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Proceedings of the

9th International Conference on

Tourism Research

Hosted By

Lusófona University, Lisbon, Portugal

16-17 April 2026



Edited By

Mafalda Patuleia

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Proceedings of the
9th International Conference on Tourism Research

ICTR 2026

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About the 9th International Conference on Tourism Research

The International Conference on Tourism Research (ICTR) is an established academic conference that has been held annually for eight years, providing a significant platform for scholars, researchers, and professionals to share and discuss the latest developments, challenges, and innovations in the field of tourism. The conference is characterized by its broad interdisciplinary scope, aiming to advance the understanding of tourism as a dynamic and multifaceted phenomenon with economic, social, cultural, and environmental dimensions. The conference serves as a vital forum for advancing the understanding of tourism and its multifaceted impacts. Through its comprehensive coverage of topics and its commitment to fostering academic and professional dialogue, the conference contributes to the ongoing development of tourism research and practice, with an emphasis on sustainable and responsible tourism.

Aims and Scope

The primary aim of the ICTR is to foster academic and professional dialogue on the diverse aspects of tourism, promoting research that contributes to the sustainable development of the tourism industry worldwide. The conference seeks to bridge the gap between theory and practice by encouraging contributions that offer both theoretical insights and practical implications. It also aims to provide a collaborative environment where participants can engage in knowledge exchange, network with peers, and explore emerging trends and issues in tourism.

The scope of the conference is broad and inclusive, covering various areas of tourism research. It welcomes contributions from multiple disciplines, including hospitality, economics, management, sociology, geography, cultural studies, environmental science, and technology, reflecting the complex and interdisciplinary nature of tourism studies. The Proceedings of the 7th International Conference on Tourism Research 2024 includes academic research papers, PhD research papers, Masters Research papers and work-in-progress papers, which have been presented and discussed at the conference. The proceedings are of an academic level appropriate to a professional research audience, including graduates, postgraduates, doctoral and post-doctoral researchers. All papers have been double-blind peer reviewed by members of the Review Committee.

Topics Covered

The call for papers for the ICTR conference asked for contributions that considered the following topics. In addition the committee welcomed papers on a number of specialist mini-tracks which can be seen at the end of this list.

1. **Tourism Management and Marketing:**
   - strategies and practices involved in managing and marketing tourism destinations and businesses
   - destination branding
   - digital marketing
   - customer experience management
   - the role of social media in shaping tourist behaviour.

2. **Sustainable Tourism:**
   - sustainable tourism practices
   - mitigating the environmental impact of tourism
   - ecotourism
   - responsible tourism
   - the management of natural and cultural resources
   - the balance between tourism development and environmental conservation.

3. **Tourism Economics:**
   - the economic impacts of tourism at local, regional, and national levels
   - tourism demand modelling
   - the economic contribution of tourism to GDP
   - the role of tourism in economic development
   - the challenges of tourism taxation and pricing.

4. **Cultural and Heritage Tourism:**
   - culture and heritage in tourism
   - leveraging historical and cultural assets for tourism development
   - the preservation of cultural heritage sites
   - the commodification of culture
   - the impact of tourism on local communities and traditions.

5. **Tourism and Technology:**
   - the integration of technological innovations in the tourism industry
   - the role of artificial intelligence, big data analytics, virtual and augmented reality in tourism experiences
   - the impact of the sharing economy on traditional tourism models.

6. **Tourism Policy and Governance:**
   - the role of government and international organisations in shaping tourism policy and regulation
   - tourism planning
   - public-private partnerships
   - tourism governance structures
   - the impact of global tourism policies on local practices.

7. **Tourism and Globalization:**
   - the effects of globalization on tourism
   - the homogenization of tourism experiences
   - the challenges and opportunities presented by international tourism
   - the role of tourism in promoting global understanding and cultural exchange.

8. **Tourism and Society:**
   - the social and cultural implications of tourism development
   - the role of tourism in shaping social identities
   - the ways in which tourism influences local communities including overtourism and tourist induced gentrification
   - the ethical dimensions of tourism

9. **Tourism Education and Training:**
   - curriculum development
   - the role of vocational training in tourism
   - the challenges of meeting industry needs through educational programs

10. **Crisis Management in Tourism:**
    - the vulnerability of the tourism industry to natural disasters, political instability, and pandemics
    - strategies for crisis management and recovery
    - risk assessment and resilience building
    - the long-term impacts of crises on tourism destinations

Experts in the field proposed mini tracks on the following topics. Papers accepted on these topics after the double-blind peer review process were presented as mini tracks at the conference and are also published in these proceedings.

- Sport and Event Tourism
- Sustainable Tourism and the Circular Economy
- Entrepreneurship and Tourism

The programme from the 2026 conference can be downloaded from here and full details about the conference can be seen from the conference website:
https://www.academic-conferences.org/conferences/ictr/

ICTR Preface

These proceedings represent the work of contributors to the 9th International Conference on Tourism Research (ICTR 2026), hosted by the Lusófona University, Lisbon, Portugal on 16-17 April 2026. The Conference Chair was Dr Mafalda Patuleia from Lusófona University, Lisbon, Portugal and the Programme chairs were Dr Marco António Noivo and Dr Teresa Palrão.

The conference was opened with a keynote presentation by Dr. Álvaro Dias, Associate Professor ISCTE-IUL, Lisbon, Portugal on the topic of *Purpose or Profit: Towards a Synergistic Combination.* The second day of the conference continued with an address by Dr. Tânia Gaspar, Associate Professor, Lusófona University, Lisbon, Portugal on *Promoting Wellbeing Among Tourism and Hospitality.*

ICTR is now a firmly established event in the academic research calendar. In its 9th year, it continues to provide a platform for scholars from diverse backgrounds to exchange ideas across the full spectrum of tourism research. The breadth of papers presented ensured two focused and engaging days, reflecting the expanding scope and significance of this field.

In 2026, the demand for rigorous research and evidence-based insight is especially acute. The tourism sector continues to confront the effects of global inflation, geopolitical instability, climate change, and increasing disaster risk. ICTR remains an essential forum for advancing the knowledge needed to guide the sector through these challenges. Themes addressed in this year's conference included sustainable and regenerative tourism, rapid advances in digital innovation, evolving understandings of tourist experience and behaviour, the cultural and community dimensions of tourism, and the growing importance of education, workforce development, and strategic organisational practices.

With an initial submission of 149 abstracts, after the double blind, peer review process there are 67 Academic research papers, 7 PhD research papers, 1 Masters Research papers and 3 work-in-progress papers published in these Conference Proceedings. These papers represent research from Argentina, Australia, Austria, China, Colombia, Cyprus, Czech Republic, Estonia, Finland, Greece, Iceland, Indonesia, Ireland, Italy, Japan, Jordan, Kenya, Latvia, Lebanon, Lithuania, Morocco, Netherlands, Oman, Peru, Philippines, Portugal, Romania, Saudi Arabia, Slovakia, South Africa, Spain, Switzerland, Thailand, Türkiye, UAE, UK, USA, Uzbekistan.

We would like to thank everyone who participated in this conference

Dr Mafalda Patuleia
ICTR Conference Chair
Lusófona University,
Lisbon, Portugal.

April 2026

Biographies of Chairs and Keynote Speakers

Conference and Programme Chairs



Mafalda Patuleia has a PhD in Tourism from the Faculty of Economics at the University of the Algarve. She graduated in Tourism from INP and obtained a Master's degree from ISCTE-University of Lisbon in Communication, Culture and Information Technologies. She is currently Director of the Tourism Department at Universidade Lusófona and a researcher at INTREPID LAB|CETRAD|Lusófona University. She is the Director of the Degree in Tourism and the master's in management and Innovation in Tourism and Hospitality (online Master's). She was Director of the INP, President of the Scientific Council, the Pedagogical Council and the General Council of the INP. She has lectured at various universities in Portugal and abroad. She has over 23 years' teaching experience and produces research in the areas of creative tourism, lifestyle entrepreneurs, second homes and the competitiveness of tourist destinations. She is the author of articles in scientific journals and book chapters and currently participates in research projects funded by the European Union. She takes part in public procurement tenders in the field of tourism and leisure. She sits on doctoral and master's degree juries. She is married and has a daughter. Her main hobby is travelling, and she has been to more than 50 countries.



Marco António Noivo has been a certified National Tourist Guide since 1997 and has served as a university lecturer in Tourism since 2005. He holds a PhD in Tourism from the University of Seville, a Master's degree in Art and Heritage from the School of Arts and Humanities at the University of Lisbon (FLUL), with a specialization in the military-historical heritage of the Lines of Torres Vedras, and a Bachelor's degree in Tourism from the Instituto Superior de Novas Profissões. Since 2015, he has been affiliated with Universidade Lusófona in Lisbon, where he lectures in the undergraduate Tourism program and coordinates the Postgraduate Programme in Tour Guiding. His academic and professional work is primarily focused on Cultural Tourism, with a particular emphasis on Military Tourism. Marco Noivo is a member of the Intrepid Lab, through which he conducts and publishes research in the areas of Cultural Tourism, Creative Tourism, and Battlefield Tourism, especially within the context of the Iberian battlefields of the Peninsular Wars. His research interests also encompass immersive tourism experiences, co-creation practices, and the implementation of creative laborato.



Teresa Palrão is a Professor at Lusófona University in the Department of Tourism. She holds a PhD in Tourism Management from ISCTE – Instituto Universitário de Lisboa, in partnership with Universidade Europeia. She has extensive expertise in tourism management, tourism marketing, gastronomy, events, and hospitality sustainability. Currently, Teresa is pursuing a postdoctoral research project at the Polytechnic Institute of Leiria, focusing on The Role of Urban Transport in Tourism Attractiveness, where she investigates the synergy between mobility, urban culture, and tourists' experiences of destinations. Her research contributes to sustainable urban development and supports more environmentally friendly and culturally immersive tourism practices. A passionate advocate for sustainable gastronomy, Teresa's work bridges academia and the food industry, emphasizing the critical role of culinary innovation in fostering sustainability. Her research contributes to impactful projects that enhance the tourism sector's alignment with eco-conscious practices, community engagement, and educational initiatives. With numerous academic publications, Teresa is recognized for her ability to connect theory with practice, particularly in the fields of hospitality and gastronomy. Her expertise in this area promotes sustainable education, and responsible tourism.

Keynote Speakers



Dr. Álvaro Dias, associate professor with habilitation at ISCTE-IUL, has been teaching since 1995, specializing in Tourism, Marketing and Entrepreneurship. Alongside his teaching, he has served as a consultant for various organizations, including the Ministry of Economy, IAPMEI, AIP, AEP, AERLIS, GNR, ACT, CCP, Turismo de Portugal, and numerous private companies. He holds two PhDs, one in Management with a focus on Marketing and the other in Tourism. Additionally, he possesses a Master's in Strategy, an MBA, a bachelor's in management, and has completed postgraduate studies in E-business. Álvaro has led the Economic and Business Sciences department at UAL, directed the Master's and bachelor's programs in Marketing, and co-directed the bachelor's in management at ISG. He also coordinated the Tourism Destination Management Master program at Lusófona University. As an author, he has written 26 books and published over 240 Scopus indexed articles.. His international teaching and research experience includes countries such as Angola, Brazil, Bolivia, Mexico, Peru, Colombia, Spain, Poland, Romania, and Finland.



Dr. Tânia Gaspar, Associate Professor with Aggregation at Lusófona University has an aggregated and PhD in Psychology, PhD in Management, master's in public health with the Specialization – Health Promotion and Prevention and bachelor's in clinical psychology. She is Director of the Service for Psychology, Innovation and Knowledge (SPIC) at Lusófona University, Coordinator of the Portuguese Laboratory for Healthy Workplaces and Coordinator for Portugal and Coordinator of Zone A (Mediterranean Countries) of the Study Health Behaviour School Aged Children at the World Health Organization. Her focal Point PROMS and PREMS is patient satisfaction in Breast Cancer and Mental Health working for the OECD, The Organization for Economic Cooperation and Development. Tânia is also a researcher at the Digital Human-Environment Interaction Labs (HEI-LAB) and part of the expert consultative group on adolescent well-being measurement at the World Health Organization.

Mini Track Chairs



Valerie Priscilla Goby is Professor at Zayed University, Dubai. She holds PhDs in Business (Turku School of Economics, Finland) and Communication (James Cook University, Australia), and has been awarded both Fellowship and Senior Fellowship of the Higher Education Academy (UK). Her interdisciplinary research focuses on gender in the workplace, intercultural communication, and entrepreneurship. She has published in leading journals including the Journal of Business Ethics, Journal of Small Business Management, Journal of Consumer Marketing, Journal of Business and Technical Communication, Leadership & Organization Development Journal, and Women's Studies International Forum.



Tiago Lopes holds a PhD in Tourism (IGOT- ULisboa) and a Master's in Nature and Adventure Tourism from ESHTE. He is an Adjunct Professor at ESHTE, an integrated researcher at CEG (IGOT-ULisboa) and the Terra Associated Laboratory, and a collaborating researcher at CiTUR Estoril. His work combines academic research with practical engagement, having contributed to nature tourism planning and the creation of a peri-urban nature tourism office. His research interests include tourism planning and management, service quality, creative and adventure experiences, recreation, and events.



Dr Christopher Moon is a multiple award-winning eco and social entrepreneur and Senior Lecturer in eco-entrepreneurship at Middlesex University. He has a PhD from Imperial College and is a fellow of the RSA, HEA and EEUK. He was formerly Head of Sustainability at two companies and teaches sustainable tourism, sustainable business and entrepreneurship and sustainability. He has over 100 publications including in the International Journal of Hospitality Management 2018. Chris has taken tourism students to Mallorca on study tour regularly where Middlesex has an Erasmus agreement with UIB, Palma. He has presented at UIB international week and was interviewed by Spanish TV on sustainable tourism. He is Visiting Professor at NUP, Cyprus



Dr Carlos Rouco is an Associate Professor of Human Resource Management in the School of Economic Sciences and Organizations at Lusofóna University. He obtained her PhD from Lusíada University in 2012. He holds a Master's degree in Sports Training Management from the Technical University of Lisbon. He graduated from the Portuguese Military Academy. Currently, he is the director of the Department of Civil Aviation and Airports Management and the director of the Bachelor's degree in Aeronautical Management. He is a member of the Aeronautics Sectorial Commission (AED Cluster Portugal), a member of the Space Sectorial Commission (AED Cluster Portugal), and a member of the Defense Sectorial Commission (AED Cluster Portugal). He is a member of the Skills Working Group of AED Cluster Portugal. He teaches courses on crisis management, strategic and leadership, leadership and ethics, strategic marketing, international negotiations, human resource management, development and vocational training, organizational behavior, skills development in the context of tourism, and management introduction. He has taught and coordinated several intensive leadership courses (internal regime for 5 days) for young university students, entrepreneurs, bankers, and firefighters. He is the researcher for a research project on stressense funded by FCT, which was awarded the scientific prize. He is a regular reviewer for many international journals.



Francisco Silva holds a PhD in Geography with a specialisation in Urban and Regional Planning (IGOT – ULisboa), is a Specialist in Tourism and Leisure (ESHTE), and has a Master's in GIS (ISEGI-UNL). He is a Coordinating Professor at ESHTE, an integrated researcher at CEG (IGOT-ULisboa) and the Terra Associated Laboratory, and a collaborating researcher at CiTUR Estoril. His professional background includes work as a tourism consultant, photojournalist, and adventure tourism trainer. His research interests focus on tourism planning and development, tourism events, economic and social geography, and earth and environmental sciences

ICTR Conference Committee

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Exploring the Travel Experience of Western Otaku Tourists: A Model-Based Approach

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Abstract: Although Japanese pop culture was regarded as a niche market in the West, its popularity, especially anime and manga, has significantly increased in recent years. This has led to a parallel growth in tourism to Japan, particularly to locations linked with this subculture. Despite this trend, Otaku Tourism remains an under-explored topic for travel companies and an under-researched topic academically in the West, which results in the lack of tourism products and tailored information to this emerging niche market. This article aims to understand the travel experience of Western Otaku Tourists in Japan, proposing a tourism model based on established theoretical frameworks. This research adopts a qualitative methodology focused on two complementary studies in order to obtain results. Firstly, was used a travel autoethnography, in which the author explores their two Otaku travels to Japan with previous literature. Secondly, using a snowball sampling method, 12 Portuguese Otaku who had previously visited Japan were interviewed through a semi-structured model. This approach provided insight into the experience through a personal approach, understanding their motivations and behaviors. Findings reveal that Otaku primarily obtain information about the trip through peers and social media. Their key behaviors include photographing places related to Otaku culture and purchasing merchandise of their favorite content. The must-see places are those featured in beloved anime, known as anime sacred places, or associated with Otaku culture, such as shops, themed cafés, Otaku-centric neighborhoods, and temporary exhibitions. Overall, the Portuguese Otaku experience can be characterized as a profoundly personal pilgrimage, with a sense of immersion in their preferred media while visiting Japan, particularly through travel to locations directly associated with those works. Thus, this study develops academic groundwork that can be used by tourism promoters and tour operators in the marketing of this niche, supporting Portuguese travel companies in developing tailored-made packages that address their preferences.

Keywords: Tourism Experience; Portuguese Otaku Tourist, Induced Tourism, Anime Tourism; Japan.

1. Introduction

In Europe, Otaku Culture was perceived as a niche phenomenon, often associated with stigma towards Otaku culture fans. In recent years, however, this subculture has gained increasing international recognition. Initially, through fans sharing anime and manga geographically restricted online (Gonçalves et al., 2021), and more recently with the rise of streaming platforms like Netflix, with over 50% of their subscribers now watching anime content. Portugal has seen the Otaku phenomenon also gaining popularity, as evidenced by the most popular anime convention Iberanime, which grew from 500 attendees in 2010 to 34000 attendees in 2025 (Iberanime, 2025).

Since the launch of "Cool Japan" initiative in 2010, international tourism to Japan has increased significantly, including the number of tourists motived by the desire of exploring the Otaku culture and visiting anime sacred sites (JNTO, 2025).

As noted by Sabre (2017), Western Otaku tend to have a distinct perception of Japanese pop culture, influenced by the most prominent media in their local context. Additionally, although Japan and Japanese pop culture have experienced a recent "Boom" in popularity, Otaku tourism undertaken by Western fans is yet an underexplored field both academically and among tourism stakeholders.

Thus, this research, which represents a summary of the previously published master's dissertation, seeks to expand knowledge about the Otaku tourists, aiming to explore the Western Otaku's travel experience while visiting Japan. Its main objective is to contribute to the scope of Otaku tourism by conceptualizing an exploratory framework representative of the Western Otaku's travel experience, through their motivations, behaviors and visited physical locations.

The paper begins with a succinct literature review essential in order to understand the background on tourism experiences, Otaku culture, Japanese tourism, content tourism and Otaku tourism. This is followed by the methodology section, where two complementary qualitative studies were used through a travel autoethnography, in which the author reflects on their travels to Japan, leading into in-depth interviews to

Portuguese Otaku who had previously visited Japan. Finally, the results are presented through a travel experience model, followed by a brief conclusion.

2. Literature Review

Although in recent years the anime industry has gained some visibility in Portugal, Otaku concepts, particularly those associated with tourism, remain widely not understood. This makes it pertinent to first clarify concisely the key concepts related to the Otaku community.

2.1 Otaku Culture

The Japanese word Otaku originally carried a bad connotation, however, nowadays is commonly used to refer to a Japanese pop culture nerd (Adhitama, 2021), particularly hardcore anime, manga and videogames fans (Castanho, 2021). These fans are typically young adults with genre parity who consume Japanese pop culture and participate in local anime conventions (Gonçalves et al., 2021; Severino et al., 2025). Otaku fans also tend to develop preferences for specific content and character, which leads to a necessity of collecting merchandising from their favorite shows (Adhitama, 2021).

Severino (2024) describes Japanese pop culture as the epitome of Japanese contemporary culture, embedded in everyday Japanese life that encompasses anime, manga, videogames, music, and even fashion.

The word manga is usually associated with the concept of Japanese comics (Mathews, 2016) whereas the Japanese loanword anime is an abbreviation of animeshon, which is usually used in the West as Japanese produced animations (Pellitteri, 2021). Noh (2024) refers to how anime is generally adaptations of popular manga, which are traditionally produced by productions committees.

2.2 Tourist Experience

The Tourist experience can be understood as a subjective holistic construct that correlates behaviors to reveal tourists' interactions with the destination. Although this concept has been widely studied through various models, these approaches remain fragmented, being the most widely known the Tourist Gaze and the Experience Economy (Chen, 2025).

The Tourist Gaze theory refers to the way tourists understand and relate to places during their travels. It is constructed through signals perceived by the tourist, even though often distorted by the individual interpretation of what is observed (Samarathunga and Cheng, 2021).

Pine and Gilmore (2001) theorized the Experience Economy with two dimensions: the participation of the consumer as active or passive; and the relation with the ambient: absorption and immersion.

There are four perspectives of studying experiences, which are: definition approach; motivations approach; nature of on-site real-time experiences; and business focused through consumer theory (Cutler et al., 2010).

Tussyadiah (2013) conceptualizes that the tourist experience englobes all the phases of the trip, from pre-travel, during and post-travel. However, Cutler et al. (2010) refers that the tourist experience involves five distinct phases: anticipation, travel to site, on-site activity, return travel and recollection.

The experience may also be divided into central and peripheral experiences, with experience design focusing on the quality of the user's experience, being essential to identify their thoughts, values, priorities and internal conflicts to understand the tourist's experience (Tussyadiah, 2013).

2.3 Japanese Tourism

Although Japan has a mature tourism, its geographic distance from other major industrialized economies has led it to focus mainly on domestic tourism. In 2012, inbound tourism accounted only for 5.7% of total tourism, which was the lowest among countries with a tourism satellite account (Funck, 2016).

In 2008, Japan established its first tourism agency (Funck, 2016), and throughout the 2010s, it launched the "Cool Japan" initiative, a tourism strategy aimed to promote products, services and human resources that represent Japanese popular culture abroad, such as anime, manga, games and food. Japanese inbound strategies helped increase the number of international tourists arriving to Japan every year after the 2011 earthquake, reaching a new peak in 2024 (JNTO, 2025).

The main market for Japanese tourism in 2023 were Asian countries, particularly South Korea, Taiwan and China (MLIT, 2024). The majority are repeat tourists who prefer to travel with their families to Tokyo, Osaka and Kyoto, staying between four and thirteen days (JNTO, 2025; MLIT, 2024).

2.4 Otaku Tourism

Beeton (2016) highlights the importance of literary association to tourism development since the 19th century; however, this concept has evolved to aggregate recent media like movies and shows, under what is known as Induced tourism. The author divides this tourism into two groups: on-location, which refers to the locations where the movies were recorded; and off-location, which is related to studio tours, museums and amusement parks (Beeton, 2016).

During the 1990s, the term Contents Tourism emerged in Japan (Beeton, 2016; Seaton et al., 2015). The Japanese Ministry of Land, Infrastructure, Transport and Tourism refers to it as "the addition of a narrative quality or theme to a region – namely an atmosphere or image particular to the region generated by the contents – and the use of that narrative quality as a tourism resource" (Beeton, 2016, p. 31). In other hands, Seaton et al. (2015) refers to it as a concept that seeks to not focus on a single medium, but on the narrative itself, the characters and the location, since the same narrative can be explored across multiple multimedia formats.

Yamamura (2015) and Seaton et al. (2020) refer to the strong relationship between the three main stakeholders, which are the fans, the intellectual property owners and the local community. Yamamura (2015) studied the city of Washimiya following an unexpected increase in tourist numbers after the launch of the popular anime *Lucky Star*, set in the city.

Within this context, Otaku Tourism emerges as a subcategory of Contents Tourism. It is characterized by visiting places that celebrate the Japanese pop culture, such as stores, game centers, thematic cafés, museums and pop culture neighborhoods (Sabre, 2017; Severino, 2024).

Otaku tourism can be further explored through Anime Tourism, which focuses specifically on places associated with anime media subculture (Severino, 2024).

Although Otaku culture englobes anime and may involve overlapping places, Anime Tourism is characterized by the concept of anime sacred sites, which refers to locations that fans associate with or recognize from anime scenes, making them symbolically sacred to the community (Liu et al., 2021; Yamamura, 2015). Subsequently, fans named the act of voluntary visiting the sacred places of their favorite anime as "Pilgrimage to sacred places" (Seaton et al., 2017). Seaton et al. (2017) trace the ancient roots of this practice to religious pilgrimage, which continues to hold strong significance in modern Japanese tourism through rituals, pilgrimages and visits to religious sites.

When visiting sacred sites, fans' behavior is often associated with taking pictures, leaving offerings at the sites, sharing their experiences on social media, participating in cosplay and interacting with the local community (Liu et al., 2021). Hernandez-Pérez (2019) further highlights the practice of "scene hunting", which consists in taking pictures that replicate precisely scenes from an anime adaptation. These photos are also used by fans as proof of their pilgrimage to the sacred site.

Anime pilgrims can be categorized into two types: Location Seekers, who attempt to identify new locations depicted in their favorite anime for online sharing; and Followers, who travel to sites that have already been identified (Ono et al., 2020).

The desire to participate in an anime pilgrimage starts with watching anime, which motivates fans to visit places that appear in that anime (Okamoto, 2015).

Castanho (2021) studied the travel habits of Portuguese Otaku travel habits by using a questionnaire methodology. Of the 149 participants, only 6% had previously traveled to Japan before, highlighting a discrepance between intention to travel and actual travel behavior. The Portuguese Otaku are primarily motivated to travel by their interest in anime related subculture and express a strong preference for visiting the Tokyo's pop culture neighborhood, Akihabara, and the old capital, Kyoto.

3. Methodology

Sabre (2017), who worked as a tour guide in Japan, refers how French fans picture Japan through the contents they were exposed during their childhood in France, which does not align with the official "Cool Japan"

government promotion. This suggests that Otaku conceptualize and experience Otaku tourism in distinct ways, shaped by the specific Japanese media texts that circulate most prominently within their local cultural context.

The majority of existing studies focus on Asian tourists, primarily examining their motivations (Okamoto, 2015) and behavioral patterns (Liu et al., 2021), yet lacks to conceptualize the Otaku tourist experience holistically or to situate it within a comprehensive theoretical framework.

Thus, this study, through an illustrative example of Western Otaku focused on Portuguese Otaku, seeks to contribute to the understudied theme of Western Otaku's travel experience when visiting Japan. Its primary objective is to develop an exploratory model that represents Otaku travel experience, considering their motivations, behaviors and visited locations.

To reach the proposed goals and deeply understand the Portuguese Otaku's travel experience, this research adopts a qualitative methodology through two complementary studies. Firstly, an autoethnography was used followed by an in-depth interview, based on the first study results, to 12 Portuguese Otaku who had previously visited Japan. Afterwards, data was analyzed and compared, enabling the conceptualization of a framework representative of the Otaku's travel experience in Japan.

3.1 Autoethnography

It was decided that analytic autoethnography was the most suitable method to gather preliminary data since the author is deeply related to the Portuguese Otaku community and worked in projects with the biggest Portuguese Otaku website.

Autoethnographic methodology approaches are used to describe and analyze personal experiences and understand cultural experiences, which makes cultural characteristics more accessible (Ellis et al., 2011). Even though this method is underused in tourism research, some authors used it to better understand Induced Tourism (Beeton, 2016) and Otaku tourism (Okamoto, 2015; Steine, 2019).

The Otaku community and its associated tourism practices remain underexplored within academic literature, partly due to their reliance on specific terminology that may not be readily accessible to broader audiences. Employing an analytic autoethnographic approach enables the researcher to examine Otaku tourism from a firsthand perspective, generating preliminary insights into its travel experiences characteristics, particularly tourist motivations, behavioral patterns, and the categorization of frequently visited locations.

The researcher has visited Japan twice for two weeks, in 2023 and 2024, with the goal of understanding the Otaku's tourist travel experience. Before these travels, the author searched and collected information about Otaku tourism easily available to the Portuguese fans. Firstly, the author reflected on his childhood and the influence of Otaku culture on his travels. Then, he recounted how information and travel agency packages available were almost inexistent, which led to design a tailor-made itinerary with the help of information available in English, particularly from Youtubers and forums. For data collection and analysis about Otaku Tourism, during these travels, the author took notes on his own experiences, which were later divided into categories based on previous literature review, inspired by the concepts of on-location and off-location (Beeton, 2016), with subcategories based on Sabre (2017) and Severino (2024).

3.2 Interviews

Although Otaku culture has been rapidly expanding in Europe, including Portugal, to the author's knowledge, no prior studies have been conducted with Portuguese Otaku regarding their travel experiences. Castanho (2021) studied Portuguese Otaku through a questionnaire, however, most respondents expressed a desire to visit Japan but had not yet visited it.

The interviews follow a semi structured model with 11 questions, vastly inspired by Thelen et al. (2023), where the interviewees were asked to review their pictures gallery beforehand so they could remember better their experiences during the interview. The questions were categorized into four thematic groups, which derived from topics found during the autoethnography: Me as an Otaku; Influence of Anime in Visiting Japan; Otaku Tourism; Travel Agencies and Information Sources. The questions associated with the first theme were inspired by Jorge and Navio (2013), the second by Castanho (2021), the third by Liu et al. (2021), Sabre (2017) and Okamoto (2015), and the fourth by Ono et al. (2020).

The interviews enriched the autoethnography by broadening the thematic groups through additional insights from Otaku participants, enhancing depth, introducing diverse perspectives and increasing the credibility of the findings, complementing the researcher's own observations.

For illustrative proposes, the target participants for this study were Portuguese citizens who are active members of the Portuguese Otaku community and who have traveled to Japan motivated by their consumption of Japanese media. As noted by Castanho (2021), the number of Portuguese Otaku who traveled before to Japan is low, which limited the pool of participants available for interview. With the help of *Shikkuretto Team* members, a Portuguese content creators group focused on Otaku culture, an Instagram story was published and shared, inquiring for potential participants for this study.

In April 2025, the pilot interview was conducted and, after some adjustments, was applied to 11 more participants during the month of May. The interviews, with a mean of 33 minutes, took place on the online platform Discord and were recorded with the permission of the participants to be analyzed after.

The participants had a mean age of 30 years, with gender parity, and traveled with friends for approximately two weeks.

Afterwards, the interviews were transcribed to text with the help of Microsoft Word, and a thematic analysis method was applied, identifying and interpreting thematic patterns in qualitative data through the creation of themes (Clarke and Braun, 2017) that are relevant to answer the research question. The thematic codes were found in an inductive way and grouped into the four interview groups.

4. Findings and Discussion

Otaku tourism is a niche concept under-researched and unexplored in Portugal by travel agencies. This paper explores the Otaku's tourist experience through ethnography and interviews to clarify this underexplored concept into something easily understood. This led to a framework based on Tussyadiah (2013) that can be used by travel agencies to promote this type of tourism.

Firstly, the author employed ethnographic methods to explore Otaku culture in Japan, visiting several well-known locations and participating in popular activities associated with this subculture. Below, in Figure 1, is a model that summarizes the main visited locations based on the concept of on-location and off-location (Beeton, 2016).

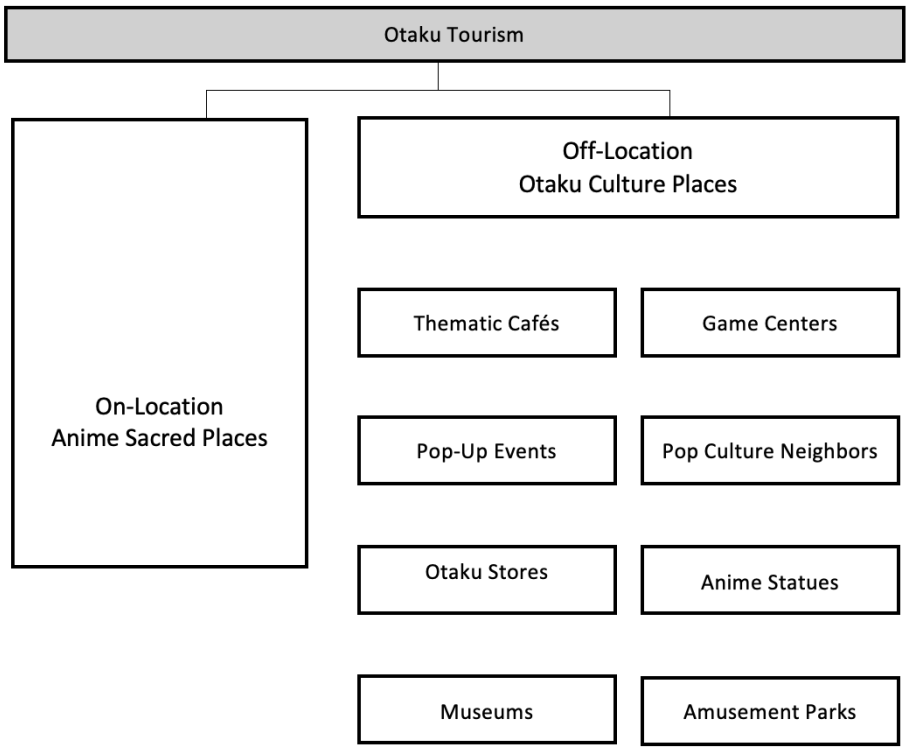


Figure 1: Otaku tourism characterized by on and off Location

By conducting semi-structured interviews with Otaku tourists, the author was able to expand the knowledge acquired from the ethnographic study about the tourists' experiences, motivations and behavior, which led to the framework based on Tussyadiah (2013) experience concept.

From childhood, Portuguese Otaku consumed Japanese pop media, mainly anime and videogames, shaping both their motivation to learn about the Japanese culture and their desire to visit Japan. This finding is in accordance with Okamoto (2015) who refers that the pilgrimage desire starts with watching anime.

During adulthood, once financially able, the Otaku starts to plan their trip mainly with the help of friends and other Otaku from the community who traveled to Japan before. All the participants chose to book their trip by themselves without the assistance of travel agencies or other Portuguese tour operators. The Portuguese fan travels for two weeks with their partners or friends mainly to the more popular cities: Tokyo, Osaka and Kyoto.

The tourist experience should be structured around a coherent theme conveyed through storytelling (Tussyadiah, 2013), which is presented mainly as Japanese pop culture. Although the Otaku subculture is their primary motivation, they also show interest in other aspects of Japanese culture such as gastronomy, sometimes triggered by curiosity from watching anime content.

When classifying the experiences into central and peripheral, visiting Anime Sacred Places and Otaku Culture Neighborhoods are classified as central due to their high interest by the Otaku tourist.

