible
sustainability practices. By working together, the industry can promote responsible tourism that benefits both travellers and the communities they visit.

4. Research Conclusion

The study identified the main five trends in substantiality research that emerged post the pandemic. Building on these findings, it highly recommended to further study the strategies and approaches implemented across various countries to promote sustainable tourism. Evaluate their effectiveness and identify the factors that contribute to their success or failure. Second, explore the potential of community-based tourism as a sustainable alternative to traditional mass tourism. Third, investigate how technology can be used to minimize the environmental impact of tourism, reduce waste, and promote sustainable practices. Finally, evaluate the efficacy of ecotourism in promoting sustainability and biodiversity conservation.

The review's findings indicate that tourism sustainability is multi-dimensional concept that involves environmental, social, and economic aspects. The review highlights that the tourism industry faces several challenges in achieving sustainability, including lack of collaboration, weak regulatory frameworks, and inadequate awareness among tourists. The study concludes that there is a need for more empirical research to identify effective strategies for promoting tourism sustainability.

The pandemic has revealed the vulnerability of the tourism industry to unforeseen challenges, emphasizing the need for sustainable tourism practices that foster resilience and minimize the industry's environmental impact. The adoption of sustainable practices is critical to achieving an equitable and sustainable recovery for the tourism industry. Sustainable tourism practices can facilitate waste reduction, energy conservation, and the preservation of natural and cultural resources, which are vital for the industry's long-term viability. The pandemic has presented opportunities for innovation in the tourism sector, including the emerging of new viable technologies and applications. Examples of innovative practices include contactless check-in and cleaning protocols by hotels and resorts to prevent transmission and the exploration of electric vehicles and renewable energy by some tourism operators.

The findings have theoretical and practical implications for sustainable tourism management. Firstly, prioritizing sustainability in tourism policies and actions can be achieved by promoting responsible tourism, involving local communities, and adopting sustainable practices. Secondly, investing in sustainable tourism infrastructure and transportation can support local economies and reduce environmental impact. Thirdly, digital technologies can enhance sustainability and risk management. Lastly, tourism should benefit local communities and minimize negative impacts by promoting community involvement and social responsibility.

References

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