The Anime Sacred Places are associated with locations that recall scenes from Otaku content, where the fans travel to relive scenes from their favorite episodes and take photographs, edited with collages comparing them with the original show, a behavior also found in Okamoto (2015) and Liu et al. (2021). The fans highlighted the importance of visiting sacred places, reporting strong emotional connections and a sense of immersion with the location through a narrative process that integrates fiction and reality.

Although anime pilgrimage is typically associated with visiting locations featured in favorite shows, the opposite is also observed. Some interviewees reported that visiting certain places inspired them to watch anime set in those locations.

Otaku culture neighborhoods such as Akihabara in Tokyo and Den-den Town in Osaka, are highly referenced destinations in Otaku culture. These hubs are considered a mandatory place to visit or even a "Disneyland for Otaku" with a comprehensive selection of merchandising, which goes in accordance with Sabre (2017) and Severino (2024). In addition, many peripheral experiences are offered within them, which enhances the overall experience.

Figure 2 illustrates all the sites highlighted by the interviewees during the ethnographic study, followed by a detailed discussion of the primary experiences.

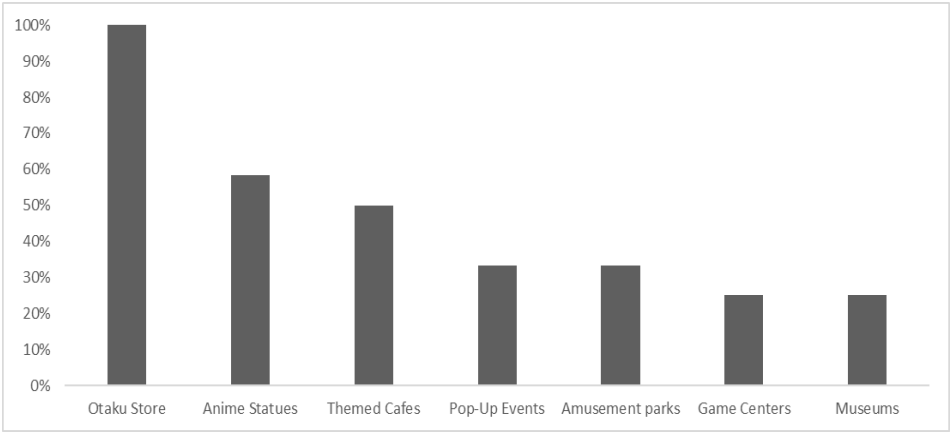


Figure 2: Percentage of experiences reported by each participant.

Otaku stores are retail establishments where fans can purchase merchandise related to their preferred media franchises. This behavior is also identified by Adhitama (2021), who highlights the perceived necessity among Otaku consumers to acquire merchandise associated with their favorite shows.

The Portuguese Otaku also refers to visiting statues related to their favorite media content, which facilitates the translation of fiction into reality, particularly in narratives set in fictional worlds, such as *One Piece* and *Gundam*.

Themed cafés, a café or restaurant based on media content, and temporary exhibitions, focused on a particular content, were also popular experiences. These were associated with technical challenges, such as the difficulty making reservations and, for many of them, being available for only a short period of time.

Alongside these difficulties, the Otaku reported a lack of knowledge about which locations to visit, often losing time trying to find, for example, the best stores to purchase merchandise. These complications lead participants to express interest in potential tourist packages for Otaku, which would include not only anime pilgrimage sites and Otaku culture districts but also traditional and cultural attractions.

The tourist experience also extends to the post-trip phase (Tussyadiah, 2013), during which tourists bring back memories and newly acquired merchandise. Additionally, when watching new content that is based on the locations they visited, the Otaku recalls the journey and gains a better understanding of the content.

Subsequently, a summary figure illustrating the experience of the Portuguese Otaku tourist when visiting Japan is presented in Figure 3, based on the model proposed by Tussyadiah (2013).

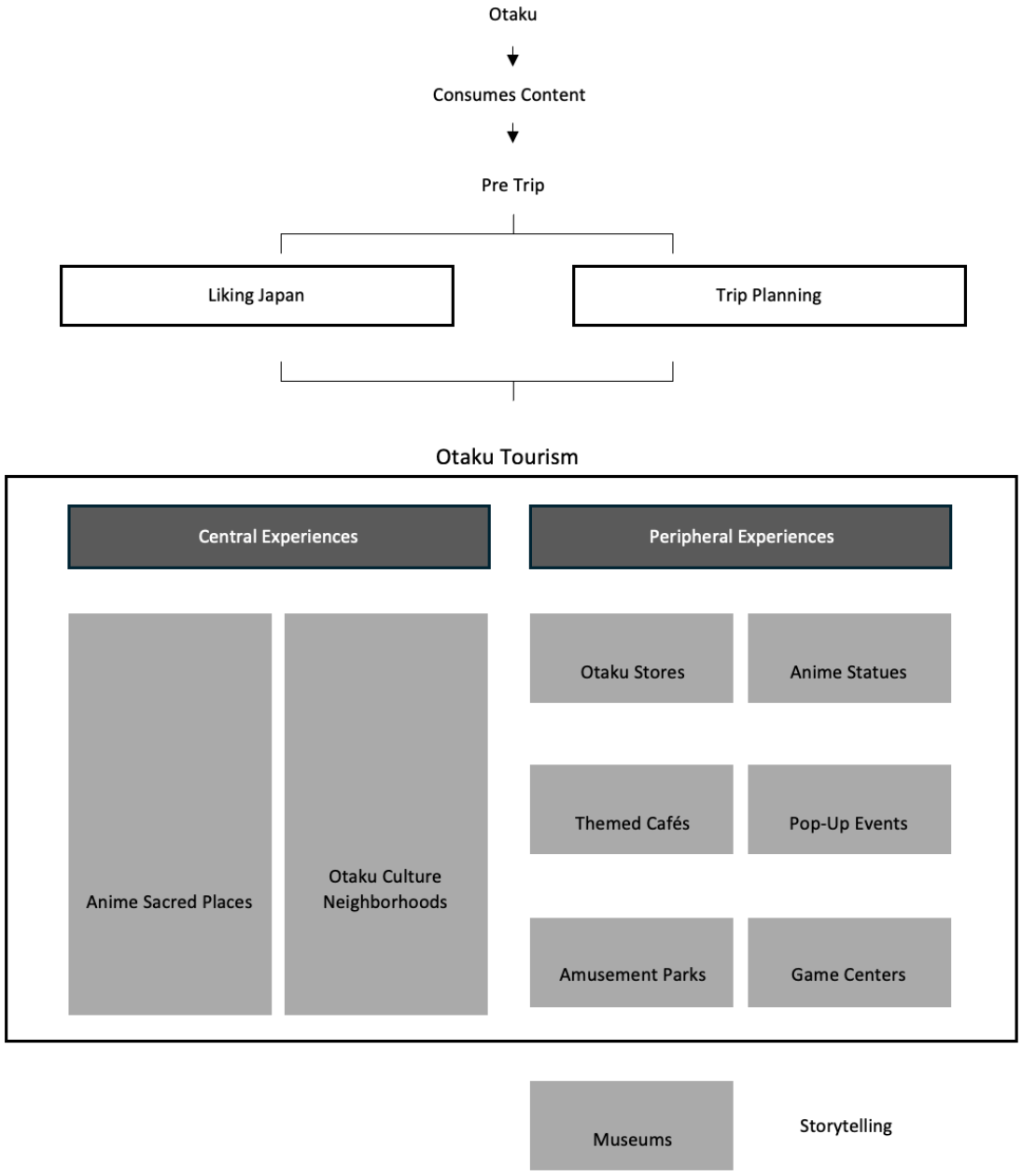


Figure 3: Portuguese Otaku travel experience in Japan model.

5. Conclusion

While Japanese pop culture was previously regarded as a niche interest in the West, it has since gained widespread popularity and become increasingly mainstream. Despite this growth, this topic remains relatively underexplored at both the academic and commercial levels. Nevertheless, Otaku Tourism has been increasing in recent years, with a substantial number of anime fans visiting Japan and exploring the locations that inspired their favorite Japanese contents.

Through a qualitative methodology study with an ethnography and interviews to members of the Portuguese Otaku community, this paper aims to understand and expand the scopes of the Portuguese Otaku travel experience in Japan. Overall, the Portuguese Otaku experience can be characterized as a profoundly personal pilgrimage, with a sense of immersion in Otaku culture while visiting Japan, particularly through travel to locations directly associated with this subculture and their favorite works.

The experience can be characterized into two groups: central and peripheral. Regarding the central experiences, the Otaku has a clear interest in visiting anime pilgrimage sites and Otaku culture districts. The trip is enhanced by peripheral experiences which are directly related to Otaku content.

Thus, this study develops academic groundwork about the experience and behaviors that can be used by tourism promoters and tour operators in the marketing of this niche, supporting Portuguese travel companies in developing tailored-made packages that address their preferences.

Traveling to Japan to practice Otaku tourism is still a niche in Portugal, as mentioned by Castanho (2021), which highly limits the number of participants available for this study and a possible future quantitative approach.

For future works, this model could be applied to other countries with a rising pop culture, like South Korea and China.

Ethics Declaration

Ethical clearance was not required for this research. Consent was obtained from all interview participants for research and publication purposes.

AI Declaration

No AI was used during the making of this study.

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Preserving the Past, Innovating the Future: Integrating Metaverse, Blockchain, and Generative AI for Tourism and Cultural Heritage Preservation

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Abstract: The preservation and accessibility of cultural heritage are seriously threatened by urbanization, mass tourism, neglect, and natural disasters. This study utilizes cutting-edge technologies to address these issues by presenting a novel framework that combines generative AI, blockchain, and the metaverse. The Metaverse provides immersive virtual experiences that lessen the physical strain on delicate locations by enabling the creation of lifelike digital replicas of cultural heritage sites. By creating immutable records, blockchain technology ensures the legitimacy, ownership, and traceability of digital assets, enabling open access and NFT monetization. Rebuilding lost or damaged artifacts, creating lifelike 3D models, and customizing user interactions are all ways that generative AI supports these initiatives. Collectively, these technologies provide a creative approach to preserving cultural assets while revolutionizing how people perceive and value them. However, the adoption of these technologies presents several challenges, including high development costs, scalability limitations, and concerns related to authenticity, ethical representation, and data reliability. Moreover, cultural institutions face structural and technical constraints that may hinder the effective deployment of such systems. By explicitly addressing these challenges, this study highlights the practical boundaries within which Metaverse, Blockchain, and Generative AI can support cultural-heritage preservation. This study creates a conceptual architecture that integrates these technologies in four layers: blockchain-based asset management, AI-driven content creation, data organization and storage, and virtual environment-based user interaction. The framework provides audiences worldwide with safe, scalable, and engaging access to cultural heritage, democratizing cultural experiences and supporting preservation initiatives through tokenized donations. This study provides valuable insights for governments, technology developers, and cultural institutions, while also advancing the theoretical understanding of digital preservation. The original contribution of this work lies in the development of an integrated, multi-layer conceptual architecture that connects technological capabilities directly with preservation challenges such as authenticity assurance, deterioration risk, limited accessibility, and funding shortages. This framework offers a structured model that has not been previously synthesized in current literature.

Keywords: Cultural Heritage Preservation, Metaverse Tourism, Blockchain-Based Digital Assets, Generative AI Reconstruction, Virtual Cultural Experiences

1. Introduction

The essence of human history is embodied in cultural heritage, which provides insight into the customs, values, and accomplishments of earlier civilizations. However, neglect, urbanization, war, natural disasters, and the constant pressures of mass tourism pose serious threats to innumerable cultural and historical sites. These challenges not only endanger the physical existence of cultural heritage but also limit its accessibility to global audiences who may never have the opportunity to experience these sites in person (Di Giovine, 2008). The convergence of new technologies presents a once-in-a-lifetime opportunity to address these issues and devise innovative solutions to conserve and reinvent cultural heritage for the digital era, as the digital revolution continues to transform industries.

This study examines the use of Metaverse, Blockchain, and Generative AI technologies to build an integrated model for cultural heritage preservation and tourism enhancement. The Metaverse, as an immersive and interactive virtual world, enables the creation of lifelike digital replicas of cultural and historical sites, allowing for virtual tourism that reduces the physical strain on fragile locations (Hutson, 2024a; Mystakidis, 2022). Blockchain technology provides the foundation for secure, immutable, and transparent management of digital assets, ensuring the authenticity and ownership of digitized artifacts and cultural content (Trček, 2022; Vacchio and Bifulco, 2022). Generative AI complements these efforts by reconstructing lost or damaged heritage, generating realistic 3D models, and enhancing personalization in virtual experiences (Tiribelli et al., 2024). These technologies, when combined, provide a potent trifecta for preserving cultural assets and revolutionizing how people view and value them. Yet, despite their promise, existing studies often examine these technologies in isolation and do not provide a unified framework that connects them to concrete preservation challenges such as physical degradation, loss of authenticity, limited accessibility, and resource constraints. This study addresses

this gap by proposing an integrated conceptual model that links technological capabilities directly to specific cultural-heritage preservation problems.

The aim of this research is to develop a conceptual framework that illustrates how these three technologies work together in the context of cultural heritage and tourism. In particular, the study aims to:

- To ensure the longevity of historical sites and cultural artifacts, digitally preserved.
- Develop trustworthy and transparent systems for managing digital heritage ownership using blockchain technology.
- Enhance accessibility and user interaction by providing immersive, personalized virtual experiences driven by Generative AI.

This research offers important contributions to both theory and practice. From a theoretical standpoint, it presents a groundbreaking interdisciplinary framework that connects cultural preservation with advanced technologies, filling a significant gap in current literature. On a practical level, the research provides actionable recommendations for stakeholders, including governments, cultural organizations, and technology developers, on effectively leveraging these technologies for real-world applications. Furthermore, it suggests sustainable and innovative strategies for monetizing digital heritage through avenues like virtual tourism, NFTs, and donations, thereby providing financial resources for preservation initiatives.

The study emphasizes the importance of ensuring that heritage is accessible to everyone while also preserving its integrity and authenticity.

Users worldwide can immerse themselves in cultural treasures without being constrained by financial or geographic limitations by leveraging the Metaverse's capabilities. The Blockchain technology promotes transparency and trust, while generative AI produces these experiences with unmatched precision and personalization.

In an era when technology is reshaping boundaries, this research envisions a future where cultural heritage thrives in the digital realm, both preserved for future generations and accessible to a global audience. By combining the Metaverse, Blockchain, and Generative AI, this study seeks to develop a novel approach to enhancing tourism and cultural preservation. It seeks to strike a balance between innovation and the protection of our shared history.

Table 1: Benefits of Metaverse, Blockchain, and Generative AI for Cultural Heritage Preservation

Technology	Benefits for Cultural Heritage Preservation and Exploration
Metaverse	• Enables immersive virtual exploration of cultural and historical sites through 3D environments. • Reduces physical strain on fragile heritage sites by offering virtual tourism experiences. • Expands global accessibility to cultural heritage, overcoming geographical and financial barriers. • Supports educational applications, such as gamified learning and historical simulations, for younger generations. • Facilitates the integration of interactive elements like digital guides and contextual storytelling.
Blockchain	• Ensures authenticity, ownership, and provenance of digital artifacts through immutable records. • Facilitates secure and transparent access to virtual heritage sites and assets. • Enables monetization through Non-Fungible Tokens (NFTs) of digital artifacts and virtual experiences. • Provides a sustainable funding model for preservation via tokenized donations. • Protects intellectual property rights for digitized cultural content and prevents unauthorized use.

Technology	Benefits for Cultural Heritage Preservation and Exploration
Generative AI	• Reconstructs damaged or lost cultural artifacts and heritage sites using historical records. • Generates high-quality 3D models and textures for virtual preservation and restoration. • Personalizes virtual experiences by adapting content to users' preferences, languages, and cultural interests. • Creates dynamic storytelling experiences, allowing users to interact with historical events and narratives. • Bridges gaps in incomplete data by analyzing patterns and historical context for accurate reconstructions.

2. Related Work

2.1 Metaverse in Tourism and Cultural Heritage

The Metaverse, an immersive and interactive digital environment, has emerged as a transformative platform for tourism and cultural preservation, offering innovative solutions to overcome physical, geographical, and environmental constraints (Buragohain et al., 2024). It provides a virtual space where users can engage with realistic and dynamic representations of cultural and historical heritage sites (Zhang et al., 2022). The metaverse has the potential to create incredibly realistic and detailed virtual representations of famous landmarks and archaeological sites, enabling users to explore these areas in ways previously unimaginable.

These virtual replicas not only replicate the physical appearance of heritage sites but also integrate interactive elements, such as digital guides and contextual information, to enhance user experiences (Moneta, 2020).

Studies like Adnan et al. (2024) emphasize the critical role of virtual tourism facilitated by the Metaverse in addressing the environmental challenges associated with traditional tourism. By offering immersive virtual experiences, the Metaverse reduces the ecological footprint caused by mass tourism, including carbon emissions from travel and the wear and tear on delicate cultural and natural heritage sites (Adnan et al., 2024). Furthermore, virtual tourism significantly expands access to cultural heritage for individuals who may be unable to visit these locations physically due to financial, health, or logistical barriers (Chen, 2024).

Beyond creating new possibilities for tourism, Metaverse-based virtual spaces function as dynamic tools for education. These environments enable the creation of detailed simulations of historical events and architectural reconstructions, providing users with opportunities for contextual and experiential learning (Li et al., 2025). As demonstrated by Flavian et al. (2024), gamified cultural experiences within the Metaverse can significantly increase engagement, particularly among younger generations.

Despite these promising applications, the widespread adoption of Metaverse-based cultural preservation projects faces several challenges. Scalability remains a significant hurdle, as creating high-quality, large-scale virtual replicas of heritage sites requires considerable resources and expertise (Huang et al., 2024). Development costs for building and maintaining these environments are also high, making it difficult for smaller institutions or underfunded organizations to adopt these technologies (Gupta et al., 2024). User adoption poses another key barrier. Potential users may not have the necessary technology, such as VR headsets, or the digital skills to fully participate in Metaverse experiences. Addressing these challenges will be vital to unlocking the full potential of the Metaverse as a transformative tool for tourism and cultural heritage preservation (Gupta et al., 2024).

Despite these benefits, current metaverse-based preservation projects remain limited in scope and maturity. Many proposed solutions lack empirical validation, rely heavily on high-end VR infrastructure, and raise concerns regarding long-term maintenance of digital replicas. Additionally, the risk of cultural distortion and lack of institutional capacity in traditional heritage organizations remain under-addressed in existing literature.

2.2 Blockchain for Digital Heritage Preservation

Blockchain technology has garnered significant attention for its ability to provide secure, transparent, and tamper-proof solutions for preserving cultural heritage (Lvping, 2021). At its core, Blockchain's decentralized and distributed ledger system ensures that digital records of cultural artifacts remain authentic and immutable over time (Mehta and Kukreja, 2024). According to Findlay (2017), this decentralized nature removes the risk of data manipulation or loss, making it an ideal solution for safeguarding invaluable cultural and historical records. By utilizing blockchain, institutions can maintain digital copies of artifacts, detailed descriptions, and metadata.

This approach ensures that these records remain safe for future generations, even in the event of disasters or technology failures.

The uses of Blockchain in cultural heritage are varied and significant. As highlighted by Vacchio and Bifulco (2022), provenance tracking is one of the most critical applications of Blockchain in this domain, enabling institutions to document the origin, ownership, and history of cultural artifacts with unparalleled transparency. This ability is especially crucial in combating the illicit trade of artifacts. It makes sure that ownership claims can be verified and are clear. Additionally, Blockchain facilitates effective copyright management by providing a secure and transparent platform for establishing and protecting intellectual property rights associated with cultural content (Alqarni, 2024). Another notable application is the creation of Non-Fungible Tokens (NFTs) for digital assets, which can serve as a means of monetization for cultural institutions (Wamugo, 2024). By minting NFTs, institutions can generate revenue while providing collectors and enthusiasts with verified digital ownership of cultural artifacts or virtual experiences.

Blockchain has the potential to extend beyond mere preservation and impact the broader tourism sector. For instance, it enables secure ticketing systems, ensuring that transactions for accessing cultural sites or virtual experiences are transparent (Abou Amer et al., 2025). Additionally, Blockchain can facilitate virtual access management, where users are granted authenticated and time-limited access to specific digital content or experiences, enhancing user trust and operational efficiency (Goel and Rahu- lamathavan, 2024).

Despite its potential, Blockchain technology faces several challenges that must be addressed to realize its full application in cultural heritage preservation. As noted by Platt et al. (2021), the high energy consumption associated with Blockchain operations, particularly in proof-of-work systems, poses significant sustainability concerns (Platt et al., 2021). Additionally, regulatory uncertainties surrounding Blockchain technology hinder its adoption, as institutions must navigate complex legal landscapes to ensure compliance (Mohammed Abdul, 2024). These difficulties indicate that to support the broader application of Blockchain in cultural heritage preservation, further study and innovation are necessary, including the adoption of consensus mechanisms that consume less energy and the development of standardized regulatory frameworks.

However, the literature rarely examines how blockchain systems can be practically integrated with broader digital-heritage workflows or how institutions with limited digital maturity can adopt such systems. Questions related to interoperability, archival longevity, and user trust also remain insufficiently explored.

2.3 Generative AI for Content Creation and Enhancement

Generative AI has emerged as a transformative tool for content creation, particularly in preserving and reconstructing damaged or lost cultural artifacts. Its ability to analyse historical patterns, records, and images enables the generation of highly accurate and detailed 3D models and textures, which can be used to restore artifacts and heritage sites virtually (Spennemann, 2024). Studies such as Hutson (2024b) highlight the effectiveness of Generative AI in creating realistic digital reconstructions of monuments, sculptures, and other cultural artifacts that have been partially or entirely destroyed due to natural disasters, wars, or neglect.

Beyond reconstruction, Generative AI plays a pivotal role in enhancing the personalization of virtual cultural experiences (Chamola et al., 2024). AI-powered virtual guides can dynamically adapt content to match users' preferences, languages, and cultural backgrounds (Xia et al., 2024).

Although generative AI has enormous potential for tourism and cultural heritage preservation, it raises some ethical concerns. Authenticity and cultural representation are critical considerations when AI is used to reconstruct or interpret heritage (Al-kfairy, 2025; Al-kfairy et al., 2024). Generative AI may inadvertently introduce biases or inaccuracies into reconstructions, particularly if the training data lacks diversity or historical context (Al-kfairy et al., 2024). This could lead to the misrepresentation of cultural sites or artifacts, thereby diminishing their historical and cultural significance. Furthermore, AI-generated experiences run the risk of over-commercializing heritage content, giving entertainment precedence over cultural or educational significance.

To address these issues and ensure that the technology respects cultural authenticity and ethical standards, historians, archaeologists, and AI developers must collaborate. Furthermore, to foster trust among audiences and stakeholders, clear guidelines and open procedures are required for AI-generated content in cultural heritage. With proper oversight, Generative AI has the potential to revolutionize cultural heritage preservation, making it more resilient, accessible, and engaging for future generations (Al-kfairy et al., 2024).

Nevertheless, most AI-driven reconstruction studies lack human-in-the-loop validation, raising concerns about the historical accuracy of AI-generated artifacts. Furthermore, ethical frameworks for AI-interpreted heritage remain underdeveloped, making it difficult for institutions to adopt these tools responsibly.

3. Proposed Solution Architecture

The Data Layer, the AI-Driven Processing Layer, the Blockchain Management Layer, and the User Interaction Layer are the four interconnected layers that this study suggests for seamlessly integrating the Metaverse, Blockchain, and Generative AI for tourism and cultural heritage preservation. Each layer serves a specific purpose, and when combined, they ensure effective, safe, and engaging cultural heritage experiences (Figure 1 illustrates the architectural representation).

The framework is conceptual in nature and was developed by synthesizing insights from existing literature on digital heritage technologies, architectural modelling principles, and real-world projects documented in prior studies. Although no empirical testing is conducted, the architecture provides a structured basis for future system development and evaluation.

3.1 Data Layer

This is the foundation of the architecture; this layer stores, manages, and organizes raw data connected to cultural heritage. This includes 3D models, historical records, multimedia assets (such as audio and video), and metadata.

3.1.1 Functions

- Collects data from cultural institutions, museums, and historical archives.
- Houses 3D scans, photographs, and other digital assets used for Generative AI-driven reconstruction.
- Ensures data quality, consistency, and accessibility for the upper layers.

3.1.2 Interaction

- This layer provides raw data to the AI-driven processing layer. There, Generative AI models analyze and improve the data.
- Metadata from the Blockchain Management Layer, such as ownership and authenticity records, is included in the stored content to keep historical integrity and security.

3.2 AI Layer

The raw data from the Data Layer is processed, examined, and enhanced by this layer using Generative AI. It produces individualized and captivating virtual worlds.

3.2.1 Functions

- Reconstruction: Restores lost or damaged artifacts and historical sites using historical records and patterns.
- Content Generation: Produces narratives, textures, and dynamic 3D models for incorporation into the Metaverse.
- Personalization: Adjusts virtual worlds to suit the tastes, languages, and cultural backgrounds of each user.

3.2.2 Interaction

- Produces improved, usable content after receiving raw data from the Data Layer.
- Provides a smooth virtual experience by delivering enriched content to the User Interaction Layer.
- Works in tandem with the Blockchain Management Layer to ensure that content adheres to historical accuracy standards and verifies the legitimacy of AI-generated reconstructions.

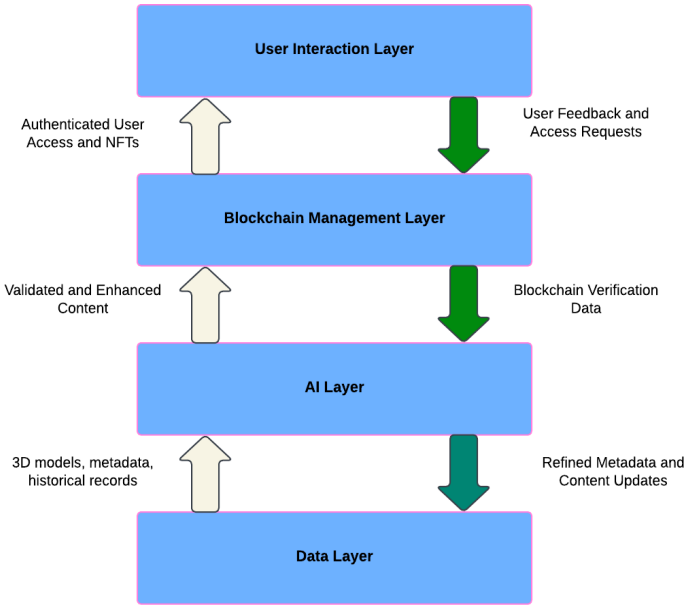


Figure 1: Proposed Solution Architecture

3.3 Blockchain Management Layer

Provides secure and transparent management of digital assets, ensuring authenticity, ownership, and traceability within the system.

3.3.1 Functions

- Provenance tracking: Maintains long-term records of the owners and origins of items related to digital heritage.
- By creating Non-Fungible Tokens (NFTs) for digital artifacts, virtual tours, and customized experiences, NFT integration enables revenue generation.
- Access Control: Manages and confirms who has access to virtual heritage experiences and content.
- Donation Management: By turning contributions into tokens, it supports preservation initiatives.

3.3.2 Interaction

- Links with the Data Layer to attach blockchain-verified metadata to stored assets, ensuring authenticity and traceability.
- Interacts with the User Interaction Layer to authenticate user access and facilitate secure transactions, such as NFT purchases or ticketing for virtual tours.
- Provides validation data to the AI-Driven Processing Layer to ensure AI-generated content aligns with historical records and provenance.

3.4 User Interaction Layer

This is the front-facing layer where users interact with the system, accessing immersive virtual experiences through the Metaverse.

3.4.1 Functions

- Virtual Exploration: Using VR headsets, augmented reality devices, or standard digital interfaces, users can explore virtual versions of cultural heritage sites.
- Educational Experiences: Offers gamified learning modules, interactive simulations, and narrative content.
- Transaction Facilitation: Facilitates safe transactions to access premium virtual content, make donations, or purchase NFTs.
- Integration of Feedback: Collects user input to enhance AI personalization and content precision.

3.4.2 Interaction

- Extracts content and experiences generated by the AI-driven processing layer and presents them to users in an engaging format.
- Depends on the Blockchain Management Layer for secure management of access and transaction processing.
- Returns user engagement data, including preferences and behaviors, to the AI-Driven Processing Layer to enhance personalization and relevance of content.

3.5 Interaction Between Layers

3.5.1 The Architecture's Layers are Made to Cooperate to Produce a Secure and Effective System

- Data Flow: The AI-Driven Processing Layer receives raw data from the Data Layer, which serves as the foundation. The User Interaction Layer then gets the improved content for user interaction.
- Blockchain Validation: The Blockchain Management Layer connects data storage and user interaction by ensuring that all transactions and content across the system are secure, authenticated, and verified.
- Feedback Loop: To improve content, the AI-driven processing layer leverages data and user input from the User Interaction Layer.
- Smooth User Experience: These layers work together to guarantee that users are presented with historically and culturally relevant content in an interesting, secure, and personalized environment.

4. Proposed Use Cases: Virtual Restoration and Exploration of a Threatened Cultural Heritage Site

This use case focuses on preserving a culturally important but endangered heritage site by creating a digital replica in the Metaverse. It manages its assets through Blockchain and improves the experience using Generative AI. This approach enables a global audience to explore, learn, and contribute to the preservation of the site, thereby preserving the past while innovating for the future (See Figure 2). A comparable real-world example is the digital reconstruction of Palmyra in Syria, where AI and 3D modelling were used to virtually restore destroyed monuments. Similar initiatives by UNESCO and CyArk demonstrate the feasibility and value of digital replicas for protecting at-risk heritage sites (Staatliche Museen zu Berlin, 2019).

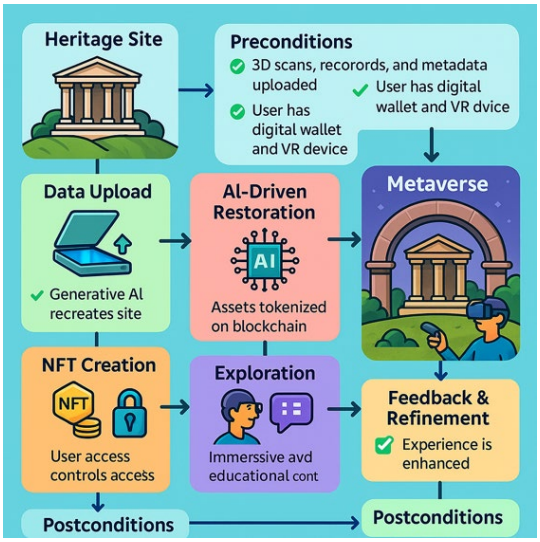


Figure 2: Sample Reservation Scenario

- Preconditions
  - The cultural institution has uploaded 3D scans, historical records, and metadata of the heritage site to the Data Layer.
  - The user has a digital wallet (for NFTs) and a device (VR headset or AR-compatible smartphone).
  - Blockchain infrastructure is in place to manage ownership of digital replicas and NFTs.

- Postconditions:
  - Users investigate the site using an interactive, AI-enhanced virtual tour.
  - A digital copy of the site is maintained in the Metaverse.
- Main Flow
  - Data Upload and AI-Driven Restoration:
    - The Cultural Institution sends photos, metadata, and 3D scans of the endangered heritage site to the Data Layer.
    - To ensure digital preservation, the AI-Driven Processing Layer employs Generative AI to recreate missing or damaged areas of the site using historical data.
  - NFT Creation for Site Assets:
    - The Blockchain Management Layer tokenizes key site elements (e.g., restored digital artifacts) as NFTs, ensuring authenticity and ownership traceability.
    - NFTs are made available for purchase to support preservation efforts.
  - User Access and Authentication:
    - The User Interaction Layer provides access to the digital replica of the site within the Metaverse.
    - Blockchain validates user access, ensuring that only NFT owners or contributors can interact with premium features.
  - Immersive Exploration:
    - Using a VR/AR-enabled interface, users explore the site and witness its restoration as it was at its most historic.
    - With support for multiple languages, virtual guides, and interactive stories, the AI-driven processing layer adapts the tour to the user's preferences.
  - Interactive Features:
    - Visitors can interact with digital artifacts, "walk" through restored spaces, and get detailed historical information.
    - AI-powered enhanced storytelling encourages greater engagement by enabling users to watch historical events or cultural rituals unfold.
  - Feedback and Refinement:
    - Users share their thoughts on the quality of the virtual experience, which is logged in the AI-Driven Processing Layer.
    - This input refines the content, guaranteeing a continuously evolving and captivating user experience.

5. Conclusion

This study offers a conceptual framework for preserving and transforming cultural heritage that combines blockchain, generative artificial intelligence, and the metaverse. To guarantee the authenticity and ownership of digital assets, produce immersive virtual experiences, and restore lost or damaged cultural artifacts, the proposed architecture demonstrates how these technologies can work in concert. The use of tokenized contributions and NFTs enables this framework to support preservation efforts while providing innovative, scalable, and secure solutions that allow audiences worldwide to explore and interact with cultural heritage in new ways. This method bridges the divide between tradition and technology by democratizing access to cultural heritage while simultaneously addressing the difficulties of physical preservation.

The proposed framework presents several challenges, despite demonstrating how contemporary technologies can aid in preserving cultural heritage. Due to the high costs and the requirement for technical expertise, smaller or underfunded institutions may struggle to utilize advanced systems or create digital replicas. Particularly in areas with inadequate infrastructure, the application of blockchain may also lead to issues with energy usage and unclear legislation. The quality and accessibility of historical data—which is frequently lacking—determine the capacity to restore damaged artifacts. These difficulties demonstrate the need for further study, increased funding, and enhanced cooperation to address technical, financial, and moral challenges. The use of Blockchain technology creates issues with energy use and regulations, especially in areas with poor infrastructure or ambiguous laws. The quality and accessibility of historical data—which isn't always complete—determine how well generative AI can restore damaged artifacts. The constraints underscore the necessity of further investigation and cooperation to address technical, financial, and moral challenges.

Further studies should focus on developing economical and energy-efficient solutions to enhance the accessibility and sustainability of this framework. Investigating alternative blockchain consensus techniques, such as proof-of-stake or other low-energy models, could preserve security and transparency while significantly reducing the environmental impact. Precision and reliability of digital reconstructions would be enhanced by improving Generative AI algorithms to better handle fragmented or incomplete data. The influence of the framework might be increased by adding more use cases, like virtual event hosting and interactive cultural education. Create uniform rules and regulations for the moral and expandable use of these technologies in safeguarding the common cultural heritage of all people. Cooperation between governments, cultural institutions, and technology companies is crucial.

In summary, although the integration of Metaverse, Blockchain, and Generative AI offers significant opportunities, their successful deployment depends on addressing issues of cost, technical capacity, ethical representation, and long-term sustainability. Future work should also involve empirical assessments, partnerships with cultural institutions, and the development of governance frameworks to ensure historically responsible and socially inclusive implementation.

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Ethics Declaration

Ethical clearance was not required for the research.

AI Declaration

AI tools were used solely for paraphrasing, refining language, and assisting in generating Figure 2.

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Heritage-Themed Establishments as Identity Catalysts: A Food Tourism Case Study in Pampanga, Philippines

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Abstract: Pampanga, known as the culinary capital of the Philippines, showcases a gastronomic heritage deeply woven into Filipino cultural identity. Amid the pressures of urbanization and evolving tourism dynamics, culinary venues have emerged as dining spaces and cultural platforms promoting Kapampangan identity. This study examines how heritage-themed dining establishments in Pampanga employ heritage branding to enhance food tourism and attract domestic and international visitors. Using a qualitative case study approach, the research began with a survey to identify the most visited heritage-themed establishments and to understand tourists' motivations and satisfaction levels. These survey results helped pinpoint key cafés and restaurants that serve as cultural touchpoints. A complementary qualitative interview was then conducted with a Kapampangan cultural expert. The interview explored issues related to authenticity, branding, and cultural preservation from the perspective of one directly involved in heritage-based food culture. Tourist surveys also probed perceptions of culinary authenticity, satisfaction, and the importance of cultural ambiance and storytelling. Findings suggest that heritage-themed cafés and restaurants significantly enrich tourist experiences by offering authentic Kapampangan cuisine and immersive dining atmospheres. Tourists demonstrated strong preferences for culturally aesthetic environments and heritage-consistent menus, highlighting the effectiveness of heritage branding in responding to modern tourism expectations. However, the study also identifies ongoing challenges, such as maintaining cultural authenticity while ensuring commercial sustainability, and competing with mainstream or globalized dining alternatives. The study offers practical recommendations for enhancing institutional support and fostering collaborations between dining establishments, local cultural organizations, and government agencies. These strategies can strengthen heritage interpretation and promote Pampanga's position as a premier culinary heritage destination in the Philippines. As part of an ongoing case study, survey responses continue to be collected to support future iterations of this research and to monitor evolving tourist perceptions over time. Ultimately, this research contributes to the discourse on sustainable culinary tourism by illustrating how heritage-themed dining establishments can serve as gastronomic attractions and venues for cultural transmission and identity reinforcement.

Keywords: Heritage-Themed Dining, Kapampangan Cuisine, Cultural Branding, Food Tourism, Authenticity in Food Experience

1. Introduction

Pampanga, located in Central Luzon, is widely regarded as the culinary capital of the Philippines. The province is known for its rich gastronomic traditions deeply rooted in local history and cultural identity. In recent years, there has been a growing interest in heritage-themed dining establishments – cafés and restaurants that consciously integrate cultural elements such as authentic Kapampangan dishes, traditional interior design, and storytelling into the dining experience. These establishments not only serve food but also function as spaces where heritage is communicated through cuisine, atmosphere, and curated cultural cues (Larsen, 2010; Kwan, 2024).

As culinary tourism continues to evolve, visitors increasingly seek not only to taste food but also to connect with the stories, aesthetics, and traditions behind it. This shift places heritage-themed dining at the intersection of cultural preservation and commercial appeal, where heritage is experienced as a multidimensional practice shaped by people, place, and legacy (Almansouri et al., 2021). At the same time, the growing popularity of food tourism presents challenges: establishments must balance authenticity and modern expectations, respond to shifting customer preferences, and navigate the pressure to create "Instagrammable" experiences without diluting cultural significance (Almansouri et al., 2022; Almansouri et al., 2023; Tvaltvadze, 2024).

This study investigates how tourists perceive their experiences in heritage-themed dining establishments in Pampanga. It aims to understand what attracts visitors to these establishments, how they evaluate authenticity, and what aesthetic and cultural elements influence their satisfaction. The study draws from survey data collected from visitors and content analysis of social media posts from these establishments to examine how visitors engage with heritage branding in the context of food tourism—an approach consistent with research emphasizing the role of online branding, curated digital narratives, and peer recommendations in shaping dining choices and tourism demand (Kwan, 2024; Tvaltvadze, 2024; Collado, 2025).

Specifically, this study aims to answer the question, "How do tourists perceive and evaluate their experiences in heritage-themed dining establishments in Pampanga, particularly about authenticity, satisfaction, and heritage branding?" From this main problem, the following research questions have been formulated:

1. What factors attract tourists to heritage-themed dining establishments in Pampanga?
2. How do tourists evaluate their satisfaction and perceived authenticity when dining in heritage-themed establishments?
3. How do tourists respond to and engage with the heritage branding elements promoted online by these establishments?
4. In what ways do aesthetic and cultural features shape tourist perceptions and overall dining experiences in the context of food tourism?

2. Related Literature

2.1 Heritage Food: Concepts, Risks, and Safeguards

Contemporary scholarship frames heritage food as a multidimensional construct anchored in legacy, people, and place, with interlocking sensory, symbolic, and procedural attributes (Almansouri et al., 2021). Empirical validation with culinary professionals highlights that authenticity is a socially negotiated, evolving practice: risk factors extend beyond recipe deviation to include adaptation to customer preferences, ingredient cost/availability, non-local chef backgrounds, and operational pressures that may alter taste and texture (Almansouri et al., 2022; Almansouri et al., 2023). Across these studies, recurring threats involve modernized tools that alter sensory outcomes, ingredient substitutions, and shortcuts in technique/sequence, while safeguards emphasize cook expertise, documented methods, and provenance-linked ingredients (Almansouri et al., 2022; Almansouri et al., 2023).

2.2 Measuring Gastronomic Heritage Quality

Methodologically, the Assessment of Gastronomic Heritage Quality framework aligns hygiene–sanitation controls with the sensory and symbolic characteristics of typical dishes in traditional restaurants, documenting recipes, tools, temperatures, and cultural cues (Uggioni, Proença, and Zeni 2010). While such controls protect safety and consistency, scholars caution that strict compliance can unintentionally pressure changes that risk heritage loss—hence the need to codify non-negotiables (core techniques, essential ingredients, flavour benchmarks) alongside regulatory requirements (Uggioni, Proença, and Zeni, 2010; Almansouri et al., 2023).

2.3 Performing Heritage: Space, Story, and Ambience

Beyond the kitchen, heritage is performed through space, service, and narrative. Dining rooms become stages where place-based stories, terroir, and playful nostalgia co-produce meaning with cuisine; the ethnography of Restaurant noma illustrates how design, sourcing, and service choreography enact a "tasty heritage" that fuses innovation with locality (Larsen, 2010). This helps explain why ambience, design, and storytelling weigh heavily in visitor perceptions of authenticity in heritage-themed venues.

2.4 Digital Mediation, Awareness, and Destination Branding

Digital channels shape the entire visitor journey—from awareness and pre-visit expectations to post-visit narration. Case work in Shunde, Guangdong Province, China, demonstrates how curated décor, seasonal/local menus, and interpretive service align sensory quality with regional identity in a hotel-restaurant setting (Kwan, 2024). A Helsinki trend study similarly highlights interior aesthetics, soundscape, friendly service, sustainability cues, and online branding as key touchpoints in contemporary dining decisions (Tvaltvadze, 2024). Event-based evidence from Bogotá demonstrates that gastronomic festivals can catalyse attendance, sales, and exhibitor participation, supporting destination reactivation and even MICE (meetings, incentives, conferences, and exhibitions) spillovers (Cárdenas Gómez and Ovalle Carrillo, 2023). Complementarily, conference research on food bloggers/influencers shows they provide visual social proof and narrative cues that can increase visitor inflow and spend, while raising risks around dependency, overtourism, and authenticity pressure—issues directly relevant to heritage cafés' reliance on visual storytelling (Collado, 2025).

2.5 Indigenous Foods, Routes, and Methods

Tourism research using lived experience models and interpretative phenomenological analysis (IPA) documents how diners make meaning from encounters with indigenous foods in commercial eateries; a Western Cape food-tour study demonstrates that place, sourcing, and narrative jointly anchor perceived authenticity and that programmed routes/itineraries are effective interpretive formats—an approach transferable to heritage-dining trails (Fisher and du Rand, 2024). Relatedly, a historical review argues that culinary innovation in practice is often unstructured, revealing a gap between academic research and gastro-tourism operations and calling for industry–academia collaboration to align innovation with heritage and sustainability (Fisher and du Rand, 2023).

2.6 Preservation, Digitization, and Intangible Heritage

Work on digitizing ritual food heritage reveals that inventories, multimedia documentation, and public platforms (often facilitated by municipal/cultural bodies) can safeguard intangible practices while facilitating tourism access. This Portuguese case underscores the importance of capacity and the benefits of video-first formats and social channels in expanding reach and engagement (Ramazanova et al., 2022). For destinations like Pampanga, such digitization underpins credible heritage branding, supports staff training, and provides reusable interpretive assets.

These insights directly inform the current study's focus on branding, ambience, and authenticity tensions in Pampanga's heritage-themed cafés and restaurants.

3. Methodology

3.1 Research Design

This study used a qualitative-descriptive case study to examine how visitors perceive and evaluate heritage-themed dining in Pampanga. A case approach is suitable for understanding experience in context and for integrating multiple evidence streams consistent with venue-level studies of dining culture and branding (Kwan, 2024; Tvaltvadze, 2024) and with gastronomy research that documents practices alongside perceptions (Uggioni, Proença, and Zeni, 2010; Fisher and du Rand, 2024).

3.2 Data Sources and Procedures

3.2.1 Tourist Survey

A structured survey (Microsoft Forms) targeted individuals who had visited heritage-themed cafés/restaurants in Pampanga. The instrument captured demographics, awareness channels, motivations, satisfaction, and perceptions of authenticity/branding. The survey link was disseminated through the researchers' networks and online channels, and respondents answered it on a voluntary basis. As of the time of writing, 349 valid responses were recorded; responses were treated as valid if the questionnaire was substantially completed and the visitation-frequency item indicated at least one visit (i.e., any option from "first time" to "daily"). Although no separate screening item was used, the visitation-frequency item implicitly indicates that respondents had at least one visit.

3.2.2 Digital Content Analysis

Public social-media posts and promotional materials of the most-visited establishments (as identified by the survey) were reviewed. The aim was to examine how heritage cues are presented online and how these may influence awareness and expectations. Prior work shows that curated décor, seasonal/local sourcing, and online presence co-produce a venue's cultural identity (Kwan, 2024); that interior aesthetics, soundscape, service tone, sustainability cues, and online branding steer dining choices (Tvaltvadze, 2024); and that programmed gastronomic content amplified via social media drives audience reach and intent (Cárdenas Gómez and Ovalle Carrillo, 2023).

3.2.3 Key Informant Interview

To deepen the interpretation of culinary authenticity and preservation, a semi-structured interview was conducted with Mr. Ruston Banal (artist, cultural advocate, and former tourism officer). His insights on "food grammar," evolving authenticity, and documentation gaps contextualize how Kapampangan cuisine is

understood locally. The key-informant data were obtained through voice recordings sent via private messaging. The respondent spoke in a mix of Kapampangan and English, reflecting natural conversational practice. The recordings were transcribed verbatim by the researcher, while the text used in the body was translated into English by the researcher whenever necessary. The value of expert and situated perspectives in linking place, sourcing, and narrative to perceived authenticity is reflected in interpretive work on food tours and indigenous foods (Fisher and du Rand, 2024), as well as in venue-level case studies that connect décor, menu, and service to local identity (Kwan, 2024).

3.3 Analysis

- Survey data were summarized using descriptive statistics (frequencies, percentages, and mean satisfaction scores) to profile visitors, rank motivations, and assess branding influence and perceived authenticity risks. This approach mirrors quantitative treatments used to validate heritage-food attributes and risk factors (Almansouri et al., 2022; Almansouri et al., 2023) and to assess gastronomic quality dimensions (Uggioni, Proença, and Zeni, 2010).
- Digital content was analysed thematically to identify branding and interpretation patterns (e.g., heritage symbols, spatial cues, plating aesthetics, provenance claims). The choice of themes follows venue/destination studies that connect ambience and online presentation to visitor expectations and satisfaction (Kwan, 2024; Tvaltvadze, 2024; Cárdenas Gómez and Ovalle Carrillo, 2023).
- Interview data were organized into analytic memos (authenticity anchors, adaptation boundaries, and documentation needs) and used to contextualize survey and content findings, akin to interpretive approaches that relate place–sourcing–narrative to perceived authenticity (Fisher and du Rand, 2024).

4. Results

4.1 Survey Results

4.1.1 Tourist Profile

Respondents were predominantly under 20 years old (254; 72.8%), followed by those aged 20–29 (85; 24.4%), 30–39 (7; 2.0%), 40–49 (1; 0.3%), and 50 and above (2; 0.6%). By gender, women (227; 65.0%) outnumbered men (110; 31.5%), with non-binary individuals (4; 1.1%) and those who prefer not to say (8; 2.3%) comprising the remainder. Most respondents were local residents of Pampanga (302; 86.5%), with domestic visitors from other Philippine regions (47; 13.5%) forming a smaller share. In terms of visitation frequency, patterns indicate regular but not frequent engagement: first-time (34; 9.7%), occasional, 1–3×/year (187; 53.6%), seasonal, 4–6×/year (70; 20.1%), monthly (46; 13.2%), weekly (12; 3.4%), and daily (0; 0%). These distributions suggest that heritage-themed venues are especially salient to younger, local visitors who engage periodically rather than habitually.

4.1.2 Visitor Motivations and Attractions

Updated results indicate that visitors were primarily motivated by authentic Kapampangan cuisine (213; 31%) and historical/cultural ambiance (176;25%). Visual appeal remained a strong draw, with Instagrammable/aesthetic environments (134; 19%) ranking third. Social proof also played a significant role: recommendations from others (125; 18%) influenced nearly one-fifth of respondents, while curiosity about local culinary traditions (50; 7%) played a smaller, yet notable, role.

4.1.3 Satisfaction Ratings

Tourists consistently reported high satisfaction across all experience dimensions. The top-rated aspects were the heritage-themed interior and ambiance (4.41/5), followed by the presentation and aesthetics of the dishes (4.38) and the variety of menu offerings (4.38). Taste (4.36) and quality of service (4.36) were likewise strong. Slightly lower—but still positive—scores were given to the use of authentic/local ingredients (4.34) and Instagrammable areas/backgrounds (4.31). The lowest rating was staff knowledge of heritage topics (4.10).

4.1.4 Appreciation of Heritage

Most visitors reported that their dining experience deepened their appreciation of Kapampangan heritage, with responses of "yes, significantly" (184; 53%) and "yes, somewhat" (125; 36%), totalling 309 (89%). Smaller shares were "neutral" (31; 9%) and "not really" (8; 2%), while "not at all" (0; 0%) was not selected.

4.1.5 Awareness and Branding Influence

For awareness sources (multi-select), respondents most often learned about heritage-themed venues via social media (253; 40.16%) and recommendations from friends/family (256; 40.63%), followed by online reviews (54; 8.57%), travel websites/blogs (34; 5.40%), and local tourism promotions (33; 5.24%). Regarding the influence of branding on venue choice, responses clustered toward importance, with "extremely important" (144; 41.26%) and "somewhat important" (121; 34.67%) totalling 265 (75.93%). Fewer respondents chose "neutral" (78; 22.35%), with minimal indications of low importance—"somewhat not important" (5; 1.43%) and "extremely not important" (1; 0.29%).

4.1.6 Perceived Authenticity Risks

For factors that might affect authenticity (multi-select), respondents most frequently cited modernized cooking methods (192; 31%), followed by substitution of traditional ingredients (116; 19%) and adjustments to tourists' taste preferences (116; 19%). Other notable concerns were foreign influence in food preparation (105; 17%) and lack of culinary knowledge among chefs (84; 14%).

4.1.7 Recommendation and Revisit Intentions

An overwhelming majority indicated they would recommend heritage-themed dining to others: Yes (343; 98.28%) vs. No (6; 1.72%). Likelihood to revisit was likewise strong: "Definitely" (229; 65.62%), "Probably" (104; 29.80%), "Unsure" (15; 4.30%), "Probably not" (1; 0.29%), and "Definitely not" (0; 0.00%).

4.2 Content Analysis

To supplement the survey findings, a content analysis was conducted on the social media accounts and online presence of the three heritage-themed dining establishments that were most frequently mentioned in the survey: Aling Lucing, Singkù Café, and Silung Coffee. This analysis examined how these establishments present their heritage branding, aesthetic appeal, and culinary authenticity through their respective social media accounts.

4.2.1 Aling Lucing

Aling Lucing's Facebook page prominently highlights its legacy as the originator of sisig, with frequent references to its founder and the historical significance of its recipes. The establishment's signature presentation, sisig served on a hot sizzling plate (a plate made of cast-iron), is repeatedly shown online and functions as a recognizable visual maker of authenticity. Sisig is widely recognized as Pampanga's signature contribution to Filipino cuisine, and Aling Lucing's branding consistently positions the dish as part of its origin-story identity. Their Facebook posts, such as their 50th Anniversary Celebration and a CNN feature with the founder's granddaughter, underscore their heritage narrative. Visuals often depict rustic dining settings, reinforcing a sense of tradition and continuity. It also highlights the original branch's modest setting and open layout, reflecting a no-frills dining environment associated with ordinary, everyday dining in Pampanga, and in the Philippines more broadly, depicting a typical *carinderia*. In this study, an open-air *carinderia* refers to a simple, casual eatery with a partly open structure, basic seating, and a community dining atmosphere, features that reinforce perceptions of tradition and continuity.

4.2.1 Singkù Café

Singkù Café uses the tagline "Celebrating Coffee & Culture" and showcases its role as a cultural space through event promotions and collaborations with local artists. Its Instagram page emphasizes its aesthetic appeal, featuring posts that showcase vintage interiors, cultural exhibits, and heritage-inspired drinks. A notable example is a café tour reel that introduces their barista, reinforcing both personal connection and brand authenticity.

4.2.1 Silung Coffee

Silung Coffee projects a serene, rustic atmosphere grounded in Filipino hospitality. Social Media content often includes bamboo and wood-accented interiors, native materials, and lush greenery, not to mention that the establishment is situated in the old municipal building of Mabalacat City. Posts highlight local coffee blends and dishes, while captions reference comfort and tradition, positioning the space as a modern retreat rooted in cultural identity.

5. Discussion

5.1 Why Tourists Choose Heritage Dining: Authenticity, Culture, Aesthetics

The top visit drivers were authentic Kapampangan cuisine (31%), historical/cultural ambience (25%), and Instagrammable/aesthetic environments (19%). This blend demonstrates that visitors seek a multisensory heritage experience—credible flavours rooted in place, presented within visually legible spaces. This aligns with studies showing that heritage is performed through cuisine, space, and narrative (Larsen, 2010), and with venue cases where curated décor, local/seasonal menus, and interpretive service convert locality into a coherent identity (Kwan, 2024). Contemporary dining research confirms that interior aesthetics, soundscape, and online branding now function as decision cues alongside food quality (Tvaltvadze, 2024).

5.2 How Visitors Judge the Experience: Satisfaction and Authenticity

Satisfaction was consistently high: heritage-themed interior/ambience (4.41/5), presentation/aesthetics (4.38), variety (4.38), taste (4.36), service (4.36), with authentic/local ingredients (4.34) close behind. The lower score for staff heritage knowledge (4.10) indicates an interpretive gap: ambience and plating communicate heritage implicitly, but explicit cultural interpretation is thinner. This pattern mirrors heritage-quality assessments where sensory excellence leads, while cultural explanation lags (Uggioni, Proença, and Zeni, 2010). Perceived authenticity risks reported by visitors—modernized tools (31%), ingredient substitutions (19%), adjustments to tourist tastes (19%), foreign influence (17%), and chef knowledge gaps (14%)—track validated risk factors in the heritage-food literature (Almansouri et al., 2022; Almansouri et al., 2023). The literature's consensus is that authenticity is dynamic and socially negotiated; adaptation is feasible if venues safeguard core flavour memory, key method sequences, and provenance (Almansouri et al. 2021; 2022; 2023). Practically, Assessment of Gastronomic Heritage Quality (AQHQ)-style documentation of non-negotiables can strike a balance between safety, consistency, and cultural fidelity (Uggioni, Proença, and Zeni, 2010).

5.3 How Online Branding Shapes Choices: Posts, Reviews, and Reach

Branding clearly works as a decision heuristic: 41.26% rated it extremely important and 34.67% somewhat important (76% combined), while awareness was led by recommendations (~40.63%) and social media (~40.16%), followed by online reviews (8.57%) and travel sites/blogs (5.40%). This matches evidence that digital channels pre-shape expectations and channel demand (Kwan, 2024; Tvaltvadze, 2024). The exceptionally high cultural appreciation gains (89% significant/somewhat) suggest that once branding brings visitors in, the on-site experience reinforces identity, turning digital promise into cultural learning.

5.4 How Space and Symbols Shape the Meal: Aesthetics in Action

Aesthetic and cultural features shape judgments before, during, and after the meal. Before: imagery of interiors, plating, and symbols primes visitors to expect "heritage" (Tvaltvadze, 2024). During: diners read ambience, sourcing claims, and service tone as cultural signifiers (Larsen, 2010; Kwan, 2024). After: visuals and narratives fuel post-visit narration (reviews, posts), extending the venue's heritage story online (Tvaltvadze, 2024). Tour-based work demonstrates that place, sourcing, and narrative jointly anchor perceived authenticity (Fisher and du Rand, 2024), and that route/itinerary formats can scaffold interpretation—suggesting that a heritage café trail in Pampanga could enhance meaning-making. These results indicate that designed cultural cues (Kapampangan indigenous script "Kulitan" motifs, rustic materials, and provenance notes) and clear stories (menu language and QR-linked dish histories) are not peripheral; they are core contributors to satisfaction and cultural value.

5.5 Qualitative Insights

These findings are further enriched by insights from cultural expert Mr. Ruston Banal, who emphasized that Kapampangan food authenticity extends beyond recipes to include social rituals such as "food grammar." In his account, food grammar refers to the culturally expected structure of a Kapampangan table—the assumption that a complete meal is built through a patterned combination of components: a soup or broth, a dipping sauce, vegetables, and entrée, rather than a single dish served in isolation. Banal describes this as a culturally "complete" table: "when we are serving food on the table… you have *sabo* (soup/broth) to slurp, you have *tiltilan* (dipping sauce) to dip your food in, and then you have vegetables as part of your viand, and then you have the entrée or the main dish" (Banal, personal communication, April 1, 2025). Framed this way, authenticity is not only a matter of whether a dish follows a correct recipe, but also whether a meal "reads" as culturally coherent to those socialized within the tradition. This helps contextualize why authenticity is highly localized and evolving: the "rules" of the table are shaped by family practice, community memory, and changing circumstances over time (Almansouri et al., 2021; Almansouri et al., 2022; Almansouri et al., 2023).

Within this broader experience, cultural authenticity remains central to tourist evaluation. High ratings for taste and ambience indicate that visitors judge authenticity through both sensory satisfaction and the dining environment. Banal's concept of "food grammar" helps interpret this pattern: even when visitors focus on presentation and flavor, the experience is strengthened when the meal implicitly aligns with the expected structure of Kapampangan dining, which he describes as a shared language of food that cuts across social classes and reinforces Kapampangan identity. He explains that this structure is widely shared: "Despite what social class you belong to, that's the authentic Kapampangan" (Banal, personal communication, April 1, 2025). In this sense, the establishments' strongest "heritage performance" is achieved not only through décor or branding, but through making the meal feel culturally complete and recognizable.

However, the notion of authenticity is complex and contested. As Banal notes, no single version of a dish represents a fixed cultural truth. Authenticity is highly localized, with each family or barrio having their own iterations of the same dish. As he puts it, "even within a barrio (village) or even within a town, there are nuances when cooking a certain type of dish… every family has their own version of… sisig… kare-kare… asado" (Banal, personal communication, April 1, 2025). Migration, technological advancement, and changing lifestyles continue to alter culinary traditions. He critiques the term "authenticity" as a colonial construct and instead suggests that true cultural continuity exists in the inherited methods practiced within families and communities. This is consistent with survey findings that recognize modern cooking tools as risks to authenticity yet also reveal that non-local diners may not be able to detect these differences due to varying taste memories. Banal notes that modern equipment "affects the taste, the memory of taste… because it's not the same way a pork or a chicken is cooked" (Banal, personal communication, April 1, 2025). What is important is that, despite the advancements in culinary technology, the so-called "memory of taste," the traditional taste profile as how locals recall it, must be established to authenticate these dishes.

The role of chefs and establishments, therefore, is to strike a balance between honouring their cultural roots and creating dishes that are both visually and gastronomically appealing to a broad audience. Banal advocates for a collaborative model where heirloom flavours are preserved while the presentation is adapted for aesthetic appeal, especially for modern or foreign diners who expect visual refinement. He frames the balance clearly: "you have the traditional heirloom dishes… and as a chef, you may want to elevate this dish… [by] retaining… the taste… then… make it attractive on the plate" (Banal, personal communication, April 1, 2025). Social media analysis confirms this trend, showing that tourists are drawn to Instagrammable design elements and storytelling through visual appeal, ambiance, and branding.

Importantly, the discussion highlights the lack of documentation as a key vulnerability in heritage preservation. Banal emphasizes the importance of cataloguing culinary knowledge and community best practices – whether through personal inventories, academic studies, or digital archives – to ensure continuity. Banal emphasizes that "the missing piece is documentation," arguing for a "mapping and inventory of that particular dish at a certain period of time" so records "stay" even as recipes evolve (Banal, personal communication, April 1, 2025). As food becomes increasingly influenced by global exposure and digital representation, the provenance and historical roots of regional dishes risk being lost or diluted.

This study reaffirms that heritage-themed dining establishments in Pampanga are not merely commercial ventures – they are cultural sites where memory, identity, and innovation converge. By acknowledging the multiplicity of authentic expressions, understanding visitor expectations, and supporting efforts to document

and preserve culinary knowledge, stakeholders can ensure that food tourism remains both culturally meaningful and sustainably appealing.

6. Conclusion

This study examined the role of heritage-themed dining establishments in Pampanga in contributing to food tourism by providing culturally rich, aesthetically immersive, and gastronomically satisfying experiences. Through surveys, content analysis, and expert interviews, it was found that tourists are primarily attracted to the authenticity of Kapampangan cuisine and the establishment's visual appeal. Satisfaction was highest when cultural immersion and culinary excellence intersected, reinforcing the importance of traditional taste, ambiance, and heritage branding.

However, the research also revealed tensions between modern expectations and traditional practices. Tourists, particularly younger and non-local audiences, appreciate Instagrammable aesthetics and modernized dining spaces, which establishments often balance with cultural motifs and storytelling. Expert insights underscored that while culinary traditions evolve, preserving the inherited taste and structure of Kapampangan meals remains central to authenticity. The lack of systematic documentation, however, poses a threat to the continuity of heritage.

As Pampanga continues to position itself as a premier culinary destination, this study underscores the importance of collaborative efforts among cultural workers, tourism stakeholders, and food entrepreneurs. These efforts must ensure that innovation enhances rather than erases the cultural foundations of the cuisine. By integrating authentic culinary practices with thoughtful branding and storytelling, heritage-themed establishments can play a lasting role in reinforcing Filipino identity through food tourism.

7. Recommendations

Based on the findings and expert insights from this study, the following recommendations are proposed to support the continued development of heritage-themed dining establishments as pillars of sustainable food tourism in Pampanga:

Cultural workers, local government units, and educational institutions should collaborate to document heirloom recipes and cooking practices. Creating a local archive or digital repository of Kapampangan culinary traditions can help safeguard authenticity across generations.

Establishments should continue to invest in aesthetic elements that reflect Kapampangan heritage, such as traditional décor, menu design, and plating styles, while leveraging social media to share meaningful cultural stories behind their dishes.

Service staff can act as cultural ambassadors by being trained to communicate the historical and cultural background of featured dishes. This adds depth to the dining experience and supports educational tourism.

Chefs should be encouraged to innovate in presentation and format while retaining the flavor profiles and structure that reflect the Kapampangan "food grammar." A balance between creativity and preservation can attract a broader tourist base without compromising authenticity.

Partnerships among tourism offices, heritage institutions, and food entrepreneurs can ensure that marketing strategies and tourism promotions align with the goals of heritage preservation. Events such as food festivals and guided culinary tours may reinforce Pampanga's brand as a heritage food destination.

The study's primary limitation was the inability to include direct input from establishment owners or managers. This was mitigated by triangulating survey data with a broad content analysis of online materials, allowing for a visitor-centred perspective that captures both firsthand experiences and public representations. Further studies may explore these limitations in greater depth.

Ethics Declaration

Participation was voluntary and anonymous. Only public digital materials were analysed. As an ongoing case, the survey remains open to receive additional responses, supporting comparisons over time (cf. event/destination monitoring in Cárdenas Gómez and Ovalle Carrillo, 2023).

AI Declaration

This study utilized artificial intelligence (AI) tools, including ChatGPT-5 and Grammarly, primarily to refine the grammatical structure and clarity of the paper. ChatGPT-5 was utilized for linguistic refinement, sentence restructuring, and coherence enhancement, with prompts such as "improve the readability of this phrase without changing the idea or the message." Grammarly further assisted in proofreading and syntax corrections. Nevertheless, all research, analysis, and interpretation remain the product of the author's critical engagement with gathered data.

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Community-Led Governance for Sustainable Tourism in Emerging Destinations

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Abstract: Community-led governance is increasingly recognised as pivotal for sustainable tourism, yet empirical analysis of how informal neighbourhood institutions perform governance functions is scarce. This mixed-methods study examines how mahallas—traditional neighbourhood organisations in Uzbekistan—contribute to tourism sustainability by bridging formal institutions and local communities. Using social network analysis and ethnographic interviews, we mapped 159 actors (93 in Tashkent, 66 in Bukhara) and more than 420 confirmed ties to analyse network structure, central actors, and interaction mechanisms. Results show contrasting but complementary governance models: Tashkent exhibits a polycentric, institutionally connected network where mahallas act as intermediaries between government, businesses and NGOs; Bukhara shows a smaller, denser network grounded in bonding social capital and moral legitimacy. Mahallas increase project completion and participation (joint initiatives recorded 78–82% success rates versus lower rates for municipal-only projects), mobilise *hashar* and cultural stewardship, and enable rapid local learning and replication of sustainability practices. The paper contributes to governance and tourism literature by demonstrating three capacities of informal institutions (relational, moral and cognitive) and argues that sustainable outcomes depend on alignment between formal policy and culturally rooted community action. Practical implications include institutionalising mahalla participation in planning, capacity-building for local leadership, and promoting inter-city knowledge exchange.

Keywords: Sustainable Tourism, Community-based Governance, Destination Resilience, Cultural Sustainability, Uzbekistan

1. Introduction

Sustainable tourism governance is now a major topic for countries trying to grow their tourism industries without harming people or the environment. In many developing destinations, strong policy documents exist, yet they often have limited influence at the neighbourhood level. Real sustainability depends on how people live, cooperate, and make local decisions. For this reason, researchers increasingly look beyond ministries and formal agencies to the smaller community systems that guide everyday life (Bramwell and Lane, 2011; Hall, 2019; Deng and Zhou, 2022).

In Uzbekistan, that community system is the mahalla - a neighbourhood organisation that has existed for centuries. It coordinates mutual support among families, settles disputes, and organises collective work known as hashar. Although mahallas are now formally integrated into state administration, their authority continues to come from respect and trust. They already take responsibility for local order and cleanliness, yet their role in tourism remains largely invisible. Most tourism studies in the region focus on policies or economic growth rather than the social networks that keep destinations operating day to day.

Tourism governance always involves multiple groups - government, businesses, and residents - whose interests intersect. The idea of network governance explains how cooperation and trust can complement or even replace strict administrative control (Wang and Ran, 2023). From this perspective, mahallas are not only cultural communities but also small governance arenas where people and institutions meet to solve problems.

This paper examines how mahallas contribute to sustainable tourism governance in Uzbekistan. It combines social network analysis with interviews conducted in two cities: Tashkent, the capital, and Bukhara, a heritage destination. The aim is to understand how formal rules and community practices connect in managing tourism more sustainably.

We argue that sustainability grows from relationships as much as from policy. Studying mahallas shows how everyday cooperation shaped by culture and trust can make tourism governance more inclusive and resilient.

2. Literature Review

2.1 Sustainable Tourism Governance

Sustainable tourism governance is mainly about how tourism decisions are made, by whom, and for whose benefit. The goal is to keep economic progress, environmental protection, and community wellbeing in reasonable balance (Farsari, 2023). This topic became more visible after the UN Sustainable Development Goals placed cooperation and inclusion at the centre of tourism policy. In practice, this means that governments are expected to work with communities instead of simply deciding for them (Henfrey, Feola, Penha-Lopes et al., 2023).

Researchers often draw a line between *government* and *governance*. The first is usually about command, regulation, and formal authority. The second relies more on everyday negotiation, informal contact, and the trust that grows between actors (Wachhaus, 2014). In tourism, that shift matters. Plans and regulations still help, but sustainability mostly depends on how residents, entrepreneurs, and officials manage to talk to one another and find compromises (Warburton, 2018). In this sense, good governance is less about structure and more about communication. It also needs to respect the local culture and ways of doing things; otherwise, participation quickly fades (Li, Kim and Lee, 2021).

In many developing destinations, the formal system is thin. There might be too few staff, overlapping offices, or unclear rules. Under these conditions, community action becomes crucial. Local groups often step in to handle issues that affect tourism directly - waste management, guest behaviour, or heritage maintenance. These responses may look small, yet they work because people trust each other and share responsibility. As Carmen, Fazey and Friend (2024) point out, such initiatives fill the gaps where governments cannot act effectively. Understanding how these local systems organize themselves and connect with the formal level remains one of the main questions for researchers studying sustainable tourism governance.

2.2 Network Governance and Social Capital

Network governance is often used to explain how coordination really happens when no single actor can manage everything alone. It treats governance as a web of relationships in which different groups depend on one another and share what they have - information, resources, or local influence - to reach common goals (Puranam and Vanneste, 2009). In tourism, this makes particular sense. Destinations are not run by one office but by a mix of local authorities, businesses, and communities that connect through partnerships of many kinds. Some of these links are horizontal, between people and organizations on the same level, while others are vertical, connecting local networks with regional or national structures.

The strength of these connections rests mostly on trust and regular contact, and destinations with stronger and more open networks perform better. Without them, agreements stay formal and rarely work in practice. When trust exists, people share news quickly, coordinate better, and adapt faster to problems. This is what Pittaway, Bartolomei and Doney (2016) called *social capital* - the invisible glue that holds cooperation together. Yet, it is often the informal actors - the *mahalla* chairperson, the active volunteer, the craft-shop owner - who make cooperation work on the ground. Including them in the picture gives a more realistic sense of how tourism governance functions day to day.

Social capital comes in two main forms. *Bonding* ties hold communities together through shared norms and trust, while *bridging* ties link them with outsiders and new opportunities (Shrestha, 2023). Bonding keeps cooperation strong; bridging brings new ideas and connections that allow change.

2.3 Social Network Analysis in Tourism Governance

Social Network Analysis (SNA), gives researchers a way to look at governance through people rather than institutions. It helps to map who works with whom, who shares information, and how these ties create real influence (Wang and Ran, 2023). In many ways, SNA shows that the power to get things done often depends less on job titles and more on relationships. A single person who connects two groups can make a huge difference, especially in small communities.

In tourism, the approach has been used to study cooperation between businesses, public bodies, and residents. It helps explain how innovation spreads and how decisions are shaped by communication rather than by written policy. The method also draws attention to what happens outside the official system. Instead of assuming that

governance follows a neat hierarchy, it reveals the informal web of connections that keeps destinations running day to day.

At the community level, SNA is particularly useful. It can show hidden patterns of trust and dependence that keep local systems working. In small towns or rural areas, a community leader or *mahalla* chairperson often links residents with government offices or NGOs. In network terms, such people have high *betweenness centrality* - they bridge gaps and make communication flow. These go-betweens often stop small conflicts from growing and make cooperation easier. Measures like network density or clustering tell us how close-knit a network is and how resilient it might be if one actor drops out.

2.4 Conceptual Framework

Drawing on the ideas discussed earlier, this study views community-led sustainable tourism governance as something mixed and flexible rather than fixed. It is a system where formal structures and informal relations constantly interact, and where social networks link the two. In practice, this means that rules, cultural values, and everyday cooperation all shape how governance happens.

Three main assumptions guide this approach. First, the success of governance in developing destinations depends not only on institutions and regulations but also on the quality of relationships among the people involved. Second, informal institutions such as *mahallas* can be genuine governance actors because they use shared cultural values and social capital to coordinate action. Third, the structure of these networks - how dense they are, who connects whom, and how information moves - helps explain how communities turn cooperation into tangible sustainability outcomes.

This framework shapes how the research looks at *mahallas* in Tashkent and Bukhara. It brings together two perspectives: the structural one, which focuses on measurable links between actors, and the cultural one, which considers trust, responsibility, and collective norms. By connecting these dimensions, the study aims to show that sustainable tourism governance works best when it grows from the community's own social reality rather than being imposed from outside.

3. Methodology

3.1 Research Design

This research used a mixed approach. It combined Social Network Analysis (SNA) with ethnographic work to look at how community-led governance actually functions in sustainable tourism. SNA helped to see the structure of collaboration - who talks to whom and how often - while the ethnographic part helped explain why those ties matter. Using both made it possible to connect numbers with stories and to understand *mahallas* as real governance actors rather than background institutions.

Fieldwork was done in two Uzbek cities, Tashkent and Bukhara. They represent very different tourism settings. Tashkent is large, modern, and busy, with a growing tourism sector and more formal coordination. Bukhara is smaller and slower, known for heritage and tradition. The contrast between them gave a chance to see how informal governance works under different pressures.

In both cities, *mahallas* coordinate small projects: neighbourhood cleaning, help for residents, and simple visitor services. Studying both sides helped to see what changes with modernization and what stays the same in community practice.

3.2 Data Collection

Data was collected between March 2024 and June 2025 through semi-structured interviews. Altogether, 159 people and organizations were part of the network - 93 in Tashkent and 66 in Bukhara. They came from five main groups: local authorities, private tourism businesses, *mahalla* committees, NGOs, and education or cultural institutions.

Interviews focused on daily cooperation. Each respondent named people or groups they worked with most often in tourism-related matters. From that list, a network matrix was created showing whether a connection existed or not. Four main ties were recorded: joint projects, sharing information, resource exchange, and trust-based cooperation.

Conversations were flexible. In many cases, respondents brought up social ideas such as respect for elders, moral obligation, and community pride. These stories were noted because they explained how relationships formed and why cooperation continued.

3.3 Network Analysis

The network data were processed with UCINET. Metrics like degree, betweenness, closeness, and density were calculated to understand who played central or bridging roles. Modularity was checked to see which actors clustered together.

The goal was not statistics but to see how *mahallas* link with formal and informal partners. Governance in tourism rarely follows clear lines of authority, so mapping relationships helped to see how collective management really happens.

Ethnographic work added the everyday side of governance. Informal talks with *mahalla* leaders, residents, and entrepreneurs often continued after the interviews. Short visits to *mahalla* offices or local meetings helped show how people decide and cooperate. At this stage, the focus was on tone, gesture, and shared understanding rather than on formal data.

Field notes were reviewed and grouped around common ideas - trust, reciprocity, shared duty, respect. These themes later helped explain why certain network patterns existed and gave life to what the numbers only suggested.

4. Results

4.1 Overview of Governance Networks

Across Tashkent and Bukhara, the study mapped 159 actors and about 420 confirmed ties. Of these, 93 actors (58%) were based in Tashkent and 66 (42%) in Bukhara. Overall network density was 0.017, typical for multi-level governance systems where collaboration occurs through selective rather than universal links. On average, each actor had eight partners, indicating small but consistent circles of cooperation.

Tashkent's network was larger, with 255 ties (61%) and a polycentric structure featuring several hubs instead of a single dominant actor. The city tourism department and three *mahalla* committees stood out with degree centrality scores of 36, 34, and 32, reflecting their strong reach across public, private, and community sectors. About 42% of Tashkent's ties were inter-sectoral, with the private sector around 31% of nodes accounting for nearly 45% of such links, showing hotels, tour operators, and creative entrepreneurs as emerging voices in sustainability. Mahallas served as intermediaries, connecting businesses with city authorities on waste management, recycling, and neighborhood improvement projects.

Interview data reinforced these patterns: in districts where mahallas coordinated meetings, 82% of projects were completed successfully, compared to 59% where only municipal staff led. This suggests that moral legitimacy and community trust directly enhance project success.

Bukhara's network was smaller but denser, with 132 ties and a local density of 0.031, almost double Tashkent's. About 70% of connections were within or between mahallas, while 15% linked to government offices, indicating governance rooted in bonding social capital rather than formal hierarchy. Two central mahallas near the historic core, with degree centrality scores of 28 and 26, organized most joint clean-ups and cultural events. Respondents noted these seasonal events (spring and autumn) attracted roughly 20% of the city's tourist flow, linking community activity to tangible tourism benefits.

Despite their differences, the two networks were interconnected through 33 cross-city ties, mainly involving NGOs, researchers, and heritage experts. These links facilitated knowledge exchange between Tashkent's innovation-driven projects and Bukhara's preservation-oriented initiatives. For example, Bukhara's mahalla leaders participated in Tashkent workshops on eco-friendly events planning modest yet meaningful steps toward national-level learning in community-led tourism governance.

Overall, the findings show that mahallas occupy structurally pivotal positions in both cities. They bridge formal administration and everyday community life, translating sustainability values cleanliness, hospitality, heritage care into neighborhood action while linking these efforts to broader governance frameworks.

4.2 Central Actors and Relational Dynamics

Across both networks, data show that sustainable tourism cooperation relies on both formal institutions and community actors. While government offices and NGOs hold authority, mahalla leaders connect residents, businesses, and agencies, bridging the system and building trust.

The networks included diverse actors with varying influences. Each stakeholder averaged eight to nine connections, suggesting multiple active partnerships. The most connected were local tourism departments, *mahalla* committees, and small community-oriented businesses together accounting for nearly one-fifth of all ties and showing that institutional coordination and grassroots relations jointly shaped governance.

Private tourism enterprises played an increasing role. Though comprising about one-third of participants, they generated more outbound links, showing strong engagement in collaborative governance. Interviewees from these firms described joint efforts with mahalla committees on waste sorting, green-space upkeep, and local hospitality. One hotelier reported that community-supported recycling bins cut waste by about 25% in one season.

Roughly a quarter of participants served as brokers linking otherwise unconnected groups, often mahalla leaders or mid-level managers who combined local trust with institutional access. Their leadership was moral rather than administrative based on respect, honesty, and fairness. This reflects distributed leadership rather than hierarchy. Decision-making was cooperative and reputation based. Projects formed around specific issues like cleanliness, gardening, and small events creating temporary cross-sector clusters that reorganized naturally after completion.

Respondents in both cities cited shared values like honesty, dedication, and social responsibility as the foundation of trust and cooperation. These norms fostered collaboration and minimized conflict. As one crafts association leader noted, the mahalla is “the place where things get done quietly,” capturing governance that is practical, relational, and rooted in ethics over regulation.

4.3 Mechanisms of Sustainable Governance

Findings from both cities reveal several interconnected ways in which mahallas sustain tourism governance. These processes blend moral values, coordination between formal and informal systems, and collective learning, showing how small neighborhood institutions become vital for long-term tourism management.

The first and most visible factor is moral legitimacy. Community leaders foster participation through shared ethics rather than authority. Many respondents described moral duty and social responsibility as key motivations for involvement. Over three-quarters said they joined local campaigns or clean-up events because it “felt right,” not because they were instructed. Regular *hashar* gatherings and cleaning streets, restoring public spaces, planting trees, building pride and strengthen the social fabric supporting tourism. When respected elders or committees endorsed projects, participation rose by nearly 40% compared to those led solely by officials. Moral legitimacy thus underpins sustainable local governance even without external oversight.

A second mechanism lies in how mahallas bridge households and formal institutions. Acting as mediators, they translate bureaucratic goals into community realities. About a quarter of all inter-sectoral ties involved mahalla committees, confirming their strategic role. Through these links, communities collaborate with tourism offices, private firms, and NGOs. Several examples showed mahalla leaders partnering with training centers or entrepreneurs to run short hospitality courses, helping women and youth start small tourism ventures like homestays and cultural workshops. In other cases, they mediated between residents and event organizers to balance tourism activities with noise or heritage concerns. This translation between institutional and cultural systems ensures tourism remains both respectful and locally grounded.

The third layer is continuous knowledge exchange within communities. Residents learn from one another, adapting successful ideas to local contexts. Most respondents reported that they first encounter sustainability practices waste sorting and energy saving through community initiatives rather than formal programs. When one neighborhood installed solar lamps, others quickly replicated the model. In heritage zones, younger volunteers observed elders organizing *hashar* and festivals, later assuming these roles themselves. Such peer learning fosters adaptive capacity the ability to adjust while preserving identity, turning sustainability into a lived, practical process rather than an abstract goal.

Across both cities, these forms of governance overlap. Moral authority ensures participation; bridging builds cooperation; and social learning keeps the system flexible. Together, they show that community-led governance

relies less on regulation and more on trust and shared purpose. Through these interactions, local residents continue to carry the values of hospitality, cleanliness, and collective responsibility that define sustainable tourism in Uzbekistan's urban communities.

4.4 Comparative Insights Between the Two Destinations

Comparing the two cities shows that sustainable tourism governance takes shape differently depending on local context. Tashkent and Bukhara share a foundation of community involvement, yet their systems differ in scale and rhythm, one large and dynamic, the other small and close-knit. Both, however, center on the mahalla, which quietly connects policy, people, and practice.

The study mapped 159 actors and about 420 ties: 93 actors and 255 links in Tashkent, 66 actors and 132 in Bukhara, plus 33 cross-city connections (8 percent). In Tashkent, public–private and community–government ties accounted for over half of all links (29 and 26 percent), with an inter-sectoral to internal ratio of 1.4:1, showing frequent cross-institutional cooperation. In Bukhara, nearly 70 percent of links stayed within or between mahallas, 15 percent connected to authorities, and 12 percent to businesses indicating reliance on trust and obligation rather than formal rules.

Despite these contrasts, the influence of informal institutions was consistent. About 82 percent of interviewees said sustainability projects "would not move" without mahalla endorsement, underscoring legitimacy as the real driver of cooperation.

Performance patterns also diverged. In Tashkent, projects jointly managed by mahallas and city departments achieved 78 percent participation, compared to 53 percent for municipal-only initiatives. Meetings with mahalla representatives were about 25 percent faster due to quicker conflict resolution. In Bukhara, participation in community and heritage events was higher often 85–90 percent, but decision-making was slower, taking six to eight weeks. Yet once consensus was reached, adherence remained strong; one recycling project-maintained 95 percent compliance after six months. Slower processes, in this case, enhanced stability.

Network strengths differed too. Tashkent's polycentric structure, with many connections and flexible clusters, allowed rapid adaptation and innovation well suited to urban sustainability. Bukhara's smaller, denser network relied on shared values and personal reputation, offering endurance and cohesion. Governance there, as one respondent put it, was "based on knowing each other." Different rhythms, yet both systems proved effective. Cross-city ties were fewer but meaningful. The 33 links mostly involved NGOs, researchers, and heritage experts.

When all this is put together, it becomes clear that the two cities represent complementary approaches. Tashkent's hybrid governance joins administrative planning with civic participation, while Bukhara's moral–cultural model rests on tradition and cohesion. Each depends on a different resource - Tashkent on its institutions and Bukhara on its social capital - but both aim for the same balance: growth with respect, development with continuity.

The main lesson here is that sustainability does not need uniform design. What matters is how formal, and informal systems meet in practice. Formal structures supply coordination and funding; *mahallas* provide trust, knowledge, and social meaning. When these two sides align, governance becomes adaptive enough to hold economic, environmental, and cultural goals together. In that sense, the stories of Tashkent and Bukhara are not opposites but complementary versions of how community-based governance can sustain tourism in a changing society.

5. Discussion

The findings contribute to the discussion on sustainable tourism governance by showing how community structures specifically *mahallas* function as genuine governance bodies rather than mere participants. Governance here is as social as it is institutional. Networks built on trust, familiarity, and shared values can be as effective as formal systems in maintaining sustainability. These results extend concepts of networked and adaptive governance into Central Asia's cultural setting, where social cohesion and moral legitimacy often outweigh regulation.

The Uzbek case suggests that participation only matters when communities have the capacity to govern, a capacity mahallas possess. They combine moral legitimacy with long-term organization and coordination across households, businesses, and authorities. In both Tashkent and Bukhara, mahallas do more than participate they host meetings, resolve conflicts, and sustain projects beyond external involvement. This shift from participation

to governance aligns with the idea of polycentric governance (Morrison et al., 2023), where multiple decision centers coexist and cooperate. Tashkent's large, diverse network reflects this model, while Bukhara's smaller, cohesive system shows how solidarity can substitute for complexity. Both illustrate that sustainable management can stem from either institutional diversity or social unity.

The study also highlights the adaptive nature of informal institutions. Uzbekistan's decentralization reforms remain incomplete without social support, and the mahalla system provides that anchor. It grounds official programs in trusted relationships, mirroring adaptive-governance principles of learning through feedback. In both cities, communities refine practices through meetings, imitation, and dialogue. Small experiments such as recycling drives or heritage cleaning days become learning loops that spread organically. Thus, mahallas act as adaptive units within the broader tourism framework, keeping sustainability responsive to everyday realities rather than policy cycles.

Perhaps the clearest insight is that sustainability depends on the fit between formal and informal governance. Tashkent demonstrates how municipal structures benefit from mahalla legitimacy, while Bukhara shows that social cohesion can compensate for limited bureaucracy. When both systems align, outcomes improve top-down policies gain local acceptance, and plans turn into action. Where alignment fails when projects start without mahalla input participation drops sharply. The contrast between an 82 percent success rate in joint initiatives and much lower rates in top-down ones illustrates this point. The most durable solutions are those negotiated, not imposed.

The broader lessons go beyond Uzbekistan. First**,** cultural legitimacy is a powerful but often overlooked governance resource. Norms such as *uyat* (social shame), *halollik* (honesty), and local pride in cleanliness quietly reinforce sustainable behavior and should be treated as policy assets. Second, the strength of networks lies not just in size but in quality: Tashkent's broad, diverse links enable innovation, while Bukhara's dense ties ensure consistency. Sustainable governance thrives when connectivity and cohesion are balanced. Third, even limited cross-city cooperation can have significant impact. A few training exchanges and joint events helped transfer ideas on eco-certification and heritage care. Institutionalizing these informal exchanges as national forums among mahalla leaders, NGOs, and tourism offices could enhance learning and adaptive capacity.

In essence, the Uzbek case shows that sustainable tourism governance is not a contest between institutions and communities but a relationship between them. When trust, culture, and policy converge, governance becomes more legitimate, resilient, and enduring.

6. Conclusion

This study examined how *mahallas*, traditional neighborhood organizations in Uzbekistan contribute to sustainable tourism governance through culturally embedded networks of cooperation and trust. Using mixed-method data from two contrasting cities, Tashkent and Bukhara, it showed that community-led governance effectively complements formal policy by mobilizing social capital, moral legitimacy, and adaptive learning.

Findings confirm that tourism sustainability depends not only on policy or regulation but also on communities' relational capacity. In Tashkent, *mahallas* act as intermediaries between government, NGOs, and businesses, translating policy goals into collective action. Their involvement improves project completion, citizen engagement, and coordination. In Bukhara, *mahallas* sustain a moral–cultural governance model grounded in shared norms and cohesion, ensuring high compliance and community ownership even with limited administrative control.

Comparing both cities revealed a *hybrid model* of governance: formal institutions provide strategic direction, while informal networks ensure local legitimacy and implementation. This integration of administrative and cultural systems strengthens both policy effectiveness and social resilience. The results challenge the usual divide between formal and informal governance, suggesting that sustainable outcomes depend on their interdependence.

Theoretically, the study extends literature on *networked and adaptive governance* by showing how informal institutions function as autonomous yet cooperative nodes within wider governance systems. *Mahallas* demonstrate three governance capacities*, relational, moral, and cognitive* that enable coordination, regulation, and learning roles often reserved for formal agencies. Recognizing these capacities expands the conceptual scope of sustainable tourism governance to include culturally grounded mechanisms of authority.

Practically, the study offers three recommendations:

1. Institutionalize mahalla participation in sustainability planning so that local knowledge informs decisions.
2. Build leadership capacity through training in project management, conflict resolution, and sustainable tourism principles.
3. Encourage inter-city exchanges between places like Tashkent and Bukhara to share knowledge, foster innovation, and harmonize policy.

Future research should use longitudinal network analysis to track governance changes over time and expand comparisons to rural or ecological destinations. Integrating environmental and economic impact data could further quantify the effects of community-led governance on tourism sustainability.

In conclusion, Uzbekistan's experience shows that sustainable tourism governance works best when it is culturally rooted, socially legitimate, and institutionally adaptive. *Mahallas* embody these qualities, aligning moral responsibility with collective action and proving that sustainability grows not only from policies but from the enduring relationships that connect people, place, and purpose.

Ethics Declaration

This research was conducted in accordance with ethical standards for social science research. All participants provided informed consent prior to participation. As the study examined organizational and community relationships rather than personal or sensitive data, formal institutional ethics approval was not required. Care was taken to respect local customs, cultural hierarchies, and the autonomy of *mahalla* communities during all stages of fieldwork.

AI Declaration

No AI tools were used in any stage of development of that paper.

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Sustainable Tourism in the Era of Immersive Technologies: Creative Strategies for Placemaking and Place Branding

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Abstract: The article proposes a critical and interdisciplinary approach that connects emerging technology to territorial regeneration, offering participants new perspectives on sustainable tourism, creativity, and belonging. It is especially relevant for those seeking to understand how cultural and digital practices can transform tourist destinations into spaces of innovation and resilience. The objective of this study is to examine the manner in which emerging technologies – namely, augmented reality (AR) and the metaverse are being utilized in a creative manner within the context of sustainable tourism. This analysis will elucidate the concepts of creative placemaking and place branding. The integration of these references contributes to the field of tourism by demonstrating the potential for emerging technologies to function as strategic, symbolic, and educational tools in the promotion of sustainable tourism. The method employed is a multiple case study (Yin, 2018), analysing four tourist destinations that use emerging technologies. The primary research question pertains to the application of these emerging technologies in the context of sustainable tourism, with a particular focus on the concepts of creative placemaking and place branding. The utilization of augmented reality (AR) in diverse contexts transpires within digital layers, thereby unveiling environmental and symbolic data concerning the destination. This phenomenon extends the conceptual scope of placemaking, which is traditionally understood as a tool for territorial awareness and activation. The proposal's distinguishing characteristic is its interdisciplinary and critical approach, which has the potential to broaden the existing discourse beyond the confines of technological innovation. By repositioning tourism as a cultural practice dedicated to ensuring resilient futures and the collaborative creation of tourist destinations, the proposal offers a novel perspective on the subject. The integration of emerging technologies in sustainable tourism signifies an opportunity to redefine the tourist experience, although it concomitantly poses challenges in its implementation. However, when combined with approaches such as creative placemaking and place branding, these technologies transform tourist destinations into spaces for learning, belonging, and regeneration, thereby promoting sustainable tourism practices. The cases examined demonstrate that creativity is as critical as technological innovation. Collectively, these factors possess the capacity to transform the future of tourism.

Keywords: Sustainable Tourism, Immersive Technologies, Creative Strategies, Placemaking, Place Branding, Territorial Brand.

1. Introduction

Sustainability has shifted from being an option in tourism to an imperative that cannot be ignored (Rasoolimanesh et al, 2020; Agarwal et al, 2024). In light of the mounting demand for authentic and responsible experiences, emerging technologies are emerging as allies in transforming the ways in which tourists interact with destinations (Almeida and Almeida, 2023). Technologies such as augmented reality (AR), virtual reality (VR), extended reality (XR), and metaverse have the potential to transcend mere entertainment, promoting environmental education, raising awareness, and building narratives associated with sustainable tourism. These technologies, however, extend beyond mere recreational devices, serving to foster a sense of belonging, nurture local identities, and promote more conscious practices (Almeida and Almeida, 2025). This debate is relevant as it examines the integration of emerging technologies with placemaking and place branding practices. This exploration contributes to ongoing discussions concerning innovation, experience design, and the development of resilient futures in the tourism sector. A systematic review was conducted to identify creative initiatives that leverage emerging technologies, specifically augmented reality (AR) and the metaverse, in the context of sustainable tourism. This study identified four such initiatives.

The objective of this study is to examine the manner in which emerging technologies – namely, augmented reality (AR) and the metaverse – are being utilized in a creative manner within the context of sustainable tourism. This analysis will elucidate the concepts of creative placemaking and place branding.

The integration of emerging technologies signifies a strategic opportunity to cultivate novel forms of interaction among tourists, destinations, and communities (Paladini and Saha, 2023; Agarwal et al,

2024; Kapoor and Jain, 2024). The present study is founded on three theoretical pillars: creative placemaking, which activates territories through art, culture, and creativity, thereby promoting belonging and community engagement (Markusen and Nicodemus, 2014; Zitcer, 2020; Loh et al, 2024); and place branding, which manages the symbolic image of places based on their uniqueness (Anholt, 2010). The integration of these references contributes to the field of tourism by demonstrating the potential for emerging technologies to function as strategic, symbolic, and educational tools in the promotion of sustainable tourism.

2. Literature Review

2.1 Sustainable Tourism

As posited by Agarwal et al (2024), Kapoor and Jain (2024) and Rasoolimanesh et al (2020), sustainable tourism is defined as a balance between economic development, environmental preservation, and cultural appreciation. A salient challenge in this endeavour is the education of tourists without compromising the integrity of the experience. Moreover, the concept encompasses the preservation of natural and cultural resources (Zolfaniet al, 2015; Dangi and Jamal, 2016), waste management, carbon mitigation, the local economy, community well-being, and social equity (Dangi and Jamal, 2016). A variety of stakeholders, public policies, regulatory frameworks, and ethical practices are also implicated (Rasoolimanesh et al, 2020). This phenomenon, characterized by its intricate nature, underscores the pivotal role those technological advancements play in shaping sustainable tourism practices (Paladini and Saha, 2023).

2.2 Creative Placemaking and Place Branding

The concept of placemaking entails the revitalization of a specific locale through the implementation of artistic, cultural, and creative elements. This approach fosters community engagement and fosters a sense of belonging among its inhabitants (Markusen and Nicodemus, 2014; Zitcer, 2020; Loh et al, 2024).

Place branding seeks to build, transmit and manage a symbolic image of a place. This process of affective transformation prioritizes the memory and diversity of a local (Anholt, 2010; Almeida, 2018). This approach transcends conventional marketing strategies by incorporating elements of the territory's identity, thereby fostering a sense of cultural and historical resonance.

Place making and place branding are different concepts. Place making is about creating functional and attractive places to meet the needs of local residents of a place while keeping the focus on sustainable practices. Place branding is how image and reputation is managed to attract external agents such as tourists. Place making is bottom up and participatory while place branding is usually top down and strategic from a marketing perspective. Lastly, place making is the on-the-ground experience and if it does not match with the place branding activities where the promise is created, then there will be no tangible benefit.

The extant literature on sustainable tourism places significant emphasis on environmental preservation and the education of tourists. Research conducted by Almeida and Almeida (2025), for instance, suggests that immersive technologies have the potential to augment creative practices, including placemaking and place branding, through the integration of cultural and digital narratives. This integration has the potential to contribute to the strengthening of territorial identity and the creation of more participatory and conscious experiences.

3. Methodology

The method employed is a multiple case study (Yin, 2018), analysing four tourist destinations that use emerging technologies. The primary research question pertains to the application of these emerging technologies in the context of sustainable tourism, with a particular focus on the concepts of creative placemaking and place branding.

The research is of a documental nature, involving the analysis of destinations that utilize technology in their sustainable tourism strategies, with the selection criteria being:

- The creativity of the technological application is a subject that merits close examination.
- The initiative's environmental and social contributions must be assessed.
- The present study will examine the role of narrative engagement in shaping tourist awareness.
- The establishment of a connection with the tourist destination, as well as its cultural and environmental characteristics, is of paramount importance.

The four cases were selected to illustrate geographical diversity and varying degrees of innovation in the use of immersive digital technologies. Additionally, the cases highlight practices that can be replicated in diverse tourism contexts.

The information was derived from a variety of documents pertaining to the initiatives in the destinations.

A content analysis was conducted to identify categories and patterns in the experiences analysed (Bardin, 2011). The following categories and patterns were identified:

- The objective is to raise tourists' awareness of sustainable practices.
- The promotion of a sense of belonging to the local community is of paramount importance.
- The importance of recognizing and appreciating local cultures, as well as the necessity of fortifying territorial identity, cannot be overstated.
- The following is a list of environmental education strategies.

A comparative analysis was also conducted to identify convergences and distinctions between the initiatives, focusing on highlighting good practices and their potential for replication in other destinations. To achieve this objective, the information was systematically organized into analytical tables, such as Table 1, which describes the initiatives in each destination. Despite the qualitative nature of the research, the validity of the conclusions was assessed by comparing the observed good practices

4. Results and Discussions

A systematic review was conducted to identify creative initiatives that leverage emerging technologies, specifically augmented reality (AR) and the metaverse, in the context of sustainable tourism. This study identified four such initiatives (see Table 1). The aforementioned experiences illustrate the manner in which the convergence of technology, creativity, and sustainability can serve to reinforce the symbolic construction of places, engage visitors, and strengthen the bond between tourists and destinations.

Table 1: Case initiatives

Initiative	Place	Description	Focus on Sustainable Tourism	Level of Creativity	Creative Initiative	Engaged Narrative	Creative Tourism and Place Branding	Link
WWF Free Rivers	Global	AR app that shows the impacts of dams on rivers and communities	Environmental education on river preservation	High	Immersive and interactive visual experience in AR	Stories of river ecosystems and local populations	Builds empathy with environmental causes and gives visibility to the geopolitics of water	link
Coral AR Education	Australia (Great Barrier Reef)	Using AR to show damage to reefs and ways to preserve them	Education about vulnerable marine ecosystems	High	Interface that overlays images of corals with and without degradation	Stories about the impact of tourism on reefs	Raises awareness of responsible tourism and reinforces Australia's environmental branding	link

Initiative	Place	Description	Focus on Sustainable Tourism	Level of Creativity	Creative Initiative	Engaged Narrative	Creative Tourism and Place Branding	Link
Urban Panels with AR	Paris and London	Screens showing real-time air pollution with AR visualization	Encouraging the use of clean transport	Medium-high	Urban campaigns that mix art, data and AR	Narrative of the city as a living organism in transformation	Engages tourists with urban environmental causes, reinforcing the city's green image	link
Amazon in AR in metaverse	Brazil	AR experience in schools, museums and tourist centers showing deforestation. Metaverse Combined with AR to Show the Impacts of Amazon Destruction.	Environmental education and forest conservation	Very high	Comparative visualization of preserved vs deforested forest	Emotional connection with the forest and indigenous peoples	Reinforces the role of the Amazon as a global symbolic and environmental asset	link

Among the initiatives examined (Table 1), the Amazon AR case demonstrated the most significant symbolic impact on global place branding, while Coral AR Education stood out for its effectiveness in environmental education. This comparison underscores the significance of creativity and cultural narrative in engaging tourists, equating them with technological sophistication.

It was highlighted that technologies enrich the tourist experience, while operating as devices for environmental education, social awareness, and identity affirmation, in dialogue with the concept of creative placemaking (Richards and Duif, 2018). The potential of place branding was highlighted (Anholt, 2010), demonstrating how digital narratives reinforce the identity attributes of the destination, thereby transforming it into a symbolic platform for engagement. The Amazônia in AR initiative, for instance, positions the forest as a symbolic global asset, promoting the Amazônia brand as the guardian of planetary biodiversity – a perspective aligned with the concept of territorial branding with purpose (Almeida, 2018).

From a technological perspective, Guttentag (2010) and Dieck and Jung (2017) have emphasized the potential of augmented reality (AR) to create immersive experiences, contributing to experiential and educational tourism.

The utilization of augmented reality (AR) in diverse contexts transpires within digital layers, thereby unveiling environmental and symbolic data concerning the destination. This phenomenon extends the conceptual scope of placemaking, which is traditionally understood as a tool for territorial awareness and activation. Therefore, the results of this study reinforce the notion that the creative application of emerging technologies in sustainable tourism contributes directly to the debates proposed by the ICTR'2026 on creative placemaking, place branding, and building resilient futures in global tourism. The following recommendations are provided:

Recommendations: (1) The integration of immersive technologies into sustainable tourism is a potential outcome of public policies. (2) The development of local narratives that articulate identity, culture, and the environment is another potential outcome. (3) Furthermore, the promotion of partnerships between governments, businesses, and communities to create meaningful and scalable experiences is a third potential outcome.

The proposal's distinguishing characteristic is its interdisciplinary and critical approach, which has the potential to broaden the existing discourse beyond the confines of technological innovation. By repositioning tourism as a cultural practice dedicated to ensuring resilient futures and the collaborative creation of tourist destinations, the proposal offers a novel perspective on the subject.

5. Conclusion

The integration of emerging technologies in sustainable tourism signifies an opportunity to redefine the tourist experience, although it concomitantly poses challenges in its implementation. However, when combined with approaches such as creative placemaking and place branding, these technologies transform tourist destinations into spaces for learning, belonging, and regeneration, thereby promoting sustainable tourism practices. The cases examined demonstrate that creativity is as critical as technological innovation. Collectively, these factors possess the capacity to transform the future of tourism.

The limitation is attributed to the modest number of cases that were analysed, thereby creating opportunities for further research. Furthermore, it is advised that interviews with a variety of stakeholders be incorporated to enhance comprehension of the ramifications that emerging technologies are having on various sectors.

Ethics Declaration

We state that ethical clearance was not required for this research.

AI Declaration

AI tools were not used the creation of this paper.

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Virtual Reality and Tourism: Perceptions of Switzerland

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Abstract: The aim of this study was to examine the impact of virtual reality (VR) on the feeling of Switzerland as a tourist destination within the Metaverse enthusiast community. A mixed-methods approach incorporating both quantitative and qualitative methods was employed, encompassing the analysis of responses from 354 participants from the USA, Japan and Germany. The study centred on perceptual changes, emotional engagement and the potential impact of VR experiences on travel intentions. The results show that VR experiences evoke strong emotional engagement, stimulating curiosity, enjoyment and fascination, and more than 70% of respondents declared a strong desire to visit Switzerland after a VR experience, confirming the technology's potential as an effective marketing tool. However, statistical analyses did not show significant changes in beliefs of the country, suggesting that VR can complement traditional promotional methods, but does not always lead to radical changes in belief. The study is not without its limitations, which include the geographical coverage of the sample and the lack of a long-term analysis of actual travel behaviour. Future research should therefore focus on the long-term impact of VR on actual travel decisions, increasing the diversity of the study groups and analysing the integration of VR tourism with other digital platforms.

Keywords: Virtual Reality Tourism, Metaverse-based Tourism, Destination Image Formation, Travel Intention, Emotional Engagement

1. Introduction

Virtual Reality (VR) tourism is increasingly recognized as an innovative and immersive technology that allows individuals to explore, learn and be entertained in virtual environments Huang et al., 2010; Wei et al., 2021; Bilotta et al., 2021; Barrens, 2016; Ulusoy, 2024). This technology enables users to visit destinations and engage in activities that may otherwise be inaccessible due to geographical, financial, or physical constraints (Gutentag, 2010; Ghali, Rather & Khan, 2024; Neuburger, Beck & Egger, 2018; Zhang et al., 2022; Mura et al., 2017; Manda,Bikkinan &Tarnanidis, 2025). While initially considered into an independent form of tourism (Ji, Wang, & Wu, 2023).

Through virtual immersion, users can experience historical places, events, explore extraterrestrial landscapes, or see natural phenomena such as volcanic eruptions (Buhalis, Lenga & Lin, 2023, Bogicevic et al., 2019, Tang and Boccia & Lim, 2014; Soni & Kaur 2023).

VR technology provides a sense of physical and psychological immersion, potentially leading to a temporary detachment from the real world (Tussyadiah et al., 2018; Raucher, Humpe, Brehm, 2021, Merkx & Nawijn, 2021; Hollensen et al., 2022; Bhushan et al., 2024).

Moreover, VR tourism contributes to sustainable tourism by minimizing environmental impact (Schipou et al., 2021).

Advances in hardware and software have facilitated the development of highly immersive virtual tours, interactive travel content, and realistic simulations that enhance both the travel planning process and destination exploration (Lemon & Verhoef, 2016; Buhalis et al., 2023; Lenga & Lin, 2023; Butler, & Paris, 2014; Hollensen et al., 2022). By providing engaging and memorable travel experiences, VR tourism has the potential to expand the tourism market and attract new audiences (Loureiro, Guerreiro & Ali, 2020; Buhalis et al., 2023b).

Recent market analysis highlights the rapid growth of VR tourism, with significant potential to improve the global tourism engagement Dharmadhikari (2022,2023). Virtual tourism enables users to explore diverse cultures, landscapes, and activities from their own homes, making (Gutentag, 2010).

Additionally, empirical research suggests that online interactions, regardless of their format, positively impact consumer well-being and emotional health (Jafar & Ahmad, 2023). Baran & Baran (2024) posit that virtual reality possesses the potential to engender a fundamental shift in our conception of travel and exploration.

The Asia-Pacific region is expected to experience rapid growth in the VR tourism market, while North America is projected to generate the highest revenue by 2023, partly due to the increasing adoption of 3D. The use of 3D technology has enabled the delivery of immersive experiences that are appreciated by European travellers (Dharmadhikari, 2023). Virtual tourism within the Metaverse is recognized for its potential to foster creativity,

ease experience-sharing, and contribute to a more inclusive and diverse tourism ecosystem (Griffin et al., 2017; Raucher, Humpe & Brehm, 2021). The growing integration of VR tourism within the Metaverse is expected to redefine digital engagement and user interaction (Chakraborty et al., 2023).

Despite the increasing adoption of VR in tourism, there is a lack of academic literature examining its role in promoting specific destination, such a Switzerland, within the Metaverse. Previous studies indicated that immersive virtual experiences are being leveraged by tour operators to increase engagement before, during and after travel (Ali, 2016; Woo, Kim, & Uysal, 2015). However, there remains a gap in research on how VR can shape Switzerland's perception as a tourism destination within the Metaverse community (Kim et al.,2023). Limited academic studies explore how disruptive technologies like VR influence consumer behaviour and destination marketing strategies (Sparkers, 2021).

The study aims to evaluate the effectiveness of virtual reality tours in improving Switzerland's image within the Metaverse enthusiast community, assessing their potential as a marketing too. Understand their ability to motivate real-world travel, and their impact on destination perception.

1.1 Research Questions

1. To what extent can virtual reality (VR) tours be used as an effective destination marketing tool for Switzerland within the Metaverse enthusiast community?
2. How does engagement in a virtual reality tour of Switzerland influence users 'intention to visit the country in real life?
3. What are the cognitive and affective shift in perception of Switzerland as a tourist destination following a VR tour experience?

2. Literature Review

Several research papers and industry reports have explored the potential of the metaverse and its implications for the tourism industry, particularly in destination marketing and virtual travel experiences. Researchers such as Morris (2022), Diwvedi (2022, 2023) have examined the economic opportunities presented by the metaverse. While Lee et al., (2021), Dolata and Schwabe (2023) provide a more comprehensive analysis by integrating published studies on its theoretical and practical applications. Buhalis, Lenga, and Lin (2023) conceptualized the metaverse as an emerging digital space with significant potential for the tourism industry, particularly in consumer engagement and destination promotion. However, as Dayoub et al. (2024) note, this potential remains largely unexplored in the context of heritage protection and promotion.

2.1 Definition and Conceptualization of the Metaverse

The term 'metaverse' originates comes from the Greek prefix 'meta' meaning 'after' or 'beyond' and 'universe' (Oxford English Dictionary, 2024). It describes a highly immersive digital environment where users can interact with each other and digital entities. Meta (2021) defines the metaverse as a convergence of multiple advanced technologies. Including artificial intelligence (AreI), virtual reality (VR), head-mounted displays (HMDs), augmented reality (AR), the internet of things (IoT) and spatial computing (European Parliament, 2024; Gartner, 2024).

The term gained widespread recognition following Facebook's rebranding to Meta in October 2021, when CEO Mark Zuckerberg found the metaverse as the future of the internet.

Despite its growing prominence, there is np universally accepted governance structure for the metaverse, and its future regulations is still uncertain (Burrows, 2022).

The Cambridge Dictionary (2024), describes the metaverse three-dimensional space virtual space in which users, represent by avatars, can engage in socialization, entertainment, and professional activities.

(Mystakidis, 2022). However, Xu et al. (2022) argue that defining the metaverse is inherently due to its evolving nature and technological dependencies. Damar (2021) characterized as "a shared three-dimensional digital world in which you can perform activities using augmented and virtual reality services" and refers to the metaverse as "a layer between you and reality" conceptualizing it as an intermediary layer between digital and physical realities.

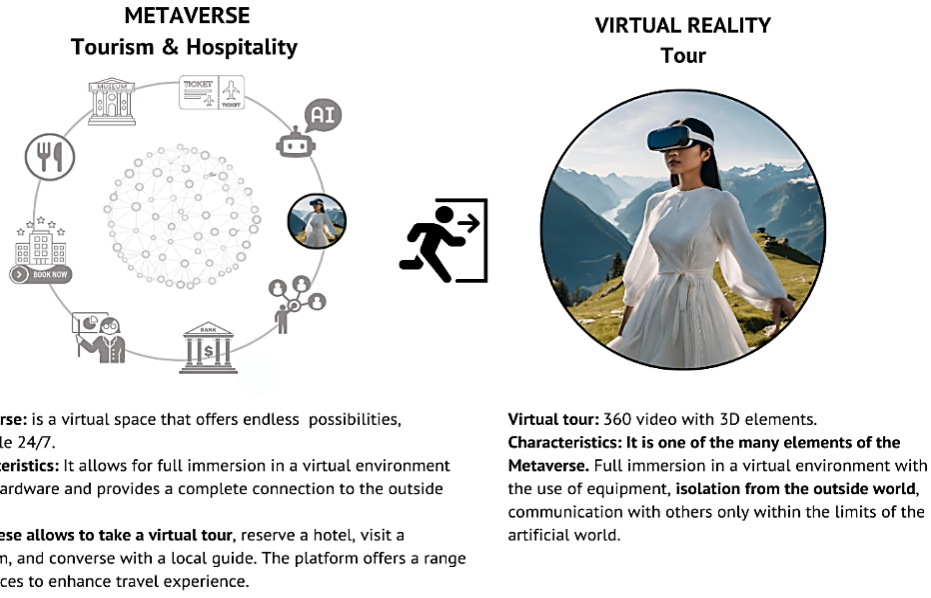
Buhalis, Lenga and Lin (2023), Nazir and Lui (2016), along Sai et al. (2024) highlight that the metaverse is distinguished by its immersive and interactive nature, enabling real-time collaboration and engagement through avatars and VR headsets. Unlike conventional virtual platforms such as Second Life, which limit interactions to a single virtual world, the metaverse offers interconnected digital spaces with cross-platform integration (Chow, 2021).

2.2 Metaverse and Virtual Reality (VR) in Tourism Industry

Several scholars emphasize the transformative potential of VR and metaverse technologies in tourism (Chen, 2024; Unnikrishnan, 2024;Velmurugan, 2025;Asif et al., 2025; Singh & Das, 2025).

Dharmadhikari (2023), Meta (2021), Wei et al., (2019), assert that VR allows prospective tourists to experience destination virtually before making travel decisions, mitigating travel anxiety and enhancing confidence in travel planning. Slater et al. (2009) further highlight the ability of VR to simulate real-world conditions, enhancing the realism of travel experiences. Flavian et al. (2021), Lemon and Verhoef, (2016), Butler and Paris, (2014) support this claim, nothing that VR fosters experimental marketing strategies by enabling users to explore exotic locations in an interactive manner. Additionally, Fan et al. (2021), Hollensen et al. (2022), and Buhalis, Lenga & Lin (2023) indicate that VR can act as a persuasive tool for destination marketing, particularly for travellers with mobility restrictions or financial limitations.

The metaverse significant impacts both the tourism and hospitality industries by facilitating personalized experiences through virtual tours (Picture 1, Picture 2). AI-driven concierge services, and virtual events (Galli, Rather, & Khan, 2024; Gutentag, 2010; Neuburger, Beck, & Egger, 2018; Mura et al., 2017; Zhang et al., 2022). Furthermore, local and expert-led virtual experiences improve user engagement by providing culturally and historically rich increasing demand for interactive and immersive pre-travel (Beck et al., 2020; Schipou et al., 2021).

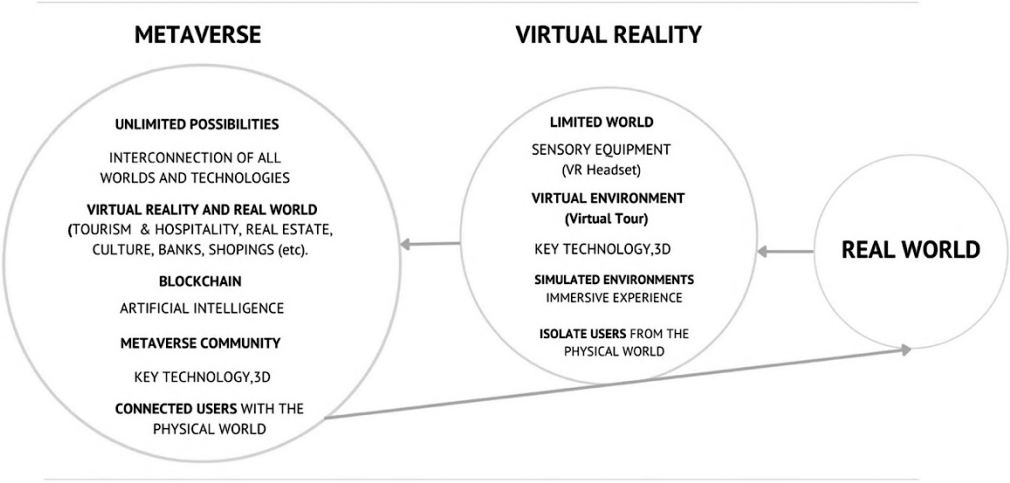


Picture 1: Virtual tour as a part of Metaverse. Author`s work.

2.3 Implications for Destination and Consumer Behaviour

The metaverse has profound implications for tourism marketing strategies and consumer behaviour. Malodia, and Dhir (2022) emphasize the role of the metaverse in redefining consumer engagement, particularly through interactive marketing campaigns. The ability to test different virtual tourism and expirees the ability to test different virtual tourism products and experiences within the metaverse fosters destination viability and supports sustainable tourism practices (Beck et al., 2021; Schipou et al., 2021). Moreover, the metaverse offers a controlled environment to simulate the effects of over-tourism and climate change, allowing tourism stakeholders to devise long-term sustainable strategies. Beyond operational and marketing applications, the metaverse fosters social connections among consumers and tourism service providers (Tsai, 2022). Research by Tussyadiah et al. (2018) suggests that virtual experiences create positive emotional associations with

destinations, increasing the likelihood of real-world visitation. Similarly, a virtual tour allows users to experience a destination's ambiance and cultural richness without physical displacement (Beck & Egger, 2018; Zhang et al., 2022; Barens, 2016). Ali et al. (2016) and Hyun and O'Keefe (2012) highlight the role of VR in creating a strong sense of telepresence, achieved through high-resolution videos, 3D-rendered. environments, and multi-sensory interactions. Unlike singular VR tours, the metaverse provides an interconnected virtual ecosystem that fosters repeated engagement and community-driven experiences (Buhalis, Lenga, & Lin, 2023).



Picture 2: Metaverse & Virtual Reality, comparison. Author`s work.

2.4 Conclusion

The integration of VR and metaverse technologies within the tourism sector presents both opportunities and challenges. While these technologies enhance engagement, reduce pre-travel uncertainty, and contribute to sustainable tourism development, they also cause the evolution of marketing and operational strategies. The growing intersection between digital and physical tourism experiences requires further empirical investigation, particularly in the context of destination branding and consumer behavioural shifts. Switzerland, as a high-value tourism place, has the potential to use VR and the metaverse to enhance its global appeal, yet academic research is still limited on this subject. This study aims to address this gap by exploring the role of virtual reality tourism in shaping Switzerland's image within the Metaverse community and its effectiveness in influencing potential travellers' perceptions and intentions.

2.5 An Analysis of the Group of Respondents

The analysis examined the interest and behavioural characteristics of the Metaverse enthusiast community, focusing on their engagement in virtual experiences and their relationship to real-world tourism (Buhalis et al., 2023). Tsai (2022) argue that the Metaverse fosters social connectivity between consumers and suppliers in the tourism industry. Xu and Buhalis (2023) emphasise the pivotal role of gamification and mobile games in expanding the Metaverse tourism market, particularly among younger digital natives (Buhalis, López and Martinez-Gonzalez, 2020). Pero (2022) highlights that Metaverse natives, especially those under 21, exhibit a strong preference for digital interactions over physical ones. Gursoy, Malodia and Dhir (2022) posit that some users perceive the digital world as more relevant than the physical world, influencing travel behaviour. To increase engagement, it is crucial to integrate immersive experiences before and during virtual tours, enhancing realism and strengthening the connection between digital and real tourism.

3. Methodology

This study presents a rigorous mixed methods research approach, the aim of which is to comprehensively analyse the impact of virtual tourism on Switzerland's image and actual travel intentions (Tab.1).

Data were collected between March and May 2024 through online VR communities, Metaverse-focused forums, and social media platforms. The sample comprised 354 respondents from the USA, Japan, and Germany, selected due to high levels of technological adoption and VR market maturity. Inclusion criteria required

participants to be active VR users (Oculus Quest) with a minimum usage frequency of twice per week, ensuring adequate familiarity with immersive environment

Table 1: Methodology Description. Source: Author's work.

Research Stage	Description
Research Design	Explanatory sequential mixed-methods approach (quantitative + qualitative)
Sample	354 respondents (USA, Japan, Germany), VR users (Oculus Quest, min. 2 times/week)
Data Collection Method	Online survery (Likert-scale, closed questions), Semi-structured interviews (45 participants)
Key Variables	Perception of Switzerland before/after VR – Emotions (curiosity, joy, fascination) – Real-world travel intention
Statistical Analysis	- Descriptive statistics (mean, SD) – t-tests/ANOVA (pre/post-tour perception comparison) – Multiple regression (impact of VR on travel decisions)
Qualitative Analysis	Semi-structured interviews (n = 45), purposive sampling; thematic coding of perception changes, emotional responses, and travel barriers
Validation Measures	- Pilot test (n=20) – Cronbach's alpha (>0.7) – Triangulation of quantitative nd qualitative findings
Ethical Considerations	Informed consent, data anoymization, voluntary participation

4. Discussion

This section provides a comprehensive analysis of the survey data collected. It focuses on metaverse enthusiasts' perceptions of Switzerland before and after experiencing a virtual reality (VR) tour. The discussion includes key findings on respondent demographics, emotional engagement, and the impact of VR tourism on real-world travel intentions. The study was supported by rigorous statistical analysis.

4.1 Respondent Demographics

The study involved 354 participants from three main regions: USA, Japan and Germany. A considerable proportion were frequent VR users (at least twice a week). The age distribution varied, with most respondents in the 46-66 age group. This was followed by 19–35-year-olds and a smaller representation of those over 67 (Table 2).

Table 2: Respondent Demographics. Author's work.

Region	Total Participants	VR Users (at least twice a week)	Age Group 19-35 (%)	Age Group 46-66 (%)	Age Group 67+ (%)
USA	120	High	30	50	20
Japan	114	Medium	25	55	20
Germany	120	High	28	52	20

4.2 Initial Perceptions and Associations with Switzerland

Prior to the VR excursion, participants associated Switzerland primarily with:

1. Premium brands (e.g. Rolex, Nestlé)
2. Natural landscapes (e.g. Alps, mountains)
3. High standard of living (environmentally friendly, modern, well-organised, wealthy).

These results reflect Switzerland's well-established global reputation. Repositioned as a prosperous and scenic tourist destination (Table 3).

Table 3: Pre-VR Tour Perceptions of Switzerland, Author's work.

Aspect	Example
Luxury Brands	Rolex, Nestlé
Natural Landscapes	Alps, Mountains
High Standard of Living	Eco-friendly, Modern, Well-organized

4.3 Impact of the Virtual Tour on Perceptions

After experiencing VR, more than 90% of respondents reported a difference in perception. The most significant perceptions included:

1. Wide cultural and linguistic diversity (surprise at the presence of French in Switzerland).
2. Geographical awareness (knowledge that Switzerland does not have a single capital and has vast open spaces).
3. Sustainability and organisation (boosting Switzerland's attractiveness).

Table 4: Post-VR Tour Perceptions of Switzerland, Author's work.

Aspect	New Insights Gained
Cultural Diversity	Presence of multiple languages, French usage noted
Geographic Understanding	No single capital, vast open spaces

4.4 Emotional Engagement During the Virtual Tour

A major proportion (85%) of respondents reported experiencing positive emotions during the VR tour. The most often mentioned emotions were:

1. Fascination
2. Curiosity
3. Joy
4. Excitement

These results highlight the strong emotional engagement evoked by VR tourism. It plays a key role in shaping interest in real-world travel (Table 5).

Table 5: Emotional Engagement During the VR Tour

Emotion	New Insights Gained
Fascination	85 %
Curiosity	85 %
Joy	80 %
Excitement	75 %

4.5 Effectiveness of VR Tourism in Motivating Travel Intentions

One of the most critical findings is that over 70% of respondents expressed a strong interest in visiting Switzerland in real life after experiencing the VR tour. However, 5% showed that the VR experience alone was sufficient, aligning with research suggesting that some individuals treat virtual tourism as a substitute rather than a complement to physical travel.

Table 6: Travel Intentions After the VR-Tour

Intent	Percentage of Respondents
Strong Interest in Visiting	70 %
VR Experience Sufficient	5 %

4.6 Statistical Analysis of the Impact of the VR Tour

A paired t-test was performed to compare participants' ratings of Switzerland before and after the VR tour. The results showed that the difference was not statistically significant ($p > 0.05$), suggesting that although beliefs changed, they did not change radically. Additionally, an ANOVA test was conducted to analyse the variability of responses before and after the VR experience. The test showed no significant differences at the 0.05 level. A multiple regression analysis was conducted to decide whether VR perception ratings can predict travel intentions,and the results were as follows:

1. VR ratings of Switzerland strongly predict travel intention in the real world ($p < 0.001$).
2. The attractiveness of the VR tour itself is not a significant predictor ($p = 0.597$).
3. The model explained 15.5% ($R^2 = 0.155$) of the variation in travel intention.

4.7 Key Implications

1. The potential of VR tourism as a marketing tool for tourism destination the research findings show that virtual tourism can effectively influence perceptions and stimulate interest in real-world travel. Tourism organisations should use VR to attract global audiences, particularly those in the Metaverse and digital native demographics.
2. Addressing the knowledge gap about Switzerland. Many respondents gained new insights into the cultural and geographical diversity of Switzerland. This proves the potential of VR to bridge knowledge gaps and promote lesser-known aspects of a destination**.**
3. The role of emotional engagement in tourism decision-making. The study underlines the pivotal role of emotions in travel decisions. The immersive nature of VR evoked positive emotions, reinforcing VR storytelling as a powerful marketing strategy.
4. 4.Encouraging sustainability through VR. A small proportion of respondents found the VR experience sufficient to satisfy their curiosity about Switzerland. This suggests that VR tourism can contribute to sustainability efforts by offering an alternative to environmentally costly travel.

4.8 Verification of Research Questions

RQ1: The extent to which virtual reality (VR) tours can be used as an effective destination marketing tool for Switzerland within the Metaverse enthusiast community?

RQ2: The influence of engagement in a virtual reality tour of Switzerland on users' intention to visit the country in real life?

RQ3: The cognitive and affective shifts in perception of Switzerland as a tourist destination following a VR tour experience?

The findings show that VR tours elicit strong emotional engagement, which in turn influences destination perception and travel intentions. A sizeable portion of respondents expressed heightened curiosity, joy, and fascination, contributing to an enhanced image of Switzerland. Moreover, a large majority of respondents acknowledged a shift in perception, reinforcing VR's potential as a persuasive marketing tool. These findings underscore VR tourism's ability to boost consumer interest, influence travel preferences, and position Switzerland as a captivating destination within the Metaverse community.

5. Summary and Recommendations

This study examined the impact of VR tourism on the image of Switzerland among Metaverse enthusiasts. The results indicate that VR enhances emotional engagement by stimulating curiosity, enjoyment, and fascination. More than 70% of respondents expressed an increased intention to visit Switzerland after the VR experience, confirming the potential of VR as an effective destination marketing tool influencing travel perception and motivation.

5.1 Limitations of the Survey

Despite its contributions, the study has several limitations. The sample was limited to participants from three countries, which may restrict the generalisability of the findings. Additionally, the use of self-reported data may introduce response bias and reflect short-term emotional effects. The absence of longitudinal tracking also limits the assessment of VR’s long-term impact on actual travel behaviour.

5.2 Suggested Directions for Future Research

Future research should focus on longitudinal analyses of actual travel decisions following VR experiences. Expanding sample diversity across regions and demographic groups would provide a more comprehensive understanding of VR's impact. Comparative studies examining VR effectiveness across different destinations are also recommended. Furthermore, future research should explore the role of emerging technologies, such as haptic feedback and AI-driven personalisation, in enhancing user engagement and shaping destination perceptions.

Ethics Statement

This work did not require approval by an ethics committee as it did not involve human or animal participants, sensitive data, or procedures requiring formal ethical review.

(If ethical approval was required in this case, replace this statement with an appropriate reference to the approval obtained).

AI Statement

Artificial intelligence tools, specifically ChatGPT (OpenAI), were used in the preparation of this article for the following purposes:

1. Linguistic editing and clarity improvement,
2. Assistance with content organisation,
3. Support with formatting citations and references.

All research content, analyses, interpretations and conclusions were developed independently by the author. All materials generated by artificial intelligence were reviewed and adjusted accordingly before being included in the final version of the manuscript**.**

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In the Eye of the Beholder: Customer Experience Journey with Airbnb

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Abstract: The rapid growth of the sharing economy has transformed the tourism and hospitality landscape, with peer-to-peer accommodation platforms such as Airbnb redefining how travellers search for, consume, and evaluate lodging experiences. Despite Airbnb's global reach and disruptive impact on traditional hospitality models, limited research has empirically examined the customer experience across the full consumption journey. Addressing this gap, the present exploratory study investigates the Airbnb customer experience through the lens of Customer Journey Mapping (CJM), with the objective of identifying critical service touchpoints and proposing managerial strategies to enhance customer experience at each stage of the journey. Drawing on an integrative approach, the study combines a review of the peer-to-peer accommodation and customer experience literature with exploratory consumer insights. An initial set of customer touchpoints was identified through prior research and unstructured interviews with Airbnb hosts and guests. These touchpoints were subsequently evaluated using an online survey distributed via social media and email to respondents with prior Airbnb usage experience. Only touchpoints reported by more than one-third of respondents were retained for inclusion in the final CJM. The findings reveal that Airbnb customers engage with a diverse set of salient touchpoints across the pre-service, service, and post-service stages. Pre-service touchpoints—such as property search filters, map-based location search, host and property reviews, and host communication—emerged as particularly influential in shaping expectations. During the service stage, experiential factors related to property accuracy, cleanliness, functionality, safety, and host helpfulness were identified as central to customer satisfaction. Post-service engagement was dominated by review-writing and private feedback provision, underscoring the importance of social and customer-owned touchpoints in peer-to-peer platforms. Building on these insights, the study presents stage-specific Customer Journey Maps that integrate proposed strategic initiatives aligned with the Servuction Model, including improvements to the digital servicescape, host and customer service interactions, peer influences, and invisible organizational systems. By empirically grounding CJM in customer-reported touchpoint salience, this research contributes to the customer experience and sharing economy literature while offering actionable guidance for service innovation. Further research in collaboration with Airbnb management, hosts, and guests is recommended to refine and validate these strategic interventions.

Keywords: Customer Experience, Customer Journey Map, Service Touchpoints, Airbnb, Sharing Economy

1. Introduction

The last few years have witnessed a growing interest among business managers, entrepreneurs, consumers, regulators and academicians in the theory and practical implications of the 'sharing economy' (also referred to as collaborative consumption and peer-to-peer activity). The concept of a sharing economy evolved with the emergence of Silicon Valley start-ups like Airbnb and Uber, companies that capitalize on sharing unused resources (homes and cars) between individual consumers. Eventually, the shared resources extended from tangibles to intangibles *(Choi et al. 2014; Posen 2015)*.

The purpose of this research is to explore the experience that travellers have with an accommodation platform such as Airbnb. To this end, we use a method that blends a review of the peer-to-peer accommodation literature and actual consumer insight and feedback to propose a Customer Journey Map for Airbnb. These maps are integral to understanding customer experience and to maximizing CJM as a strategic management tool for service innovation *(Rosenbaum et al. 2017)*. Our exploratory research will build on the CJM to recommend concrete efforts to enhance the customer experience with the brand at each important touchpoint.

2. Sharing Economy

There is little consensus regarding how to define the sharing economy. Botsman *(2013)*, responsible for coining the term, defines it as "an economic model based on sharing, swapping, trading, or renting underutilized assets for monetary or non-monetary benefits, enabling access over ownership". Belk *(2014)* defines collaborative consumption as "people coordinating the acquisition and distribution of a resource for a fee or other compensation, using digital platforms and entailing temporary access rather than ownership". Hamari et al. *(2015)* offer the following definition: "a peer-to-peer-based activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services".

Despite these variations, there remain two constants essential to defining sharing and collaborative consumption practices: reliance on temporary access rather than ownership models of consumption, and reliance on the Internet and mobile technology to enable these exchanges *(Belk 2014)*.

The sharing economy is experiencing fast-paced growth. In 2015, 17 companies operating in the sharing economy were worth more than US $1 billion and employed more than 60,000 workers altogether. Estimates predict that the main sharing economy sectors will generate revenues of approximately $335 billion by 2025, compared with $15 billion in 2015 *(PwC 2015)*. This massive expansion can partly be attributed to the prevalence of internet-based technologies that facilitate connectivity, a global economic crisis, and a marked shift in consumption attitudes.

The sharing economy is here to stay and will continue its steady growth and global expansion. There is uncertainty among business managers and theorists on how this peer-to-peer consumption platform will manifest itself in the future, but there is agreement that traditional marketing practices may be irrelevant or inadequate, particularly in the case of emerging and developing countries. Conventional businesses will find it challenging to transform themselves from traditional retailing operations into access-based (non-ownership) service providers *(Moeller and Wittkowski 2010)*.

Recent academic research on the sharing economy has explored numerous questions including potential business models *(Kosintceva 2016)*, pricing strategies *(Weber 2016)*, competitive structure and implications *(Cusumano 2015; Wallsten 2016)*, and segmentation strategies *(Godelnik 2017)*.

The sharing economy has resulted in the creation of a new socioeconomic system that thrives on shared production, distribution, and consumption of goods and services among individual consumers globally. Propelled by technology and a plethora of online social network platforms, people have easy access to the sharing of resources including transportation, accommodation and even skills with one another. Collaborative consumption has revolutionized the travel and hospitality industry, enabling the success of several peer-to-peer accommodation platforms such as Airbnb *(Ferenstein 2014)*. This phenomenon is interlinked with Network Hospitality, which encapsulates the ways “people connect to one another using online networking systems, as well as the kinds of relationships they perform when they meet each other offline and face to face” *(Germann Molz 2011)*.

Airbnb is perhaps the exemplar of network hospitality. A thriving peer-to-peer internet platform provider, Airbnb has gained monumental popularity among its users across the world since its establishment in San Francisco in 2008. According to an Airbnb corporate source, over the past decade it has experienced rapid growth, connecting more than 200 million guests across over 65,000 cities (Airbnb (2023) About Us, Airbnb Inc. Available at: https://www.airbnb.com/about).

3. Airbnb

On its corporate site, Airbnb defines itself as a distinct internet platform that establishes “a trusted community marketplace for people to list, discover, and book unique accommodation around the world” and “connects people to unique travel experiences.”

Recent statistics confirm that Airbnb’s estimated value of $30 billion has disrupted the established hotel industry and is ahead of most hospitality groups. Given Airbnb’s popularity and reach within the tourism and hospitality industries, it is no surprise that more researchers have started conducting analyses and studies on this novel phenomenon. Academic research has focused on Airbnb’s potential disruption to the hospitality and accommodation sector *(Guttentag 2015)*, marketing communication and advertising appeals *(Liu and Mattila 2017)*, pricing strategies *(Wang and Nicolau 2017)*, and user behavior and consumer experiences *(Tussyadiah and Pesonen 2016)*. According to the latter, a key attribute of the Airbnb user experience is its ability to offer an authentic tourist–host encounter that cannot be replicated by conventional hotels.

Tussyadiah examined the impact of the peer-to-peer accommodation platform on changes in consumers’ travel-related behaviors. The results from two online surveys targeting travellers from the United States and Finland suggest that the social appeals of peer-to-peer accommodations—namely travellers’ desire for more meaningful social interactions with local hosts, and their wish to participate in one-of-a-kind experiences in authentic settings—have the following effects: expansion in destination selection, increase in travel frequency, length of stay, and range of activities participated in tourism destinations. Additionally, the economic appeal of reduced accommodation cost allows travellers to select destinations and tourism activities that are otherwise cost-prohibitive.

4. Customer Experience and Customer Journey Maps

Airbnb's promise to provide a unique travel experience has prompted behavioral researchers to identify the unique dimensions and attributes that form the basis of the Airbnb customer experience. Customer experience (CX) is defined as the accumulation of customer engagement with a company or brand over the entirety of the customer–brand relationship. It is a multidimensional construct that focuses on a customer's cognitive, emotional, behavioral, sensorial and social responses to a firm's offering during the customer's entire purchase journey *(Lemon and Verhoef 2016)*. Customer experiences are constructed from the totality of specific, concrete and controllable elements referred to as touchpoints *(Richardson 2010)*. According to Lemon and Verhoef *(2016)*, CX may be conceptualized as a "customer's journey" with a business over time across multiple touchpoints.

While the specific definition of CX may vary by researcher, there is agreement that consumer experience is multidimensional *(Verhoef et al. 2009)*. Five key dimensions are consistently discussed in the literature: cognitive, affective, behavioral, sensory and social *(Verhoef et al. 2009; Brakus et al. 2009; Holbrook and Hirschman 1982; Klaus and Maklan 2013; Schmitt 2003)*.

The Servuction Model proposed by Hoffman and Bateson *(2006)* illustrates factors that influence customer experience with a service. These factors include both visible and invisible elements. Visible elements consist of the inanimate environment (servicescape), service provider and other contact personnel, and fellow consumers. Invisible systems refer to the rules, regulations and processes that govern an organization and have a profound influence on the consumer's service experience despite their invisibility. The Servuction Model demonstrates the integral role of consumers in the service process, regardless of whether their participation is active or passive. There is overarching consensus that interaction is necessary for consumer experience to occur, and therefore interaction is a prerequisite building block from which CX stems *(Prahalad and Ramaswamy 2004)*.

The rewards to the company or brand of an effectively managed customer experience are manifold. The benefits include enhanced customer and employee satisfaction, greater efficiency and increased revenues. Skillful navigation of the CX also allows organizations to improve cross-functional collaborations, delivering gains at multiple levels throughout the company *(Rawson et al. 2013)*.

Given the renewed interest in the concept of customer experience, scholars and practitioners alike have reverted to Customer Journey Mapping as a method to investigate user experience *(Nenonen et al. 2008; Yoo and Pan 2014)*. A customer journey map is a visual depiction of the narrative of the customer experience with a particular company or brand. This tool delineates the sequence of events through which customers may interact with a service organization during an entire purchase process, enabling the organization to make sense of customers' motivations, needs and pain points *(Rosenbaum et al. 2017)*.

The Customer Journey Map (CJM) is longitudinal and multifaceted. Lemon and Verhoef *(2016)* suggest that the CX process flows from pre-purchase (need recognition, search of alternatives, consideration) to purchase (choice, ordering, payment) to post-purchase stages (consumption, usage, engagement and service requests).

5. Research Design

There have been some efforts to assess and construct CJM from a theoretical perspective *(Nenonen et al. 2008)*, however, concrete examples and instructions for managerial interpretation remain scarce. In a typical CJM, touchpoints are depicted horizontally along a process timeline, which is separated into three periods: pre-service, service, and post-service. Depending on the unique customer's experience with the brand in question, the salience or strength of each touchpoint category may differ in each purchase stage. It is erroneous to assume that all customers experience each horizontal touchpoint with the same level of intensity and importance. The more effective approach is to gauge, directly from customers, which touchpoints they deem as important to them.

This research first identified the touchpoints customers might experience throughout their customer experience with Airbnb, categorized into three stages: prior, during, and after service. The process for determining the list of touchpoints consisted of surveying the literature for behavioral research on travel platforms and conducting 20–30-minute unstructured interviews with 11 Airbnb hosts/guests. This activity resulted in the identification of close to thirty customer touchpoints, each illustrating a moment when Airbnb customers had a point of interaction with the brand. Approximately one-third of these represented pre-service touchpoints (prior to the

customers' stay at an Airbnb property), one-half represented service touchpoints occurring during the actual Airbnb stay, and the rest represented post-service touchpoints (after the Airbnb stay).

As mentioned earlier, one of the shortcomings of the Customer Journey Mapping process is the misconception that all touchpoints are equally important to all customers, and that they should all factor equally into management's planning. Further analysis of the saliency of these CX touchpoints was required, and to this end, the list was used to develop an online survey (Appendix A), which was then circulated to respondents via Social Media platforms (namely Facebook) and e-mail. Out of the 50 responses, only 31 respondents had personally booked an Airbnb Property.

6. Findings

The first question of the survey screened respondents for personal experience with Airbnb. Qualified respondents were directed to complete the remaining questions on whether they had engaged in each of the 27 identified touchpoints during their latest Airbnb experience. Based on these responses, only those touchpoints selected by more than one third of the respondents were selected to be part of the CJM (horizontal axis) for Airbnb (Table 1).

Table 1: Important Customer Touchpoints

Customer Touchpoints	%
Pre-Service	
Create an account as a new user	57
Adjust filters and other search options	96
Use the map feature to search in specific neighborhoods	79
Read through property and host reviews	100
Look for 'Super Host' status and other host quality badges	32
Communicate with the host	71
Service	
Convenience of property's location	79
Accessibility of property to major attractions	71
Availability of parking at the property	50
Degree of safety around the property	61
Accuracy of description and photos on the Airbnb property listing page	82
Availability and comfort of furnishings	68
Cleanliness of the space	86
Functionality of the space	57
Helpfulness of the host	71
Flexibility of the host and willingness to accommodate	68
Post-Service	
Write a review for the host/property on Airbnb site	87
Write a private message/feedback for the host	43

The vertical axis of the CJM consists of managerial practices that may help ensure that Airbnb customers experience each touchpoint in a satisfactory manner. These recommended practices are classified in line with the Servuction Model *(Hoffman and Bateson, 2006),* as pertaining to the 'inanimate environment/servicescape', 'contact personnel', 'other customers' and 'invisible systems'. The inanimate environment refers to all non-living living features present in the service encounter which help create some degree of tangibility. In the case of Airbnb, this may include design elements of the website as well as servicescape elements of the property. The contact personnel may include the host and Airbnb customer service representatives. Other customers include the influence (active/passive; positive/negative) that other Airbnb users may have. Finally, the invisible systems reflect the rules, regulations and processes of the Airbnb organization.

For the purposes of this exploratory study, CJMs for the three stages of CX with Airbnb were constructed. Based on the preliminary survey, the key customer touchpoints during each stage are listed along the horizontal axis. Airbnb's CJM for the 'Pre-Service' period is presented in Table 2.

Table 2: Airbnb CJM: Pre-Service

		Create account	**Use map**	**Read reviews**	**Superhost' status**	**Communicate with host**
STRATEGIC PRACTICES	Inanimate Environment	Clear step-by-step instructions for account set-up	Map features accurate and clear markings for streets and landmarks	Allow sorting of reviews by type of traveler (business/ leisure; couple/ family)	Specify how long host has maintained 'Superhost' status	
		Simplify verification process	Map features vivid and attractive colors	Allow sorting of reviews (by number of stars)		
	Contact Personnel	Provide direct contact number for Airbnb customer service department				Make sure customers feel 'valued' and 'listened to"
		Enhance representative technical training to better handle site challenges and failures				
	Other Customers					Better monitoring of the Airbnb Community Center to ensure that accuracy of shared information and C2C mentoring
	Invisible Systems	Enhance internal communication among various Airbnb functional departments				Redesign site mail system to include phone number, URLs and images
		Effective process for documenting and following up on service calls to better 'keep promises'				Implement an effective case escalation process

Tables 3 and 4 replicate the same mapping for the 'Service' and 'Post-Service' stages, respectively. Some proposed strategic initiatives and service innovation strategies for each touchpoint are plugged into the matrices, where applicable. Further research - in collaboration with Airbnb management, hosts and guests - is required to propose more expansive and in-depth recommendations for enhancing the Airbnb CX at each of these touchpoints.

Table 3: Airbnb CJM: Service

		Convenience	Accessibility	Safety
STRATEGIC PRACTICES	Inanimate Environment	Hosts place visual map with directions to local amenities	Hosts place promotional brochures/ materials for tourist attractions	Hosts place list of emergency contact numbers
				Apartment has security systems, locks, smoke deterctors & other safety devices
	Contact Personnel		Hosts share tourist information with guests	
	Invisible Systems		Hosts set up arrangements with local tour guides to provide assistance	

		Furnishings	Cleanliness	Functionality
STRATEGIC PRACTICES	Inanimate Environment			
	Contact Personnel	Airbnb 'Expert' service (one-time/ complimentary) to consult on furnishings		Airbnb 'Expert' service (one-time/ complimentary) to consult on space functionality
	Other Customers		Setting realistic expectations of degree of cleanliness	
	Invisible Systems		Airbnb checklist provided to hosts to ensure consistent cleanliness	

Table 4: Airbnb CJM: Post-Service

		Write Review
STRATEGIC PRACTICES	Invisible Systems	Revise review submission system to allow editing of reviews after submission
		Extend the 'post-stay' period for review submission

7. Discussion

This exploratory study set out to examine the Airbnb customer experience across the consumption journey using Customer Journey Mapping (CJM), with the objective of identifying the most salient service touchpoints and proposing actionable managerial strategies for enhancing customer experience (CX). By empirically grounding the CJM in customer-reported touchpoint salience, the study responds directly to calls in the CX literature for more customer-centric, data-informed journey analyses rather than purely conceptual or firm-driven maps.

The findings demonstrate that Airbnb customers engage with a wide and differentiated set of touchpoints across the pre-service, service, and post-service stages, with varying levels of importance. Consistent with Lemon and Verhoef's (2016) conceptualization of CX as a longitudinal process, pre-service touchpoints emerged as particularly influential in shaping customer expectations. Features such as search filters, map-based location tools, and—most notably—host and property reviews were reported by a substantial majority of respondents. The prominence of host communication during this stage further highlights the hybrid nature of Airbnb's CX, which blends technology-mediated interactions with interpersonal exchange.

During the service stage, experiential factors related to accuracy, cleanliness, functionality, safety, and host behavior were identified as critical determinants of satisfaction. These findings reinforce prior research suggesting that while Airbnb's value proposition often emphasizes authenticity and social interaction, functional

service quality remains foundational. The importance attributed to accuracy of listing descriptions and photos is particularly salient, as it reflects the fragile trust-based nature of peer-to-peer accommodation. Any discrepancy between expectations and reality may disproportionately damage customer evaluations, given the absence of standardized brand-controlled environments typical of traditional hotels.

Post-service touchpoints were dominated by review-writing and private feedback provision. Reviews not only serve as a mechanism for customer reflection and expression but also function as a critical input shaping future customers' pre-service experiences. This reinforces the notion that customers in the sharing economy are simultaneously consumers and contributors to the service ecosystem.

From a theoretical perspective, this study contributes to the CX and sharing economy literature by demonstrating how CJM can be operationalized using customer-reported salience data rather than assuming equal importance across touchpoints. Integrating CJM with the Servuction Model further illustrates how visible elements (servicescape, host behavior, peer influence) and invisible organizational systems jointly shape the customer experience. The study also extends existing Airbnb research by moving beyond isolated aspects of user behavior to a holistic, journey-based view of experience formation.

Managerially, the findings suggest that Airbnb and similar platforms should prioritize investments in pre-service digital servicescape design, transparency-enhancing mechanisms, and host–guest communication tools. During the stay, clearer standards and support systems for hosts may help ensure consistency in functional quality without undermining the platform's peer-to-peer core. Post-service, refinements to review systems—such as extended submission windows or editable reviews—may enhance feedback quality and perceived fairness.

This study is subject to limitations. Its exploratory nature and reliance on self-reported survey data limit generalizability, and the sample does not account for differences in traveller segments, trip purpose, or cultural context. Future research should validate and extend these findings using larger, cross-cultural samples, longitudinal designs, and comparative analyses between peer-to-peer and traditional hospitality models to further advance understanding of customer experience in evolving tourism service systems.

Ethics Declaration

The research was granted an exemption by the Institutional Review Board (IRB) at Salem State University.

AI Declaration

AI (Chat GPT) was used to help with editing the abstract, and some formatting of the bibliography of this paper, according to the Harvard referencing style.

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Appendix A: Online Customer Experience (Cx) Survey

Customer Touchpoints with Airbnb

The purpose of this survey is to identify the most important aspects of customer experience when using a vacation rental platform such as Airbnb. This survey is intended only for consumers who have personally booked and stayed at an Airbnb property.

Screening Question

1. Have you ever personally booked and stayed at an Airbnb property?

☐ Yes

☐ No

(If No, please exit the survey.)

Customer Experience with Airbnb Registration, Search & Booking (Pre-Service)

Please think back to your most recent experience booking a stay on Airbnb. The following questions relate to the booking process prior to the actual stay.

2. Before searching for properties on Airbnb, did you need to create an account as a new user?

☐ Yes
☐ No

3. During the search process, did you use any of the following features? (Please check all that apply.)
☐ Adjust filters and search options (dates, number of guests, price, etc.)
☐ Use the map feature to search within specific neighborhoods
☐ Read property and host reviews
☐ Look for "Superhost" status or other host quality badges
☐ Give preference to properties offering "Instant Book"
☐ Give preference to properties listed as "Plus Homes"

4. Prior to or during the booking process, did you communicate directly with the host?
☐ Yes
☐ No

Customer Experience with the Host and Property During the Stay (Service)

Please think back to your most recent Airbnb stay. The following questions relate to your experience during the stay.

5. Which of the following property location factors were most important to you during your stay? (Please check all that apply.)
☐ Convenience (easy to find and access)
☐ Proximity to major attractions
☐ Availability of parking
☐ Noise level
☐ Safety of the neighborhood

6. Which of the following property amenities and facilities were most important to you? (Please check all that apply.)
☐ Garden or outdoor space
☐ Pool
☐ Accuracy of the description and photos on the Airbnb listing page
☐ Aesthetic layout and design of the space
☐ Availability and comfort of furnishings
☐ Cleanliness
☐ Functionality of the space

7. Which of the following host-related factors were most important to you during your stay? (Please check all that apply.)
☐ Helpfulness
☐ Availability during the stay
☐ Flexibility and willingness to accommodate requests
☐ Effectiveness of communication (pre-arrival, check-in, during the stay, and after check-out)

Customer Experience After the Stay (Post-Service)

Please think back to your most recent Airbnb stay. The following questions relate to your experience after the completion of the stay.

8. After your stay, did you do any of the following? (Please check all that apply.)
☐ Write a public review for the host/property on Airbnb
☐ Send a private message or feedback to the host
☐ File a complaint with the host and/or Airbnb

Urban Culture Events as Drivers of in-City Expenditure: Evidence From The World Battle Porto

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Abstract: Urban dance events are increasingly used by cities to attract visitors, media attention and spending, yet we still know surprisingly little about which attendees drive in-city expenditure in these contexts. These events have become increasingly important in urban and tourism development strategies contributing to the construction of territorial identities, the promotion of cultural diversity, and measurable revitalization of the local economy. This study examines The World Battle Porto (TWBP) using data from the 2024 and 2025 editions, analyzing the relationship between self-reported in-city expenditure and visitors' levels of urban cultural engagement, event-specific motivations, first-time attendance, and sociodemographic characteristics. We draw on 769 valid questionnaires collected on-site through a structured questionnaire administered via direct, face-to-face interviews to attendees. Given the absence of a defined sampling frame and the dynamic flow of attendees at this open-access event, a non-probabilistic convenience sampling strategy was adopted, consistent with established methodological practice in event-based field research. Attendees were grouped into four profiles reflecting their engagement with urban culture: (1) active practitioners of breaking/urban dance; (2) culturally committed fans who do not practice; (3) newcomers exploring this cultural universe for the first time; and (4) outsiders whose interest does not extend beyond attending. Since expenditure is zero-inflated and strongly right-skewed, we estimate Tobit models to account for censoring while testing the role of engagement, motivations, loyalty and length of stay. Results point to marked heterogeneity. Cultural engagement matters: committed fans exhibit higher in-city expenditure, whereas weakly engaged attendees contribute much less. Motivations tied to the event's cultural core, performances, competitions and learning about urban culture, are positively associated with spending, while generic relaxation motives are not. First-time visitors and longer stays also increase overall expenditure in Porto, suggesting that the event often functions as a reference anchor to broader city trips. Overall, the study shows that destination revenues from contemporary urban culture events depend less on "average impact" and more on who attends and how they engage with the event. For event organizers and destination managers, strengthening cultural authenticity and deepening participant-oriented programming can help attract higher-value segments, especially when paired with actions that extend stays and channel consumption across the city.

Keywords: Urban Events; Visitor Expenditure; Cultural Engagement; The World Battle Porto; Tobit Model

1. Introduction

Urban cultural events are now a key part of how cities compete for visitors, visibility, and revenues. The dissemination of such events across European and global cities reflects a broader shift in tourism demand toward experiential consumption and authentic cultural engagement (Brabu, 2025). For destinations like Porto, these events matter not only because they shape the city's image, but also because they can trigger expenditure across accommodation, food and beverage, mobility, retail, and leisure (Preuss and Solberg, 2007; Richards, 2020; Getz and Page, 2024). Economic impact is rarely uniform: the same event may generate substantially different spending patterns depending on attendee characteristics, underlying motivations, and whether participation is integrated into a broader city visit (Dwyer, Forsyth and Spurr, 2005; Thrane, 2002; Crompton, 2006).

Unlike traditional cultural tourism, which tends to be based on monuments and historical narratives, contemporary urban cultural events emphasize participatory cultural practices, creative expression, and identity formation (Kim, 2025; Wang, 2025). The World Battle Porto (TWBP) offers an interesting setting to explore these mechanisms. In its 19th and 20th editions, the TWBP combined an international dancing contest with other urban sport and culture elements (e.g., skate, 3×3 basketball, graffiti performances), while also expanding its cultural program through workshops, urban fashion, freestyle rap, exhibitions and live concerts. This mixed

format attracts a heterogeneous audience: some visitors are deeply embedded in urban culture, others are "fans" who follow the scene without practicing, and others attend with limited cultural involvement. Despite the rapid proliferation of urban culture events across European cities, empirical knowledge about who drives their economic returns remains surprisingly limited. Expenditure effects are often assumed rather than demonstrated, especially in events rooted in participatory cultural practices such as breaking and urban dance.

From a tourist economic perspective, such events are particularly relevant because they tend to generate diversified patterns of visitor expenditure that extend beyond the event venue into the host city. Event tourism literature consistently shows that cultural and sport events can stimulate spending especially when they attract tourists and encourage longer stays (Dwyer, Forsyth and Spurr, 2005; Thrane, 2002). Events attract heterogeneous visitor segments with distinct expenditure patterns, and aggregate economic impact measures may obscure substantial variation in the extent to which different visitor types contribute to local economic activity (Ramesh, 2024).Meanwhile, little is known about the micro-level determinants of visitor expenditure in urban culture events that blend sport, creativity, and participatory cultural practices.

Recent advances in event studies emphasize the need to move beyond average spending figures and to account for visitor heterogeneity in motivations, engagement, and cultural involvement (Getz and Page, 2024). In particular, the Experience Economy perspective highlights that contemporary visitors increasingly seek immersive, emotionally meaningful, and participatory experiences, in which value is co-created through interaction, identity expression, and cultural learning (Pine and Gilmore, 2019). Urban culture events, such as TWBP, are especially well suited to this logic, as they foster strong emotional and symbolic connections between participants, performers, and the urban environment. Nevertheless, empirical evidence on how different forms of engagement with urban culture translate into differentiated economic contributions remains scarce. This gap is particularly evident when segmentation based on cultural involvement is considered. While literature acknowledges that motivations and thematic interest influence tourist behavior (Thrane, 2002; Richards, 2020), few studies explicitly distinguish between different levels of engagement with urban culture, such as active practitioners, enthusiasts, newcomers, and less-involved attendees, and assess how these profiles shape in-city expenditure. Moreover, although methodological guidelines recommend visitor-based approaches and censored-data models when analyzing event-related spending (Crompton, 2006; Dwyer, Forsyth and Spurr, 2005), their application to urban culture events remains limited.

Accordingly, this study analyses the economic impact of TWBP on the city of Porto using data from the 2024 and 2025 editions. Rather than treating attendance as a homogeneous phenomenon, the analysis focuses on how different ways of engaging with urban culture translate into differentiated patterns of in-city expenditure. By combining an ex-ante engagement typology with a Tobit modelling framework, the paper moves beyond aggregate impact assessments and provides micro-level evidence on who effectively drives in-city expenditure in contemporary urban culture events. In doing so, it responds to recent calls in event tourism research to better account for visitor heterogeneity and experiential depth when assessing economic outcomes (Getz and Page, 2024).

By addressing this underexplored intersection between urban culture, experiential engagement, and visitor expenditure, the paper offers both theoretical and practical insights. It contributes to a more nuanced understanding of urban cultural events as economic catalysts and provides event organizers and destination managers with evidence-based guidance on how engagement-oriented strategies may enhance the sustainable economic performance of contemporary urban events.

2. Theoretical Framework and Research Hypotheses

Cultural and urban events are increasingly recognized as strategic instruments for urban development, as they combine symbolic value creation with measurable economic effects, thereby constituting a central component of urban tourism policymaking (Quinn, 2010). The literature highlights their capacity to stimulate tourism demand, strengthen place branding, and generate local expenditure, particularly when events attract non-resident visitors and extend average length of stay (Preuss and Solberg, 2007; Richards, 2020; Getz and Page, 2024).While early studies largely focused on aggregate economic impacts, more recent research emphasizes the importance of analyzing visitor-level spending behavior, acknowledging heterogeneity in motivations, cultural engagement, and experiential involvement (Dwyer, Forsyth and Spurr, 2005; Crompton, 2006; Thrane, 2002; Zhang et al, 2025). In parallel, contemporary event research has increasingly incorporated social sustainability, inclusion, community-related outcomes, social cohesion, and creative industry development, into the assessment of cultural events' broader value for host destinations (Mair, Wood and Quinn, 2024; Gao, 2024).

Research on event visitor experiences reveals multidimensional constructs influencing spending. Within this framework, engagement—defined as the extent to which attendees are cognitively, emotionally, and behaviorally invested in the event (Mananda, Ariwangsa, and Antara, 2025)—emerges as a key predictor of visitor behavior. Event tourism research consistently shows that higher levels of thematic involvement are associated with stronger emotional attachment, deeper experiential participation, and differentiated consumption patterns (Thrane, 2002; Pine and Gilmore, 2019). Mitrovi (2022) segmented wine event visitors into distinct groups and found significant differences in their motivation, experience, and behavioral intentions, with the most enthusiast group showing the highest engagement and spending propensity. In the context of urban cultural events linked to breaking and urban dance, attendees' relationship with urban culture, ranging from active practice to peripheral interest, may therefore translate into distinct levels of economic contribution at the destination level (Mair and Whitford, 2013; Richards, 2020). Visitors who identify more strongly with urban culture are expected to engage more intensely with the event and the host city, leading to higher expenditure, whereas weakly engaged attendees are likely to exhibit a more limited consumption behavior. Accordingly, it is hypothesized that visitors showing a stronger engagement with urban culture generate higher in-city expenditure than less engaged attendees (H1).

Beyond cultural engagement, visitor motivations play a central role in shaping expenditure patterns (Attanasi et al, 2025). Understanding psychological and motivational dimensions is crucial for predicting event-driven spending. Contemporary tourism demand is increasingly driven by experiential value, authenticity, and emotional engagement (Pine and Gilmore, 2019). Cultural events offer immersive environments in which visitors are not merely spectators but active participants and co-creators of meaning through performance, interaction, and cultural learning. Prior empirical studies demonstrate that motivations directly related to the core content of events, such as artistic performances, competitions, and opportunities for cultural learning, are positively associated with higher levels of visitor expenditure (Thrane, 2002; Richards, 2020). Recent evidence further suggests that participatory cultural experiences enhance psychological immersion, which in turn strengthens spending intentions (Jiang et al, 2024). In contrast, more generic leisure motivations may be less relevant in explaining spending behavior in specialized cultural events. Therefore, it is hypothesized that stronger cultural and event-specific motivations are positively associated with higher in-city expenditure (H2).

Loyalty-related characteristics also represent an important explanatory dimension in event tourism. While repeat visitors may benefit from familiarity and more efficient consumption patterns, first-time visitors tend to exhibit exploratory behavior, engaging more extensively with the destination and, consequently, generating higher levels of expenditure (Getz and Page, 2024; Mair and Whitford, 2013). Events can thus function as gateways to destination discovery, particularly for newcomers, who are more likely to extend their visit beyond the event itself. Ergo, it is hypothesized that loyalty-related characteristics, namely first-time attendance, significantly influence in-city expenditure associated with the event (H3).

Length of stay constitutes another well-established determinant of tourism expenditure. It also represents a critical variable, amplifying the relationship between event attendance and total visitor expenditure. A substantial body of literature identifies length of stay as one of the most robust predictors of total visitor spending, as longer visits increase opportunities for consumption across accommodation, food and beverage, transport, and leisure sectors (Brida, Disegna and Osti, 2013; Dwyer, Forsyth and Spurr, 2005; Thrane, 2002). Events frequently act as anchors for broader destination experiences, encouraging visitors to prolong their stay and amplifying overall economic impact. In line with this evidence, it is hypothesized that length of stay exerts a positive and statistically significant effect on visitors' in-city expenditure (H4).

Finally, sociodemographic characteristics, including gender, age, education, marital status, and nationality, are incorporated in the study as control variables, following established practice in tourism economics (e.g. Reis, Vieira and Borges, 2021). Their inclusion allows baseline heterogeneity in consumption behavior to be accounted for, ensuring that the estimated effects of cultural engagement, motivations, loyalty, and length of stay on expenditure are not confounded by structural individual characteristics (Thrane, 2002; Dwyer, Forsyth and Spurr, 2005).

Given the censored nature of event-related expenditure data, characterized by a substantial proportion of zero observations and a right-skewed distribution, the methodological literature recommends econometric techniques that explicitly account for censoring to obtain consistent estimates of expenditure determinants (Crompton, 2006; Dwyer, Forsyth and Spurr, 2005). Tobit models are therefore widely applied in tourism and event economics, providing an appropriate framework to jointly model participation and spending intensity. Figure 1 presents the conceptual model.

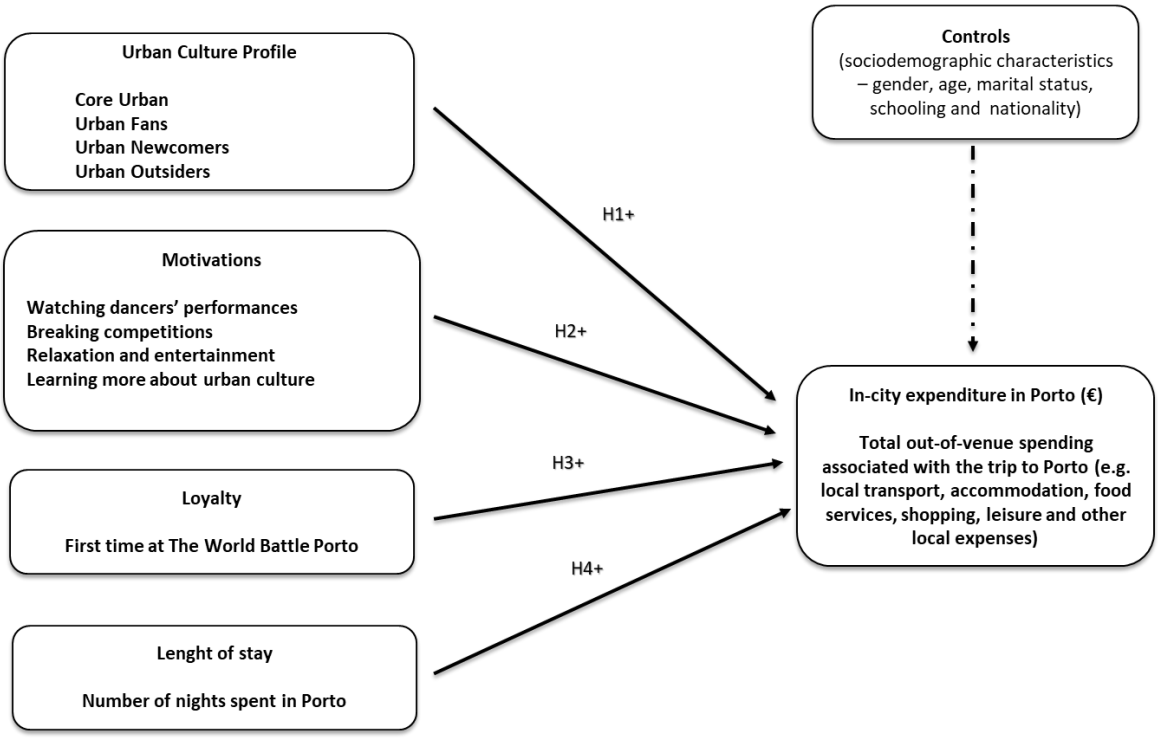


Figure 1: Conceptual model of determinants of visitor expenditure

Source: Own elaboration.

3. Methodology

This study is based on the analysis of primary data collected during the three days of TWBP, across the 2024 and 2025 editions. Data was collected at the event venue through a structured questionnaire administered via direct, face-to-face interviews. A non-probabilistic convenience sampling approach was adopted because the event does not provide a complete sampling frame and attendee flows are dynamic, making it impossible to pre-identify participants or estimate individual selection probabilities. The final sample comprises 769 valid responses (418 from 2024, and 351 from 2025).

The questionnaire captured information on visitors' urban culture profile, sociodemographic characteristics (gender, age, marital status, education, and nationality), motivations to attend the event, loyalty (first-time vs. repeated attendance), length of stay, and total visit expenditure (transport to Porto and in-city expenditure). Motivations were measured using a five-point Likert scale, while expenditure variables were recorded in euros (€) as continuous non-negative values. Attendees were classified into four theoretically ordered engagement profiles based on self-identification with urban culture, ranging from active practitioners to outsiders. This ex-ante typology enables testing how engagement relates to in-city expenditure using a transparent and replicable procedure.

All statistical analysis was conducted using STATA 14. Given the censored distribution of the expenditure variable, characterized by a substantial proportion of zero observations, a Tobit regression model was employed to analyze the determinants of in-city expenditure. Specifically, a Tobit model with left censoring at zero was estimated using the full sample (N = 769). Of these, 428 observations report positive in-city expenditure (uncensored), while the remaining observations are left-censored at zero.

4. Results

Table 1 presents the descriptive statistics of the sample of visitors attending the TWBP in the 2024 and 2025 editions.

Table 1: Descriptive statistics of the sample of attendees at TWBP (2024–2025)

Variable - Description	% or Mean
Urban Culture Profile - *Categorical nominal variable. Urban Culture Profile (0 = Core Urban; 1 = Urban Fans; 2 = Urban Newcomers; 3 = Urban Outsiders)*	
Core Urban – *Regular practitioner of breaking or other forms of urban dance*	42.8%
Urban Fans – *Enthusiast of urban culture, although not an active practitioner*	27.3%
Urban Newcomers – *Curious individual exploring urban culture for the first time*	26.1%
Urban Outsiders – *Individual with no interest in urban culture*	3.8%
Sociodemographic Characteristics	
Gender - *Categorical nominal variable. Gender (0 = Female; 1 = Male; 2 = Other/I'd rather not say)*	
Female	47.5%
Male	50.6%
Other/I'd rather not say	1.9%
Age - *Continuous variable*	30.9
Marital status - *Binary variable. Marital status (0 = Single; 1 = Not single [Married, Divorced or Widowed])*	
Single	58.9%
Not single (Married, Divorced and Widow)	41.1%
Schooling (complete) - *Binary variable. Completed schooling (1 = Degree [Bachelor, Master or PhD]; 0 = Not degree [basic/elementary education])*	
No Degree (Basic and Elementary)	37.6%
Degree (Bachelor, Master and PhD)	62.4%
Nationality - *Binary variable. Nationality (1 = Portuguese; 0 = Other)*	
Portuguese	52.2%
Other	47.8%
Motivation to visit TWBP - *Ordinal variables. Five-point Likert scale: 1 = Not at all important; 2 = Slightly important; 3 = Neither important nor unimportant; 4 = Important; 5 = Very important)*	
Watching dancers' performances	4.27
Breaking competitions	4.11
Relaxation and entertainment	4.27
Learning more about urban culture	4.19
Loyalty - *Binary variable capturing first-time attendance (1 = Yes; 0 = No)*	
First time at TWBP	30.2%
Repeated	69.8%
Length of stay - *Continuous variable*	
Number of days	4.23
Expenditure Category - *Self-reported out-of-venue Expenditure Associated With the Trip to Porto (€). Continuous non-negative Variables*	**€**
Travel to Porto	286.49
In-city	453.53
Local transportation	31.99
Accommodation	160.46
Restaurants and cafés	69.35
Grocery shopping (supermarkets)	45.69
Shopping/Gifts	57.84
Culture/Leisure	42.17
Other	46.03

Source: Own elaboration

The results indicate a strong connection between attendees and urban culture, with Core Urban participants representing the largest group (42.8%), followed by Urban Fans (27.3%) and Urban Newcomers (26.1%). Only a small proportion of respondents are classified as Urban Outsiders (3.8%), highlighting the cultural specificity of the event's audience. With respect to sociodemographic characteristics, the sample is relatively balanced by gender, with a marginal predominance of male visitors (50.6%). The average age is 30.9 years, indicating a predominantly young adult audience. Most respondents are single (58.9%), and a substantial share holds a higher education degree (62.4%), suggesting a well-educated visitor profile. Regarding nationality, Portuguese visitors represent 52.2% of the sample, while 47.8% are international attendees, underlining the event's international reach.

Visitors report high levels of motivation to attend the event across all dimensions analyzed. Watching dancers' performances, and relaxation/entertainment emerge as the most important motivations (mean = 4.27; 4.27), followed by learning more about urban culture (mean = 4.19) and break dance competitions (mean = 4.11), confirming the centrality of both artistic performance and cultural engagement in driving attendance.

Regarding behavioral aspects, visitors stay in Porto for an average of 4.23 days, indicating that attendance at TWBP is often integrated into a broader city visit. Approximately 56% of respondents reported positive in-city expenditure, reflecting the predominance of visitors in the spending subsample. In this context, average in-city expenditure amounts to €453.53, with accommodation (€160.46) representing the largest component, followed by restaurants and cafés (€69.35), shopping and gifts (€57.84), and culture and leisure (€42.17), among others. We distinguish expenditure incurred during the stay in Porto from travel-to-Porto costs (€286.49), which may not accrue locally.

The Tobit models' findings, which were used to study the variables impacting in-city spending related to attendance at TWBP (2024–2025), are summarized in Table 2. These findings strongly support H1, beginning with participation in urban culture. Urban Fans are the group that makes the most contribution to in-city spending when compared to the Core Urban group. Their deep cultural and emotional ties to urban dance translate into significantly higher levels of in-city expenditure, even though they are not active practitioners. In contrast, Urban Outsiders exhibit significantly lower levels of in-city expenditure, supporting the interpretation that limited interest in urban culture is associated with reduced economic contribution to the destination. Urban Newcomers do not display a statistically distinct expenditure pattern, suggesting a more intermediate level of engagement rather than a clearly differentiated consumption profile. When combined, our findings support previous research on the significance of thematic involvement in cultural and creative events by confirming that greater cultural engagement is linked to increased visitor expenditure (Thrane, 2002; Pine and Gilmore, 2019; Richards, 2020; Mitrovi, 2022).

Motivations further corroborate this view and provide some support for H2. Attendees that come mainly to see performances, keep up with break dance competitions, or discover more about urban culture typically spend more money in the city. On the other hand, people who are primarily driven by relaxation and entertainment spend significantly less, according to the model results. Consistent with the core principles of the Experience Economy (Pine and Gilmore, 2019) and prior research on event-based consumption (Thrane, 2002; Richards, 2020), this distinction indicates that expenditure is more strongly associated with culturally embedded and experience-driven motivations than with generic leisure-oriented incentives.

Loyalty-related effects indicate that first-time attendees exhibit significantly higher total in-city expenditure than repeat visitors, thereby generating stronger destination-level economic outcomes. This finding suggests that newcomers are more likely to engage in lodging, food services, and other urban activities to broaden their experience beyond the event itself. This trend supports H3 because it aligns with the research on event tourism, which emphasizes novelty-seeking and location discovery as important factors influencing tourist behavior (Mair and Whitford, 2013; Getz and Page, 2024).

Length of stay emerges as one of the strongest predictors of in-city expenditure. The assumption that events like TWBP serve as catalysts for longer stays and larger economic spillovers within the city is reinforced by the fact that every extra night spent in Porto is linked to a significant rise in overall spending. This result clearly supports H4 and is consistent with the body of research showing how important the length of stay is in determining travel expenditures (Brida, Disegna and Osti, 2013; Dwyer, Forsyth and Spurr, 2005; Thrane, 2002).

Furthermore, the control variables suggest that, after accounting for engagement, motivations, loyalty and length of stay, sociodemographic characteristics contribute relatively little to the explanation of in-city

expenditure. Gender and marital status are not statistically significant, whereas age and educational attainment display positive and statistically significant associations with spending. Older visitors and those holding a higher education qualification report higher levels of in-city expenditure, consistent with the findings of Brida, Disegna and Osti (2013). Nationality is marginally significant at the 10% level (p = 0.060), suggesting that differences between domestic and international visitors are comparatively weaker than the effects associated with cultural engagement and event-specific motivations. Overall, the results suggest that behavioral and experiential factors are more relevant than structural sociodemographic characteristics in explaining in-city spending (Crompton, 2006).

Table 2: Determinants of in-city expenditure: Tobit regression results TWBP (2024–2025)

Variable	Coefficient	Std. Error	p-value
Year (ref. 2024)			
2025	98.85	79.31	0.213
Urban Culture Profile (ref. Core Urban)			
Urban Fans	146.05	85.27	0.003***
Urban Newcomers	25.53	115.51	0.825
Urban Outsiders	−44.22	13.92	0.015**
Motivations (binary: Important/Very important = 1)			
Watching dancers' performances	19.53	3.42	0.001***
Break dance competitions	189.83	106.32	0.075*
Relaxation and entertainment	−49.76	106.64	0.641
Learning about urban culture	52.77	19.57	0.012**
First-time attendance (Yes)	20.19	12.73	0.028**
Length of stay (nights)	40.79	11.97	0.001***
Gender (ref. Female)			
Male	−42.05	82.60	0.611
Other / Prefer not to say	−174.54	304.60	0.567
Age	8.65	4.00	0.031**
Marital status (Not single)	−21.90	91.18	0.810
Schooling (Degree)	21.34	6.46	0.014**
Nationality (Portuguese)	−103.65	102.84	0.060*
Constant	84.51	20.62	0.000***

Notes: N = 769. The Tobit model is left-censored at zero; 428 observations are uncensored (in-city expenditure > 0) and 341 are censored at zero. *** p < 0.01; ** p < 0.05; * p < 0.1.; LR $\chi^2(16) = 37.84$ (p = 0.0016); Pseudo $R^2 = 0.055$.

Source: Own elaboration.

5. Discussion, Conclusions and Future Research

5.1 Discussion

The analysis of the 2024 and 2025 editions of TWBP highlights a key insight that is often obscured in discussions of event-related economic impact: not all attendees contribute equally to the host city's economy. Although urban culture events are often evaluated using aggregate attendance figures, the present findings indicate that destination-level revenues depend primarily on the composition of the audience and on the intensity of visitors' cultural engagement. In the case of TWBP, expenditure is shaped less by sheer presence at the event and more by the ways in which visitors connect the event experience with the city itself.

Cultural engagement emerges as a central explanatory dimension. Urban Fans exhibit significantly higher in-city expenditure, whereas Urban Outsiders contribute markedly less. This pattern suggests that symbolic proximity

and emotional attachment to urban culture shape economic behavior even in the absence of active event participation. Events that resonate with identity-based cultural communities therefore appear particularly effective in attracting visitors whose engagement extends beyond the event space into the wider city. Rather than reflecting simple attendance effects, these findings underline the economic relevance of thematic involvement in contemporary cultural events (Thrane, 2002; Pine and Gilmore, 2019; Richards, 2020).

Motivational patterns further reinforce this interpretation. Visitors motivated by the event's core cultural content, watching performances, following competitions, or learning more about urban culture, tend to spend more in the city, while motivations related to relaxation or generic entertainment do not significantly influence expenditure. This distinction suggests that spending is driven less by undifferentiated leisure and more by the depth of cultural involvement, in line with recent evidence on participatory cultural experiences (Jiang et al, 2024).

Loyalty-related behavior adds nuance to these findings. First-time visitors display higher in-city expenditure than repeat attendees, pointing to a more exploratory orientation that extends beyond the event itself. For these visitors, TWBP appears to function as a gateway to broader destination experiences, a pattern consistent with established event tourism research (Mair and Whitford, 2013; Getz and Page, 2024). Although repeat attendance contributes to event continuity, the results indicate that first-time attendees generate comparatively stronger marginal economic returns for the host city.

Finally, length of stay remains one of the strongest determinants of in-city expenditure. Each additional night spent in Porto significantly increases total visitor spending in-city, confirming one of the most robust regularities in tourism and event economics (Dwyer, Forsyth and Spurr, 2005; Thrane, 2002). This finding reinforces the importance of positioning urban culture events within a broader destination experience that encourages longer stays and deeper economic integration.

5.2 Conclusions and Practical Implications

The findings suggest that TWBP generates meaningful destination-level economic value, which is amplified when the event attracts visitors who are culturally engaged, motivated by its core content, visiting for the first time, and staying longer in the city. Methodologically, the Tobit framework strengthens the robustness of expenditure modelling in contexts characterized by censoring and heterogeneity. Substantively, the engagement-based profiling approach adopted in this study contributes to the urban event tourism literature by identifying the visitor segments that drive economic impact and the behavioral mechanisms through which these effects occur (Getz and Page, 2024; Richards, 2020).

From a practical perspective, the results suggest that events anchored in strong cultural narratives and identity-based practices are more likely to attract high-value visitors. Investment in the quality and visibility of core cultural content, performances, competitions and learning-oriented formats, appears more effective than generic entertainment positioning. Encouraging longer stays through partnerships with accommodation providers, mobility services or curated urban experiences can further amplify economic impact. At the same time, the higher spending associated with first-time visitors highlights the importance of targeted acquisition strategies and onboarding experiences that facilitate city-wide consumption.

More broadly, these insights support the view that urban cultural events can contribute not only to short-term economic vitality but also to longer-term urban development goals, particularly when they enhance cultural visibility, foster community participation and attract diverse audiences (Mair, Wood and Quinn, 2024).

5.3 Limitations and Future Research

This study has limitations. The use of convenience sampling may constrain generalizability, and expenditure data are self-reported. Future research could improve measurement precision by combining survey data with administrative or transactional sources, such as ticketing or accommodation records. In addition, incorporating experiential constructs - such as perceived authenticity, satisfaction or emotional engagement - would help clarify the mechanisms linking cultural involvement and spending.

Extending the analysis to other urban culture events and destinations, adopting longitudinal designs across multiple editions, and exploring broader legacy effects - such as destination branding and social sustainability outcomes - would further advance research in event and cultural tourism.

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Ethics Declaration

Data were collected under a formal collaboration protocol between ISAG – European Business School, CICET-FCVC, and the organizing entity of The World Battle Porto, which authorizes their use for academic research purposes. All survey responses were collected voluntarily, anonymously, and without any personally identifiable information.

AI Declaration

AI-based tools were used exclusively to support language editing and stylistic refinement of the manuscript. All theoretical framing, methodological design, data analysis, interpretation of results, and final content decisions remain the sole responsibility of the authors.

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Climate-Related Resilience in an Alpine Tourism Destination: Aoraki/Mount Cook National Park

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Abstract: Alpine national parks are among the most climate-sensitive tourism landscapes, and Aoraki/Mount Cook National Park exemplifies how rapidly changing biophysical conditions are reshaping the foundations of destination management in Aotearoa New Zealand. Accelerated glacier retreat, unstable hydrological regimes, and increasingly variable weather patterns are altering access, damaging infrastructure, and challenging long-held assumptions about the stability of iconic alpine environments. While these shifts are well documented in scientific and hazard-management reports, far less is known about how such pressures are interpreted within the policy and planning documents that guide tourism and conservation decision-making. This paper addresses that gap through a qualitative document analysis of management plans, climate reports, visitor strategy materials and monitoring outputs drawn from institutional sources from 2005 onwards, offering a more contextualised understanding of how resilience is currently framed. The findings reveal a protected-area system in transition. Environmental change is clearly recognised across technical reports, yet its implications for tourism operations, visitor experience and long-term planning are not always addressed consistently across the document set. The term "resilience" appears in parts of the documents analysed, but it is applied in different ways, including in relation to hazard and visitor-safety management, infrastructure maintenance, and broader adaptation planning. An integrated framing that links climate projections to destination-level planning is not consistently evident, suggesting scope for clearer alignment between long-term risk information and day-to-day management decisions. At the same time, the document record highlights opportunities for reimagining visitor engagement, strengthening interpretation, and aligning future planning more closely with mana whenua values and cultural responsibilities. By situating Aoraki/Mount Cook National Park within broader scholarship on climate-related destination resilience, this study contributes a grounded analysis of how institutional narratives shape adaptation pathways in non-ski alpine tourism settings. It underscores the need for more coordinated, forward-looking and culturally grounded approaches capable of responding to ongoing environmental change in one of New Zealand's most iconic protected landscapes.

Keywords: Aoraki/Mount Cook National Park; Alpine Tourism; Climate Resilience; Glacier Retreat; Hydrological Change; Policy Framing

1. Introduction

Alpine protected areas are recognised as some of the most climate-sensitive tourism environments. Their biophysical systems respond quickly to warmer temperatures, altered precipitation and changing seasonal hydrology, making them visible indicators of wider environmental shifts. Across mountain regions, researchers describe rapid glacier retreat, unstable river systems, more variable snowfall and ecological transitions that reshape habitats and visitor landscapes. These shifts affect access and visitor safety.

Aotearoa New Zealand illustrates this challenge clearly. Alpine national parks form a core part of the country's tourism offering, and Aoraki/Mount Cook National Park is one of its most recognisable destinations. The park holds deep cultural significance within Te Ao Māori and supports a wide range of backcountry and adventure activities. As shown in Figure 1, Aoraki/Mount Cook National Park is located within the central Southern Alps of Aotearoa New Zealand. Its high elevation, extensive glaciated valleys and fast-changing weather systems also make it one of the country's most exposed places in a warming climate. The scientific assessments describe ongoing glacier change in the Southern Alps (Chinn et al., 2012; Willsman and Macara, 2020). National policy documents note that climate change is expected to increase the frequency and severity of some natural hazards, including flooding, which has implications for long-term planning in exposed environments (Ministry for the Environment, 2022). These shifts are likely to affect visitor access and raise questions about the longer-term continuity of tourism in the park.

International work shows that climate change does not affect mountain destinations in a uniform way. Early studies focused largely on ski tourism, yet many non-ski alpine settings now face equal or greater exposure. Reduced snow reliability, slope instability, infrastructure vulnerability and shifting visitor expectations are common themes across Europe, North America and Asia. However, these pressures appear differently in places like Aoraki/Mount Cook, where tourism depends on landscape aesthetics, glacier views and year-round mobility rather than winter sport economies. The distinctive conditions of the Southern Alps therefore produce their own management challenges.

Resilience has become a central concept for interpreting these pressures and is increasingly discussed in tourism research and protected-area management and governance (Holling, 1973; Walker et al., 2004; Lew, 2014; Espiner and Becken, 2014). In tourism and environmental planning, resilience refers to a destination's capacity to absorb disturbances, reorganise and continue functioning as conditions change. Across the documents analysed, the term is used with different emphases. Some texts focus on practical and operational concerns, such as maintaining tracks and managing visitor safety, while others refer more broadly to longer-term adaptation. In a national-park context, these framings are considered alongside statutory conservation obligations, mana whenua relationships and visitor expectations of meaningful but safe outdoor experiences.

Although climate resilience features prominently in national policy discussions (Ministry for the Environment, 2022), it is less clear how these priorities are carried through into tourism management in New Zealand's national parks. Much existing research reports climate impacts at national or regional scales, including evidence relevant to the Southern Alps (Chinn et al., 2012; Willsman and Macara, 2020), while fewer tourism-focused studies examine how individual parks translate climate risk information into visitor and infrastructure decisions. In New Zealand, tourism resilience research has been shaped by disruptive events and recovery processes (Orchiston and Higham, 2016), alongside a developing body of work on slower-onset landscape change such as glacier retreat (Strong et al., 2023). While adaptive governance and social-ecological resilience frameworks are well established conceptually (Holling, 1973; Walker et al., 2004), they are not always explicit in day-to-day planning and visitor-facing materials. Together, this points to the value of more place-based research on how parks such as Aoraki/Mount Cook identify vulnerabilities, prioritise responses and connect resilience principles to strategic and operational decisions.

This paper addresses these gaps through a qualitative analysis of available policy and environmental documents. The aim is to examine how resilience is framed across management plans, visitor strategies, scientific reports and monitoring materials, and to identify the climate-related pressures most relevant to the long-term sustainability of Aoraki/Mount Cook. By analysing how institutions describe ecological, operational and experiential aspects of resilience, the study contributes to discussions about how alpine tourism destinations adapt under accelerating environmental change.

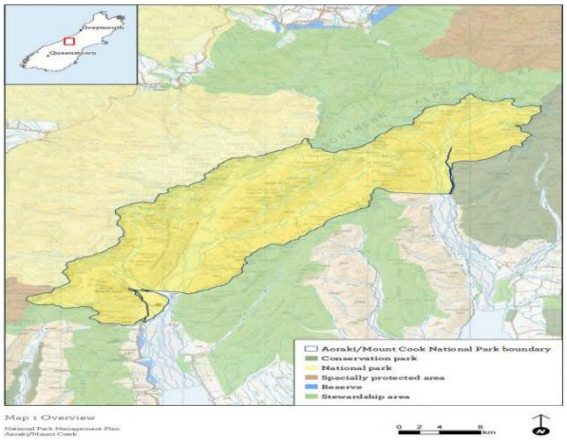


Figure 1. Location of Aoraki/Mount Cook National Park in the Southern Alps of New Zealand.

Source: Department of Conservation (DOC) overview map.

2. Literature Review

Climate change is now recognised as one of the most significant pressures shaping tourism destinations that depend on sensitive mountain landscapes. The tourism-climate change literature highlights glacier retreat, reduced snow reliability and increasing slope instability, all of which may affect access, infrastructure and visitor behaviour (Becken, 2013). Climate-related risks are widely discussed in relation to snow and ski-dependent tourism, and they also apply to nature-based alpine destinations where access and outdoor mobility shape visitor experiences (Scott, Hall and Gössling, 2012).

A core theme in this literature is the need to understand not only biophysical change but also the social and institutional systems through which tourism operates. Resilience provides a useful conceptual foundation for this work, referring to a system's capacity to absorb disturbance, adapt to change and continue functioning over

time (Holling, 1973; Walker et al., 2004). In tourism research, resilience thinking has been applied to questions of infrastructure vulnerability, risk governance and the adaptive capacity of organisations responsible for managing protected landscapes.

New Zealand has contributed substantially to this growing field. Some of the existing work focuses on short-term disruptions, such as earthquakes, which often act as catalysts for rethinking tourism practices (Orchiston and Higham, 2016). However, this emphasis on sudden shocks means that slower, cumulative changes in alpine environments have received comparatively less attention. Research in Glacier Country has applied the Tourism Adaptation Classification (TAC) framework to examine tourism adaptation responses associated with glacier change (Strong et al., 2023). These studies show that climate change affects not only physical landscapes but also the strategic decisions that shape tourism development.

Aoraki/Mount Cook National Park occupies a distinctive place. The park is characterised by rapid glacial change, unstable hydrological systems and highly variable weather conditions, yet published work is often oriented towards biophysical assessment, with tourism implications less consistently discussed. Although scientific work documents long-term glacier change in the Southern Alps, including shifts in ice volume and glacier-balance fluctuations (Chinn et al., 2012; Fitzharris, Chinn and Lamont, 1997), fewer studies examine how these dynamics intersect with visitor flows, infrastructure planning or destination management. This creates a gap in understanding how national parks interpret climate pressures and how these interpretations shape tourism strategy.

Institutional perspectives on resilience are important in protected-area tourism and management. Research on protected-area tourism has used resilience and vulnerability concepts to interpret destination pressures and responses (Espiner and Becken, 2014). In the documents analysed for this study, “resilience” is used in different ways, for example in relation to ecological protection, hazard and visitor-safety management, operational continuity and longer-term adaptation planning. These differences matter because they influence how risks are translated into action and how trade-offs are negotiated between conservation goals and tourism needs. Across the document set, some materials prioritise technical responses such as track reinforcement or realignment, whereas others highlight the need to build organisational capacity, strengthen decision-making processes or engage more closely with local communities and mana whenua (Robb, Harmsworth and Awatere, 2015).

Another relevant strand of literature considers visitor experience under environmental change. In climate-sensitive protected areas, shifting weather and hazard conditions can limit mobility, heighten safety concerns and alter the character of visits (Scott, Hall and Gössling, 2012). In Aoraki/Mount Cook, where glacier views and alpine terrain are central to the tourism offer, these dynamics can affect visitor experience. In the documents analysed for this study, the emphasis is largely on infrastructure and visitor safety, while experience-related considerations are discussed less explicitly.

Overall, existing scholarship demonstrates progress in understanding climate impacts on mountain tourism, but less attention is paid to how specific destinations articulate vulnerabilities and frame resilience within their institutional planning and management documents. This study contributes by examining how Aoraki/Mount Cook is represented across a suite of available plans, policy materials and scientific reports, offering a contextualised view of resilience in a changing alpine environment.

3. Methodology

This study uses a qualitative research design centred on document analysis. This method is suited to understanding long-term climate pressures in alpine environments, where statutory planning frameworks influence adaptation decisions. Rather than collecting primary data or conducting fieldwork, the analysis focuses on how institutions interpret climate-related risks through the policy and scientific documents that guide management in Aoraki/Mount Cook National Park. The aim is to understand how resilience is described and applied across the texts that shape destination planning.

Document analysis is widely used in tourism and environmental research, especially where governance arrangements play a major role in shaping adaptation pathways. This is particularly relevant for Aoraki/Mount Cook because the Department of Conservation oversees both conservation and visitor management. Its strategies, plans and technical guidance offer insight into how climate pressures are framed and which forms of resilience are prioritised. Scientific reports on glacier change and related environmental monitoring provide a complementary record of environmental trends that influence policy responses (Chinn et al., 2012; Willsman

and Macara, 2020). Considering these materials together enables a more grounded interpretation of how tourism, conservation and environmental risk intersect.

The document set includes management plans, climate guidance, visitor safety protocols, glacier monitoring reports, hydrological assessments and national adaptation frameworks produced from 2005 onwards. Documents are included when they remain foundational to current practice, particularly in relation to statutory obligations. The study also draws on selected environmental datasets, such as glacier volume estimates and seasonal weather summaries, to contextualise emerging themes. These datasets are not analysed quantitatively but help situate institutional narratives within the wider environmental trajectory of the Southern Alps.

Analysis followed an inductive thematic process. Each document was read multiple times to identify recurring ideas, assumptions and patterns in the language used to describe climate pressures and resilience. Manual coding supported close engagement with how documents interpret glacier retreat, hydrological change, slope instability and visitor risk. As themes stabilised, cross-document comparisons helped assess coherence and highlight gaps or inconsistencies. Particular attention was paid to how ecological, operational and experiential dimensions of resilience were framed and whether tourism considerations were integrated or treated separately.

Credibility was supported through repeated reading and comparison across publicly available documents, with themes refined as patterns emerged. Scientific summaries were consulted where relevant to provide contextual background. No ethics approval was required. As with all document-based research, the findings reflect institutional perspectives and constraints, which are acknowledged as part of the narratives shaping climate adaptation in Aoraki/Mount Cook.

4. Findings

The analysis shows that Aoraki/Mount Cook National Park is experiencing a set of climate pressures that appear consistently across policy, management and scientific documents. Although the texts vary in scope and purpose, they describe a landscape undergoing rapid physical change and a management system still adapting to these shifts. Four themes were most prominent: glacier retreat and the reshaping of landscape identity, hydrological and geomorphological change affecting access and infrastructure, increasing weather-related instability, and evolving but uneven institutional framings of resilience.

4.1 Glacier Retreat and Shifting Landscape Conditions

Scientific and monitoring reports document substantial glacier ice loss in the Southern Alps, including the Aoraki/Mount Cook region. Over recent decades, Southern Alps glaciers have shown sustained thinning and retreat, consistent with long-term ice-volume estimates and monitoring evidence (Chinn et al., 2012; Willsman and Macara, 2020). This pattern is presented as a continuing environmental pressure in alpine settings rather than a short-lived fluctuation. For a national park where glacier landscapes are a key component of visitor appeal, ongoing retreat has implications beyond biophysical change and is relevant to tourism and destination management. Changes in glacier extent, glacier termini and related proglacial features may influence where visitors can safely access and what can be viewed at key sites. Taken together, these documents frame glacier change as an ongoing process, suggesting that planning needs to account for continued landscape transformation alongside shorter-term hazard management (Chinn et al., 2012; Willsman and Macara, 2020).

4.2 Hydrological Change, Sediment Movement and Infrastructure Vulnerability

Hydrological and geomorphological pressures recur across the documents analysed. National policy documents indicate that climate change is expected to increase the frequency and severity of some extreme weather hazards, including flooding, with implications for long-term planning in exposed environments (Ministry for the Environment, 2022). The Waitaki catchment regional plan notes that river management and environmental flow decisions need to consider sediment transport, bank erosion, siltation and flood management. It also recognises that planning needs to balance these considerations with values such as accessibility and recreation (Waitaki Catchment Water Allocation Board, 2005). Within the Aoraki/Mount Cook material, DOC track information outlines the track network and provides practical information to support safe track selection and use, including track grades, indicative maps and safety guidance. In places, it also describes access features such as bridges and route options within the track network (Department of Conservation, 2022). Across the document set, responses focus mainly on practical access and risk management. However, the documents do not consistently link longer-

term climate-risk signals to operational guidance on infrastructure and access, suggesting scope to strengthen this connection.

4.3 Weather Variability, Access Disruption and Visitor Safety

A third theme relates to weather-related disruption and the implications for safe access. DOC visitor information for Aoraki/Mount Cook emphasises that alpine weather and track conditions can change quickly and highlights the importance of preparedness and safety when using the track network (Department of Conservation, 2022). Avalanche risk is also treated as a recurring constraint on safe access, with DOC safety guidance noting that some routes may be unsuitable or require temporary closure during higher-risk periods (Department of Conservation, 2010).

For visitors, these conditions may require flexibility in trip planning and day-to-day movement through the park. While safety procedures and hazard awareness are clearly communicated, the materials reviewed provide less explicit detail on how weather and hazard-related disruption may shift over time, or on how visitor management systems anticipate and manage interruptions.

4.4 Institutional Framings of Resilience

Research on protected-area tourism has used resilience and vulnerability concepts to interpret destination pressures and responses (Espiner and Becken, 2014). In the materials analysed for this study, the term "resilience" appears in parts of the document set and is used with different emphases, including ecological protection, operational management and longer-term adaptation planning. Some texts emphasise ecological resilience and the capacity of natural systems to accommodate change. Others foreground more operational concerns, particularly visitor safety, hazard management and the practical management of access in rapidly shifting alpine conditions (Department of Conservation, 2010; 2022). These differences highlight the difficulty of translating broad resilience ideas into day-to-day decision-making.

While infrastructure vulnerability is discussed in detail in parts of the document set, its implications for visitor experience and long-term product development are less consistently articulated. Similarly, although co-management and collaboration with mana whenua are acknowledged in the materials reviewed, the integration of cultural values into climate-related resilience framings is not always made explicit, pointing to opportunities for more holistic approaches.

5. Discussion

The findings show that Aoraki/Mount Cook National Park is already experiencing climate pressures that reshape both its landscapes and its management narratives. Read alongside wider work on climate change, destination resilience and alpine tourism, several implications emerge for how resilience is understood and applied in practice.

First, the link between environmental monitoring and tourism planning appears only partly developed. Scientific and monitoring sources document glacier retreat and related environmental change in considerable detail (Chinn et al., 2012; Willsman and Macara, 2020). National policy material also signals that climate change is altering hazard profiles, including flooding risk, with implications for long-term decision-making in exposed environments (Ministry for the Environment, 2022). Regional planning for the Waitaki catchment further highlights that river and flow management needs to take account of bedload and sediment transport processes, shoreline or bank erosion, and flood management, alongside values such as recreation opportunities and accessibility (Waitaki Catchment Water Allocation Board, 2005). However, these insights are not always translated into destination strategy. Related tourism–climate research also notes ongoing challenges in translating climate-risk information into tourism planning and infrastructure decisions (Scott, Hall and Gössling, 2012; Becken, 2013). At Aoraki/Mount Cook, management documents acknowledge climate impacts, but tourism consequences are often implied rather than clearly articulated. This constrains efforts to move from reactive maintenance toward anticipatory adaptation.

Second, the pace and character of change complicate institutional understandings of resilience. Glacier retreat and hydrological shifts are described as long-term trends, yet their implications are often communicated to visitors and managers through practical access information, including changing track conditions, occasional temporary closures and safety messaging. Resilience theory suggests that social and ecological systems need to absorb disturbance while retaining core functions and, where necessary, reorganise in response to new

conditions (Holling, 1973; Walker et al., 2004). The document record for Aoraki/Mount Cook indicates movement in this direction, but many responses still centre on repairing damage after events rather than using recurring disruptions to redesign access or reconsider infrastructure locations.

Third, resilience is not always translated into practice consistently across the document set. This draws on protected-area tourism scholarship that uses resilience to interpret destination pressures and responses, and that has proposed conceptual models to articulate how resilience can be considered alongside sustainability in tourism contexts (Espiner and Becken, 2014; Espiner, Orchiston and Higham, 2017). At Aoraki/Mount Cook, hazard-management materials are often more operationally detailed, while higher-level policy and strategy documents tend to describe climate pressures in broader terms. Without a shared framework that links these strands, resilience may remain a broad organising concept rather than a clear basis for destination governance.

The discussion also points to the importance of governance and cultural context. Across the statutory and planning materials reviewed, collaboration with mana whenua is acknowledged, but clear, document-level links between climate-related resilience priorities and Māori values, perspectives and collaborative planning priorities are not consistently set out. Work on adaptive governance highlights that durable resilience requires diverse knowledge systems and an ethic of long-term stewardship (Harmsworth, Awatere and Robb, 2016; Ministry for the Environment, 2022). Stronger connections between climate planning and Te Ao Māori perspectives would help ensure that adaptation pathways respect both environmental limits and cultural responsibilities.

Finally, the findings underline a tension between maintaining visitor access and acknowledging the limits imposed by a rapidly changing alpine environment. Aoraki/Mount Cook's appeal rests on glacier views, scenic valleys and relatively easy access to high mountain landscapes, yet these attributes are becoming less predictable. Research in Glacier Country suggests that similar destinations are beginning to reconsider what sustainable visitor experience means when iconic features are in flux (Strong et al., 2023). For Aoraki/Mount Cook, this points to the need for a more explicit, place-based resilience framework that links environmental monitoring, hazard management, tourism planning and mana whenua values. Such an approach would move beyond documenting change toward shaping a coherent, forward-looking response that matches the scale of the climate pressures now evident in the park.

6. Practical and Theoretical Implications

This paper highlights practical and conceptual implications for climate adaptation in alpine protected-area tourism destinations. Resilience planning for Aoraki/Mount Cook needs to account for interacting pressures, including glacier retreat, hydrological instability and increasing weather variability, which can affect access, infrastructure reliability and visitor safety. This points to the value of proactive monitoring and more anticipatory planning. Conceptually, the analysis shows that "resilience" is widely invoked but applied with different emphases across institutional documents, shaping which risks are prioritised and which responses are considered legitimate, while cultural values and visitor experience remain less explicitly integrated into climate-response planning.

7. Conclusion and Future Directions

Aoraki/Mount Cook National Park is already experiencing climate change rather than waiting for it. Glacier loss, hydrological and geomorphological pressures are changing the conditions under which visitors travel and managers plan. This study used qualitative document analysis to show how these pressures are currently framed and how ideas of resilience appear across policy, scientific and visitor-focused texts.

The findings point to clear awareness of environmental change but only partial integration of climate knowledge into tourism strategy. Resilience is used in many ways yet still lacks a coherent role within destination governance. At the same time, the documents suggest opportunities for more adaptive, culturally grounded approaches that work closely with mana whenua and give visitors a clearer sense of shared responsibility.

Future research could extend this work by incorporating stakeholder perspectives and by comparing Aoraki/Mount Cook with other alpine destinations, both within the Southern Alps and internationally.

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Ethics Declaration

This study analysed publicly available documents. No human participants or primary data were involved, and no ethics approval was required.

AI Declaration

Generative AI tools were used in a limited and transparent manner to support the writing process. AI assistance was used for language refinement, improving clarity and proofreading. No AI system generated empirical material or conducted the document analysis. The research design, thematic approach, interpretation of the documents and final conclusions remain the author's own work. The final manuscript has been reviewed carefully to ensure accuracy and academic integrity.

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A Cognitive Framework for Sensitive Problem-Solving in Hospitality and Tourism

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Abstract: Emotional intelligence (EI) is often treated as a stable trait or interpersonal skill, yet service contexts in hospitality and tourism demand dynamic emotional reasoning and adaptive foresight. This paper reconceptualizes EI as a developmental capacity grounded in executive functions, specifically inhibitory control and cognitive flexibility, and demonstrates its application to context-sensitive problem-solving in hospitality and tourism. Drawing on neurocognitive, psychological, hospitality, and pedagogical research, this study synthesizes evidence into a unifying model that integrates the Inhibitory–Cognitive–Emotional (ICE) Pathway with the 4Ps of Empathic Foresight (Perception, Projection, Pivot, and Personalization). The ICE Pathway describes how inhibitory control regulates emotional impulses while cognitive flexibility generates reflective alternatives; the 4Ps of Empathic Foresight operationalize this process as a Socratic recursive reasoning cycle that optimizes ICE-generated options according to context-specific goals. In hospitality and tourism, which are domains characterized by intercultural encounters, emotional labor, and service innovation, the ICE–4Ps model offers a teachable scaffold for cultivating empathic foresight and adaptive decision-making. By linking executive function theory with applied service practice, this framework reframes EI as a measurable developmental process that enhances sensitivity, creativity, and resilience in human-centered service environments.

Keywords: Emotional Intelligence, Empathic Foresight, Hospitality Management, Tourism Service Innovation, Emotional Labor

1. Introduction

Hospitality and tourism operate where emotional complexity, intercultural sensitivity, and rapid situational change are the norm rather than the exception. From guest recovery and crisis response to sustainable destination development, effective problem-solving often depends on an individual's capacity to regulate emotion, think flexibly, and respond empathically under pressure. Yet, despite the prominence of emotional intelligence (EI) in service research, its treatment has often remained static and defined as a set of fixed traits or observable interpersonal competencies. This framing risks overlooking the cognitive and developmental foundations that make emotionally intelligent behavior possible in dynamic hospitality contexts.

This paper presents a developmental view of emotional intelligence, proposing that authentic EI emerges from the progressive strengthening of two interrelated executive functions: inhibitory control and cognitive flexibility. Together, these capacities enable service professionals to pause before reacting, reinterpret emotionally charged situations, and adapt decisions to shifting social and cultural contexts. To operationalize this process, the paper introduces the Inhibitory–Cognitive–Emotional (ICE) Pathway (a neurocognitive model) explaining how executive functions give rise to empathic reasoning, and translates it into a practical framework, the 4Ps of Empathic Foresight (Perception, Projection, Pivot, Personalization). The 4Ps function as a goal-directed optimization cycle, continuously evaluating ICE-generated options to select the response that best fits the contextual aims of the situation, whether those goals involve guest satisfaction, staff well-being, or long-term destination sustainability.

In hospitality and tourism, such a framework addresses a critical gap. Emotional intelligence, empathy, and emotional labor have been examined extensively in hospitality education, service encounters, and employee well-being. For instance, Gursoy, Boylu, and Chi (2020) emphasize that emotional intelligence in hospitality students can be cultivated through targeted education, highlighting the need for structured developmental models. Wang and Mattila (2011) demonstrate that perceptions of fairness and satisfaction in service recovery differ across cultures, underscoring the importance of context-sensitive and empathic reasoning. Similarly, Karatepe and Olugbade (2017) link employees' adaptability and social support to satisfaction and retention, suggesting that cognitive flexibility and emotional regulation are central to sustainable performance.

However, existing studies seldom explain how these capacities operate as cognitive processes, specifically, how inhibitory awareness and cognitive flexibility combine to produce the adaptive reasoning that underlies empathic behavior and effective leadership. The ICE Pathway and 4Ps of Empathic Foresight (ICE–4Ps) address this gap by grounding emotional competence in neurocognitive function and expressing it through teachable, recursive cycles of reflective reasoning. This integration provides a measurable foundation for cultivating

emotional intelligence as a reasoning process across training, leadership, and innovation contexts. The Socratic questioning structure embedded within ICE–4Ps serves as its practical mechanism, guiding learners and leaders through iterative reflection that develops empathic foresight and adaptive decision-making in complex service environments.

2. Method

The study employed a conceptual synthesis design, using an integrative literature review to develop a unifying framework. Rather than testing hypotheses empirically, the design compared, aligned, and extended existing theories of emotional intelligence, executive function, and applied pedagogy to construct the ICE-4P framework, addressing calls for stronger integration between theoretical and applied evidence (Zeidner et al., 2004).

2.1 Main Research Question (MRQ)

How does the ICE Pathway, operationalized through the 4Ps of Empathic Foresight, explain the cognitive foundation and applied expression of emotional intelligence in sensitive problem-solving within hospitality and tourism?

2.2 Sub-Research Questions (SRQs)

1. What role does inhibitory control play in regulating impulses and avoiding cognitive traps in emotionally complex service situations?
2. How does cognitive flexibility extend this foundation through subskills supporting reflective and adaptive reasoning?
3. How does the ICE Pathway interact with the 4Ps of Empathic Foresight as a goal-directed optimization cycle for emotionally intelligent decision-making?
4. In what ways can the ICE–4Ps framework be applied to sensitive problem-solving across hospitality, tourism, and service innovation?

The analysis drew on four bodies of literature: (a) neurocognitive studies of executive function, (b) psychological models of emotion regulation, (c) hospitality research on emotional intelligence, and (d) pedagogical interventions fostering reflective reasoning. Each was reviewed to identify convergent findings on inhibitory control and cognitive flexibility, revealing conceptual gaps in existing EI theory and informing the development of a unified, executive-function-based framework.

3. Literature

3.1 Neurocognitive Domain

Emotional intelligence (EI) relies on neural systems that support core executive functions, particularly inhibitory control and cognitive flexibility (Scott 1962; Spiro et al. 1987; Uddin 2021). Functional magnetic resonance imaging (fMRI) studies demonstrate that inhibitory control is not a unitary skill but one that adapts flexibly to situational demands within individuals, with emotional and motivational contexts recruiting distinct prefrontal and cingulate networks (Liu et al. 2023). This suggests that emotionally intelligent behavior depends on the dynamic strengthening of executive functions in emotionally salient contexts. Emotion regulation involves the conscious modulation of affective states through executive control mechanisms (Gross and Thompson 2007; Gross 2002). Meta-analytic and neuroimaging evidence indicate that cognitive reappraisal and emotion regulation reliably recruit and depend on prefrontal–amygdala networks associated with top-down control of affect (Buhle et al. 2014; Morawetz et al. 2017), aligning with the ICE Pathway's emphasis on intentional modulation of emotion through executive processes. Neuroimaging studies link mindfulness and executive functioning to prefrontal activation that supports attentional regulation and inhibitory control (Tang, Hölzel and Posner 2015).

Cross-cultural research extends this argument: Xu et al. (2024) conclude that cultural norms shape how emotional cues are prioritized and regulated, showing that while the neural architecture enabling inhibitory–affective coordination may be universal, its developmental expression is socially and culturally modulated. This suggests that interventions must attend not only to neurocognitive mechanisms but also to contextual variation across societies.

Evidence from mindfulness-based interventions demonstrates that these systems are also plastic. Tang et al. (2015) and Hölzel et al. (2011) report increased activation and connectivity in the rostral anterior cingulate cortex (ACC), a region central to attentional monitoring, conflict resolution, and emotional salience processing, following targeted training. From a pedagogical standpoint, this implies that executive functions can be deliberately strengthened through structured interventions, though questions remain about the durability of these effects and their translation into complex, real-world performance domains.

3.2 Psychological Domain

Beyond brain-level mechanisms, psychological models clarify how executive functions shape emotion regulation and critical reasoning in everyday contexts. Gross's updated process model (2015), for example, concludes that effective regulation depends on cognitive change strategies such as reappraisal, which require both suppressing initial appraisals and generating alternative interpretations. Yet the model's emphasis on staged regulation may not fully capture the dynamic, overlapping, and socially embedded nature of regulation in high-pressure contexts such as applied learning, where executive functions must be deployed in real time rather than sequentially.

Facione (1990) and Paul and Elder (2014) conclude that critical thinking relies on processes such as assumption checking, perspective-taking, and implication analysis. Yet from a pedagogical perspective, these frameworks focus largely on normative standards of "good thinking," leaving open questions about how reasoning can be cultivated under affective and interpersonal pressures.

Uddin (2021) says that cognitive flexibility is essential for reasoning in ill-structured domains where situational demands shift rapidly and cannot be resolved through scripted responses. At the same time, Uddin highlights that flexibility depends on the integrity of large-scale neural networks: distributed systems such as the salience, default mode, and frontoparietal control networks that coordinate attention, emotion, and executive regulation. From an instructional standpoint, this raises the question of how far pedagogy alone can enhance such capacities without complementary supports.

3.3 Hospitality and Service Domain Evidence

Hospitality research confirms that EI influences both learning outcomes and service performance. Schlegel et al. (2021) found in a longitudinal study that emotion-management ability predicted success in teamwork-based modules, while fluid intelligence predicted performance in theoretical modules. Although this pattern appears to suggest a dichotomy between emotional and cognitive predictors, evidence from neurocognitive and psychological research indicates that these capacities are interdependent rather than separable. Teamwork requires analytic reasoning just as theoretical learning is influenced by motivation and social dynamics. A more consistent interpretation, therefore, is that cognitive and emotional capacities operate together, with their relative weighting shifting by context. This is further illustrated by Llorca and Martínez (2023), who concluded that employees' EI predicted guests' perceptions of service quality, but only when it was accompanied by adaptive emotional reasoning.

3.4 Pedagogical Interventions

Evidence-based teaching strategies can strengthen executive functions in applied contexts. Paul and Elder (2014) conclude that bias-interruption techniques improve reasoning quality by forcing learners to surface and evaluate assumptions. Tang et al. (2022) demonstrate that structured protocols such as STOP (pause, take a breath, observe, proceed) help learners inhibit impulsive responses and regain regulatory control. Roessger (2021) shows that perspective-reversal exercises deepen reflective practice by requiring learners to adopt alternative viewpoints, thereby fostering flexibility and adaptive judgment. Yet despite their demonstrated effectiveness, these tools have been applied piecemeal.

3.5 Summary

Taken together, the evidence across these domains underscores both the promise and the limits of existing approaches to emotional intelligence. Neuroscientific studies demonstrate that inhibitory control and cognitive flexibility are malleable, yet they also reveal context-sensitivity and cultural modulation that complicate generalizability. Psychological models clarify the mechanisms of emotion regulation and critical thinking but often emphasize idealized reasoning processes without accounting for the pressures of real-world application.

Hospitality research confirms that EI predicts learning and service outcomes, yet it tends to frame EI as a stand-alone skill set rather than as the developmental outcome of deeper cognitive processes. Pedagogical interventions show that executive functions can be strengthened through targeted strategies, but these tools remain fragmented and rarely integrated into a coherent framework. These findings point to a pressing need for an approach that bridges neuroscience, psychology, domain-specific evidence, and pedagogy; one that treats emotional intelligence as a developmental capacity grounded in executive functions and cultivated through structured, context-sensitive instruction.

4. The Inhibitory-Cognitive-Emotional Pathway

This section examines the first two sub-research questions (SRQ1 and SRQ2) by examining how inhibitory control and cognitive flexibility together constitute the ICE Pathway as the cognitive engine for emotional intelligence. It outlines a developmental sequence that positions emotional intelligence not as an isolated trait or skill, but as the emergent product of a preemptive and continuous reasoning process. Inhibitory awareness provides the essential foundation for reflective reasoning, sustaining a pause for composure and regulating impulse and bias throughout cognitive activity. Cognitive flexibility operates within this reflective stance, enabling multidimensional and adaptive reasoning.

4.1 Inhibitory Control

Inhibitory control serves as the foundational executive function that enables individuals to suppress automatic responses, emotional impulses, and habitual reasoning in favor of reflective cognition (Diamond 2013; Zelazo and Lyons 2022; Zelazo and Carlson 2012). Inhibitory control is particularly essential for counteracting the four pervasive cognitive traps that if left unscreened will inhibit the development of cognitive flexibility. These are groupthink, disciplinary dogma, confirmation bias, and impulsivity as elaborated on below:

- Groupthink arises when a desire for social harmony overrides critical evaluation, leading to premature consensus and suppressed dissent (Janis 1972, Esser 2018). For example, team members may avoid voicing disagreement during team discussions, mistaking non-dissent for professionalism. Inhibitory control enables pause in order to create space for independent thought.
- Disciplinary dogma reflects the uncritical acceptance of prevailing norms or values within a field. In hospitality, for instance, this may manifest as unquestioned adherence to customer-is-always-right paradigms or emotional display rules that prioritize guest satisfaction over the emotional cost to employees. Developing inhibitory control helps resist such automatic disciplinary scripts and invites more context-sensitive responses (Paul and Elder 2014).
- Confirmation bias, the tendency to favor information that aligns with existing beliefs, undermines objectivity and adaptive emotional reasoning. In emotionally ambiguous situations this bias may result in the misinterpretation of employee behavior in ways that reinforce preconceptions. Inhibitory control is necessary to suspend these cognitive shortcuts and engage more neutrally with evidence (Nickerson 1998).
- Impulsivity remains one of the most visible barriers to EI. Individuals often act or speak prematurely rather than with measured response. Inhibitory control functions as a cognitive "brake" that allows the individual to delay reaction and engage reflective mechanisms (Moffitt et al. 2011; Peterson et al. 2023).

4.2 Cognitive Flexibility

Paul and Elder (2008) originally proposed clarity, accuracy, precision, relevance, depth, breadth, logic, significance, fairness as intellectual standards for evaluating reasoning. They also list purpose, question, information, interpretation, concept, assumption, implication and point of view as elements of thought.

The ICE Pathway's six subskills of cognitive flexibility reframe Paul and Elder's evaluation criteria and elements of thought into actionable cognitive operations, enabling learners not only to recognize the structure of reasoning but to inhabit it as a skillful practice in developing emotional intelligence for real-world problem solving (Miyake and Friedman 2022):

- Clarity: The disciplined practice to establish precision in the recognition of signals, meanings, and contexts so that reasoning begins from unambiguous foundations.

- Assumption Checking: The disciplined practice to surface and interrogate the implicit premises underlying thought and judgment, ensuring that reasoning does not proceed on unexamined foundations.
- Sound Reasoning: The disciplined practice to connect premises, evidence, and interpretations into coherent structures that withstand logical and contextual scrutiny.
- Perspective-Taking: The disciplined practice to broaden the scope of reasoning by incorporating alternative standpoints, thereby expanding the range of premises under consideration.
- Implication Analysis: The disciplined practice to extend reasoning forward by tracing the potential consequences that follow from chosen premises or courses of action.
- Metacognitive Critique: The disciplined practice of questioning the very questions that guide reasoning. It monitors whether the subskills and screens are being applied appropriately, identifies when the wrong issues are being pursued, and redirects inquiry toward more fruitful lines of reflection.

The ICE Pathway (Figure 1) underscores that emotional intelligence is the result of deliberate, flexible, and reflective cognition underpinned by inhibitory control. Emotional competence, the observable behaviors through which EI is enacted, will reflect this.

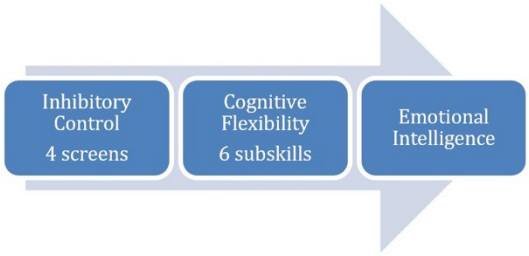


Figure 1: The ICE Pathway

By targeting the cognitive capacities that underlie emotional understanding and regulation, the ICE Pathway shifts the focus away from surface-level behavioral mimicry and toward teachable, executive-function-based competencies. But while the ICE Pathway offers a developmentally grounded approach to emotional intelligence, it is essential to situate this model within the broader EI literature. This is because existing frameworks have shaped how EI is defined, measured, and taught but they vary widely in their treatment of cognition, development, and teachability.

4.3 Contribution of the Present Model

While Zembylas (2007) laid foundational methodological work emphasising the embeddedness of emotion in cognition and social context, more recent applied scholarship has advanced these ideas through empirical studies of emotion regulation, executive function training, and leadership performance. The ICE–4Ps framework thus builds both on his theoretical legacy and on contemporary evidence.

Since 2015, emotional intelligence research has expanded across leadership, education, and service industries, producing a range of behavioural and neurocognitive models. Reviews such as Coronado-Maldonado et al. (2023) synthesise extensive evidence linking emotional intelligence to leadership and teamwork effectiveness, while Bahshwan (2024) identifies self-awareness, self-regulation, and empathy as key predictors of adaptive leadership. Likewise, Prentice, Wang and Loureiro (2020) demonstrate that emotional intelligence strengthens the relationship between customer orientation and performance in hospitality contexts. These contributions affirm the practical value of emotional intelligence but remain largely descriptive, specifying what competencies matter rather than how emotional reasoning unfolds as a cognitive–emotional process.

More process-oriented frameworks have recently emerged but remain partial. The Cascading Model of Emotional Intelligence conceptualises a sequential progression from emotion perception to understanding and regulation (Joseph and Newman 2022), offering valuable insight into developmental ordering. Yet it omits the executive-function mechanisms, such as inhibitory control and cognitive flexibility, that enable the transition between stages, and it lacks a structured training cycle suited to applied service contexts. Similarly, Matsumoto's Multilevel Model of Emotion and Emotion Regulation (Matsumoto et al. 2020) situates affective processes within individual, interpersonal, and cultural layers, underscoring the importance of contextual variability. However, it stops short of operationalising these layers into a teachable scaffold for leadership and team

development. Schlegel, Mast, and Ramseyer's (2021) contextual-interaction research further demonstrates that emotion recognition and regulation are shaped by situational and relational factors, supporting the call for contextually embedded emotional training. Still, these studies tend to focus on recognition accuracy rather than reflective foresight or adaptive decision cycles.

At the neurocognitive level, work on mindfulness and executive function (e.g., Tang, Hölzel and Posner 2015) clarifies the mechanisms of attention regulation and inhibitory control underlying emotional stability. Complementary meta-analyses in hospitality (Zhu et al., 2021; de Oliveira 2025) confirm that emotionally intelligent behaviour correlates with service performance but rarely translate such evidence into developmental pathways.

The ICE–4Ps framework responds to these limitations by integrating executive-function theory with service-oriented emotional competence. It translates inhibitory control and cognitive flexibility into a four-stage reflective cycle (Perceive, Project, Pivot, Personalize) that enables adaptive reasoning under uncertainty. Where previous models identify discrete emotional competencies or contextual influences, ICE-4P provides a recursive scaffold for cultivating them. By uniting neuroscientific insight with applied foresight practice, ICE-4P advances emotional intelligence from a descriptive trait construct to a trainable cognitive process for empathic leadership and resilient service innovation.

5. The 4Ps of Empathic Foresight

This section examines SRQ3 by showing how the ICE Pathway operates within the sequential 4Ps of Empathic Foresight, allowing the evaluation and narrowing of options in each meta-state. Empathic Foresight is introduced here as a structured framework for decision-making and problem-solving that reframes empathy as a forward-looking, cognitive-emotional process. It is operationalized through a sequence of four meta-states (Perception, Projection, Pivot, and Personalization) that can be revisited recursively as contexts evolve.

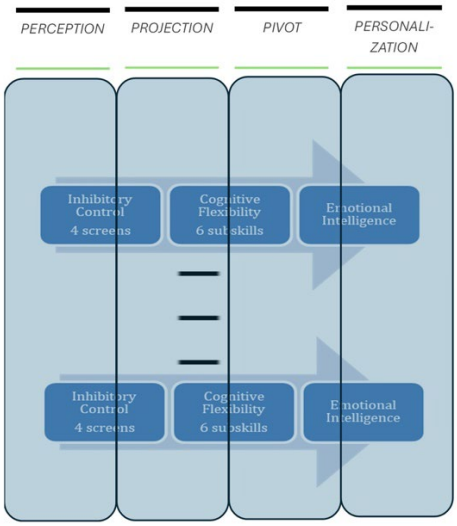


Figure 2: 4Ps of Empathic Foresight

The 4Ps function as an abstract overlay on the options analyzed through the ICE Pathway (Figure 2). The 4Ps of Empathic Foresight serve as a recursive goal-oriented optimization cycle that evaluates and reweights ICE-generated options according to context-specific goals. Each meta-state (Perception, Projection, Pivot, Personalization) refines the fit between cognitive-emotional alternatives and the desired adaptive outcome. Perception directs attention to what is present, surfacing signals and premises. Projection extends this stance toward what could arise, generating forward-looking scenarios that compare the possible developments of different options rather than merely tracing the implications of a single one. Pivot addresses what has dynamically arisen, redirecting judgments or actions in real time when new insights or disruptions occur. Finally, Personalization ensures that the chosen decision is integrated into context-sensitive expression, aligning reasoning with the needs and circumstances at hand.

In this way, each meta-state functions as a container of possibilities and guides their reflective narrowing toward the most fitting solution within its focus. What counts as 'most fitting', however, is always contingent on the goals prioritized in context, which shape how options are ultimately weighed.

6. Socratic Questions

To operationalize the model, Socratic questions are employed as structured prompts for reflective reasoning. Unlike ordinary questions, which seek information, Socratic questioning in this framework functions as a deliberate cognitive intervention, engaging inhibitory control and cognitive flexibility to surface hidden premises, test alternative interpretations, and refine reasoning before action.

Traditionally, Socratic questioning has been an open, dialogical method aimed at achieving intellectual clarity through examining assumptions and evidence. Within the present framework, however, it is reconceptualized as a structured cognitive process: the ICE Pathway anchors each question in executive function, while the 4Ps of Empathic Foresight define the sequence in which reflective interventions occur. In this way, Socratic questioning becomes a goal-directed metacognitive discipline, transforming emotional reactions into structured foresight across dynamic service situations.

Table 1: Socratic Questions for Perception Meta-State

ICE Elements	Function	Sample Socratic Questions for Perception Meta-State in Hospitality & Tourism
Groupthink Screen	Filters out conformity pressure that could bias what is noticed or overlooked.	Am I observing guest or team cues independently, or echoing dominant assumptions?
Disciplinary Dogma Screen	Prevents default reliance on professional scripts that predetermine perception.	Am I interpreting this situation through habitual "guest-is-always-right" scripts, or the actual context?
Confirmation Bias Screen	Blocks selective noticing of signals that simply reinforce prior beliefs.	Am I only noticing evidence that confirms my expectations about this guest or situation?
Impulsivity Screen	Creates space before reacting to first impressions	Am I responding too quickly to surface emotions rather than reflecting on intent?
All the cognitive-flexibility subskills below are preceded and governed by the inhibitory-control screens that sustain reflective composure throughout reasoning.		
Clarity Subskill	Establishes precision in identifying signals so perception is not clouded by vagueness or mislabeling.	Do I understand this guest's reaction clearly, or am I inferring from vague cues?
Assumption Checking Subskill:	Surfaces hidden premises that shape how initial signals are interpreted.	What assumptions guide how I interpret this interaction, and are they warranted?
Sound Reasoning Subskill	Ensures interpretations of signals are coherent with available evidence and context.	Do my perceptions align with other observable indicators of satisfaction or distress?
Perspective-Taking Subskill	Broadens perception by considering how others might construe the same signal differently.	How might this moment appear from the guest's, employee's, or community's perspective?
Implication Analysis Subskill:	Anticipates the risks and consequences of misperceiving or mislabeling signals.	What might happen if I misread this emotion or overlook subtle cues?
Metacognitive Critique:	Monitors whether the subskills are being applied appropriately, identifies when the wrong issues are being pursued, and redirects inquiry toward more fruitful lines of reflection. This is where the 4 screens play an especially important role.	Am I focusing on the right cues, or do I need to ask different questions to perceive accurately?

Table 1 illustrates one meta-state in detail, the same ICE elements operate consistently across all four meta-states. However, the focal point of questioning shifts depending on whether one is recognizing, anticipating scenarios, redirecting, or contextually integrating. Table 2 summarizes the distinct orientations of each meta-state with detailed applications appearing in Section 8.

Table 2: Meta-State Orientation of the 4Ps

	Focus	***Core Function***	***Guiding Shift in Socratic Questions***
Perception	Recognizing	Providing an orientation for accurately noticing and clarifying signals in the present.	How am I noticing and interpreting what is happening now?
Projection	Anticipating	Providing an orientation for exploring forward-looking scenarios across options.	How am I imagining what could happen?
Pivot	Redirecting	Providing an orientation for adaptively reconsidering and redirecting judgments or actions.	How am I adjusting my course in light of new insight?
Persona-lization	Contextually Integrating	Providing an orientation for integrating reasoning into context-sensitive expression that is authentic and responsive.	How am I expressing judgment in ways that remain responsive to the needs and circumstances of others?

7. Discussion

Hospitality and tourism are characterised by emotionally charged, intercultural, and service-intensive encounters that constantly test professionals' capacity for sensitive problem-solving. Service failures, guest dissatisfaction, cultural misunderstandings, and crises such as pandemics or natural disasters demand reasoning that is simultaneously logical, adaptive, and empathic. The ICE–4Ps framework provides a cognitive–emotional scaffold for navigating precisely these conditions.

The ICE Pathway functions as a cognitive logic engine grounded in continuous awareness. Inhibitory control functions as an ongoing preemptive stance that activates before and during reasoning, screening emotional impulses and cognitive bias as they arise while cognitive flexibility generates alternative reasoning pathways, each representing a distinct premise about how the situation could unfold. The 4Ps of Empathic Foresight then serve as a meta-framework for evaluating and refining these pathways: Perception clarifies what is occurring in the present, Projection anticipates how futures may unfold, Pivot redirects reasoning as new insights emerge, and Personalization integrates judgment into authentic, context-responsive expression. Together, ICE and the 4Ps form a recursive reasoning cycle that transforms emotional awareness into structured, adaptive foresight, balancing empathy with analytical logic in high-pressure, people-centred environments.

8. Implications for Hospitality and Tourism Practice

This section addresses SRQ4 by exploring how the ICE Pathway and 4Ps of Empathic Foresight can be applied across hospitality, tourism, and service innovation as a scaffold for socially attuned and context-sensitive decision-making.

The ICE–4Ps framework provides a measurable structure for training emotional intelligence as a cognitive skill, not merely an interpersonal attitude. Training programs can sequence exercises to build inhibitory control (e.g., pause-and-reflect routines, mindfulness micro-practices) and cognitive flexibility (e.g., role reversal, assumption-challenging simulations). Embedding these within the 4Ps cycle allows staff to practice perceiving subtle guest signals, projecting service outcomes, pivoting under uncertainty, and personalizing responses for diverse cultural profiles. This structure advances emotional training beyond generic empathy workshops toward evidence-based executive function coaching for service excellence (Sternberg 2021).

Hospitality leaders operate amid ambiguity: balancing employee welfare, guest experience, and financial sustainability. The ICE–4Ps cycle equips managers with a reflective decision-making blueprint: perceiving emergent operational signals without groupthink, projecting scenarios of strategic impact, pivoting decisions as conditions evolve, and personalizing communication to sustain authenticity and trust. This aligns with the growing need for empathic foresight in tourism organizations, where leadership involves not only rational analysis but emotionally attuned sensemaking that anticipates the human consequences of decisions (Carmeli 2006).

In tourism innovation and experience design, empathy provides the foundation for meaningful differentiation, but ICE–4Ps supplies the reasoning logic. Perception recognises latent guest or resident needs; Projection anticipates multiple service futures and sustainability implications; Pivot facilitates iterative prototyping as assumptions are reconsidered; and Personalization contextually integrates final concepts so that they remain culturally and ethically responsive. This recursive reasoning cycle encourages service-sensitive innovation grounded in ICE-defined emotional intelligence, where empathy operates through reflective, logic-based foresight that sustains both resilience and long-term destination sustainability.

Tourism organisations and destinations are frequently exposed to crises that demand rapid yet reasoned recalibration: from guest conflicts to destination-level disruptions. The ICE–4Ps model provides a structured logic for emotional resilience: inhibitory control sustains composure and reflective control under pressure, while cognitive flexibility enables the generation and evaluation of adaptive reasoning pathways. Guided by the 4Ps cycle, teams can recognise emergent signals, anticipate evolving scenarios, redirect judgments as new insight arises, and integrate contextually responsive communication. Applied at organisational scale, this recursive reasoning process transforms emotional disruption into foresight learning and strengthens adaptive capacity for future uncertainty (Prentice, Wang and Loureiro, 2020).

9. Conclusion

Situating ICE–4Ps within hospitality and tourism extends emotional intelligence theory into a context-sensitive model of empathic foresight. The framework reconceptualises emotional intelligence as a cognitive–emotional reasoning process grounded in continuous awareness, logical evaluation, and reflective adaptability. It integrates inhibitory awareness and cognitive flexibility within a recursive foresight cycle that cultivates sensitivity, adaptability, and ethical judgment in service interactions.

Whether applied to intercultural guest encounters, sustainability dilemmas, or organisational resilience, ICE–4Ps provides a structured method for developing the reflective elasticity that underpins empathic and human-centred hospitality practice.

For scholars, the model opens new avenues to empirically test how executive functions predict adaptive service reasoning. The four screens of inhibitory control, six subskills of cognitive flexibility and four meta-states of empathic foresight can be operationalised into behavioural indicators or training rubrics. Future research can examine whether strengthening inhibitory awareness and cognitive flexibility improves decision accuracy, guest satisfaction, staff well-being, and innovation outcomes, linking cognitive neuroscience with hospitality performance metrics.

Ethics Declaration

This study did not involve human participants or the collection of new data. Institutional review board (IRB) approval was therefore not required, and the research was determined to be exempt from ethics review.

AI Declaration

The author declares that no generative artificial intelligence tools were used in the preparation, writing, or editing of this manuscript. All work is original and produced solely by the author.

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Exploring the Cuisines of Iloilo: A Guide to Culinary Heritage in a UNESCO Creative City

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Abstract: The primary objective of this study was to develop an illustrative food guide focusing on noodle and soup dishes, rice-based delicacies, and baked goods. The guide aimed to highlight Iloilo City's culinary heritage, promote cultural preservation, support sustainable tourism development, and contribute to long-term economic growth. Data were collected through a focus group discussion with 25 participants, selected purposively and conveniently, including stakeholders, local chefs, community entrepreneurs, residents, and tourists. Thematic analysis, complemented by visualization tools, was employed to identify recurring themes and concepts embedded in the study. The findings reveal that noodles and soup dishes, most notably the iconic *La Paz Batchoy,* reflecting the city's history, exemplify rice-based delicacies, such as *Baye-baye,* highlighting the Ilonggos' creative use of indigenous ingredients. Baked goods, including *Biscocho*, illustrate the dynamic interplay between tradition and modern tastes. Collectively, these culinary expressions underscore food's role as a living heritage, capturing historical interactions, community resilience, and the evolving cultural values of the Ilonggo people. The proposed food guide is envisioned as a strategic instrument for tourism promotion, cultural preservation, and sustainable development. Aligned with Iloilo's designation as a UNESCO Creative City of Gastronomy, this initiative emphasizes the transformative potential of food-based tourism to empower local communities, celebrate cultural identity, and position Iloilo as a premier culinary destination both nationally and internationally.

Keywords: UNESCO Creative City of Gastronomy, Culinary Heritage, Illustrative Food Guide

1. Introduction

Culture is a primary marker of identity, and cultural heritage reflects a community's way of life. While heritage is often associated with historical sites, language, and the arts, food is one of the most dynamic mediums through which culture is expressed, preserved, and transmitted across generations. The people who live in Iloilo, whether in the city or the province, are called Ilonggo. This term refers to both the province's residents and the local ethnolinguistic group, reflecting their shared language, culture, and community practices (Jocano, 2024/1983). Traditional recipes, cooking techniques, and dining practices embody collective memory and identity, making gastronomy a living expression of history rather than mere sustenance. In Iloilo City, food plays a central role in sustaining cultural continuity and fostering social and economic development. Despite Iloilo City's de Therefore, preserving culinary heritage holds both cultural and economic value. Blanza (2025) emphasized that safeguarding gastronomy can stimulate local economies through culinary events, foster collaboration within the hospitality sector, promote sustainable practices, and address challenges in sourcing local ingredients. Beyond economics, gastronomy connects individuals to their heritage. Soeroso and Turgarini (2020) define gastronomy as encompassing the origins, preparation, and cultural meanings of food, while Lallen (2024) showed that gastronomy shapes Iloilo's cultural identity and enhances tourist experiences, influencing destination choices and revisit intentions. Iloilo City became the first UNESCO Creative City of Gastronomy in the Philippines (UNESCO, 2023), recognizing its culinary traditions shaped by indigenous roots, Spanish colonial influence, and Western practices in 2023. Other UNESCO Creative Cities, such as Jeonju in South Korea, demonstrate how gastronomy supports heritage preservation and sustainable tourism. Food has become a primary travel motivation, with local food satisfaction, destination image, perceived quality, value, cost, and risk significantly shaping tourist experiences (Carpio, Napod, & Do, 2021). Globally, gastronomy tourism enhances destination competitiveness and cultural differentiation (Dirlik & Karsavuran, 2019; Pavlidis & Markantonatou, 2020). The World Food Travel Association (2020) reported that travelers allocate a substantial portion of their budget to food-related experiences. Despite Iloilo City's designation as a UNESCO Creative City of Gastronomy, there remains a lack of a systematically documented and illustrative food guide that captures its iconic dishes and their cultural meanings. Research has shifted toward experiential perspectives (Richards, 2021), alongside technological transformations in food systems (Yıkmış et al., 2024). Within this context, developing a food guide for Iloilo City is timely. Such a guide can document traditions at risk of loss (Bessière, 2013), promote sustainable tourism (Elliset al., 2018; Okumus, 2021), and strengthen community identity and pride (Everett & Slocum, 20213). This study aims to develop a food guide that supports cultural preservation and sustainable tourism.

2. Research Questions

This study examined the rich culinary heritage of Iloilo City, Philippines, with a focus on its noodle and soup dishes, rice-based delicacies, and baked goods. It aimed to develop an illustrative food guide to the city's gastronomy that would serve as a resource for cultural preservation, tourism promotion, and sustainable local development.

1. What iconic noodle and soup dishes, rice-based delicacies, and baked goods define Iloilo City of Gastronomy, and in what ways do they represent the city's culinary heritage?
2. What illustrative food guide may be developed that reflects Iloilo City's culinary heritage and the identified iconic noodle and soup dishes, rice-based delicacies, and baked goods?

3. Theoretical Framework

This study is anchored in the Tourism Destination Image Theory, which explains how tourists form mental representations of a destination that incorporate both cognitive and affective components. The cognitive dimension refers to visitors' beliefs and knowledge about the attributes of a place, such as Iloilo's iconic noodle and soup dishes, rice-based delicacies, and baked goods. The affective dimension pertains to the emotions and feelings that these culinary experiences evoke, such as excitement, comfort, or nostalgia. When combined, these two components create a holistic image of the destination, influencing tourists' overall impressions, visit intentions, and behavioral outcomes (Baloglu & McCleary, 1999; Echtner & Ritchie, 1991). In the case of Iloilo City, its recognition as a UNESCO Creative City of Gastronomy strengthens its induced image through official promotions and food-related initiatives, while organic sources such as word-of-mouth, culinary blogs, and festival experiences further reinforce its reputation as a culinary hub (Iloilo City Government, 2024; UNESCO, 2023). Food thus becomes a symbolic marker of place identity, contributing to the city's global destination image and distinguishing it from other tourism markets (Wang, 2023). Framing Iloilo's culinary heritage through Tourism Destination Image Theory, this study positions the proposed illustrative food guide as a contextual representation of Iloilo City of Gastronomy, aimed at preserving culinary heritage and promoting sustainable local development.

4. Literature Review

Iloilo City, often referred to as the "City of Love," is renowned for its warm hospitality and Ilonggo's deep appreciation for their cultural heritage, particularly their culinary traditions. The city is highly urbanized in Western Visayas, with an estimated population of 473,728 in 2024, making it one of the most populous cities in the region. Its economy is service-oriented, driven by commerce and trade, education, tourism, real estate, BPO, and hospitality. Tourism is a major contributor, with attractions such as historic churches, the Iloilo River Esplanade, and festivals like Dinagyang and Paraw Regatta, alongside its recognition as a UNESCO Creative City of Gastronomy. In 2024, the city recorded 1,001,028 tourist arrivals, a 12.95% increase from 2023, reflecting a strong tourism recovery (Iloilo Metropolitan Times, 2025). UNESCO (2023) notes that the city's recognition as the first UNESCO Creative City of Gastronomy in the Philippines underscores its rich gastronomic culture. The culinary landscape of Iloilo is a tapestry woven from indigenous practices, Spanish colonial influences, and Chinese trade. This fusion has given rise to distinctive dishes, each telling a story of the city's history and cultural evolution. Beyond its historical roots, Iloilo City's gastronomic offerings have become central to its tourism development strategies, attracting both local and international visitors seeking authentic culinary experiences. The Department of Tourism (2023) emphasizes that Iloilo's culinary heritage significantly contributes to its reputation as a premier food destination in the Philippines. Food is a key component of a tourist's experience, and food festivals often foster the development of gastronomic tourism, which is considered a form of special interest tourism. Tourists frequently seek not only the dishes themselves but also the origins, legends, and stories surrounding them. Gastronomy plays a major role in shaping how tourists experience a destination and influences their likelihood of returning to savor its unique cuisine (Seal, 2025). Asian nations actively promote their culinary heritage as a means of cultural recognition. At the regional level, culinary heritage is constructed to achieve multiple objectives, highlighting local specialties, generating economic opportunities, and sustaining historical and emotional connections between their places of origin (Assmann, 2024). In the Philippines, local dishes reflect history and identity. Iloilo, as the country's first Creative City of Gastronomy, showcases its use of indigenous local ingredients, supports sustainable practices, and promotes its unique culinary heritage.

5. Food Guide Studies and Their Effects on Tourism

Food guides and promotional materials play a significant role in shaping tourist behavior and preferences. For example, Kılıç et al. (2021) demonstrated that brochure involvement influences perceptions of service quality, attitudes toward advertising, and attitudes toward the product itself. Recent research reinforces and expands on these findings. A study conducted in Laguna, Philippines, by Maraña et al. (2024) revealed that affordability, cleanliness, tailored menus, and consistent quality in food tourism strongly influence tourist satisfaction and intention to revisit. Similarly, research on street food experiences in Malacca, Malaysia, showed that food quality, service quality, and hygiene significantly affect domestic tourists' attitudes and revisit intentions (Tan et al., 2025). In Spain, Rodríguez-Antón et al. (2023), analyzing data from 2019 to 2022, highlighted that motivations, satisfaction, and loyalty in gastronomic events are closely tied to sustainable tourist behavior, which in turn strengthens the cultural identity of destinations. These findings suggest strong overlap with the role of brochures and guides, which aim to inform potential tourists, highlight authenticity and uniqueness, and influence behavior in terms of destination choice, revisit intention, and satisfaction.

6. Methodology

This study employed a qualitative research design to explore Iloilo's culinary heritage, focusing on noodle and soup dishes, rice-based delicacies, and baked goods, to develop a gastronomy guide to support cultural preservation, tourism promotion, and sustainable local development. Data were collected from January to December 2025 through in-depth interviews and focus group discussions with local chefs, food entrepreneurs, residents, and tourists to understand their experiences and perceptions of Iloilo's food culture. Qualitative methods were appropriate as they allowed the study to uncover cultural meanings, traditions, and community values embedded in local cuisine (Creswell & Poth, 2018). Focus group discussions encouraged participants to share and reflect on Iloilo's iconic dishes, generating diverse perspectives in a short period. These discussions enabled researchers to uncover nuanced meanings attached to local food practices and are recognized as an effective method for gathering knowledge in a natural, dialogic setting (Guest, Namey, & McKenna, 2017). The study highlighted local voices and authentic practices, presenting a culturally grounded and community-driven representation of Iloilo as a UNESCO Creative City of Gastronomy (Tracy, 2020).

The study involved 25 participants from Iloilo City, including key stakeholders, local chefs, food entrepreneurs, residents, and tourists. Participants were selected through purposive sampling, targeting those directly involved in Iloilo's gastronomy, and convenience sampling, including available residents and tourists to capture general experiences. This approach ensured both insider and outsider perspectives on Iloilo's culinary identity. Focus group interviews were the main data collection method. Data were analyzed using thematic analysis, which identifies and interprets recurring patterns in participants' narratives (Braun & Clarke, 2006; Nowell, Norris, White, & Moules, 2017). Word cloud analysis using WordArt was employed to visually highlight frequently occurring terms and support thematic analysis (DePaolo & Wilkinson, 2014; McNaught & Lam, 2010). Themes derived from the thematic and word cloud analyses were subsequently translated into visual categories, which served as the basis for the development of the illustrative food guide presented in the findings. This process ensured that the illustrative food guide was firmly grounded in participants' narratives and accurately reflected Iloilo's culinary heritage, particularly its iconic noodle and soup dishes, rice-based delicacies, and baked goods.

7. Findings

This section presents the findings based on the objectives. It examined Iloilo's rich culinary heritage, highlighting its iconic noodle and soup dishes, rice-based delicacies, and baked goods. The aim was to develop an illustrative food guide that preserved cultural traditions, promoted tourism, and supported sustainable local development.

The word cloud presentation was utilized to explore the rich culinary heritage of Iloilo, Philippines, with emphasis on noodle and soup dishes, rice-based delicacies, and baked goods. This visualization technique highlights the most frequently mentioned culinary items and cultural themes expressed by participants, thereby providing a clear representation of the community's shared gastronomic identity, presented in Figure 1.



Figure 1: A Word Cloud of Iloilo's Iconic Dishes and Delicacies

The culinary heritage of Iloilo is reflected in iconic noodle and soup dishes, each with a rich history, deep cultural meaning, and a strong sense of local pride. La Paz Batchoy is celebrated as the city's signature dish, while Pancit Molo, a flavorful dumpling soup, highlights the Chinese influence on Ilonggo cuisine. *KBL* (Kadyos, Baboy, Langka), or pigeon pea, pork, and jackfruit stew, is prepared by simmering pork with pigeon peas and unripe jackfruit, then soured with *Batwan* fruit for its distinct tangy flavor. And, *Binako*l showcases Ilonggo ingenuity and connection to nature. These dishes not only satisfy hunger but also embody Ilonggos' cultural identity, simplicity, and creativity, as illustrated in Table 1.

Table 1: Noodle and Soup Dishes

Dishes	Preparation	Participants Culinary Heritage Perspective
La Paz Batchoy	*Ingredients:* Fresh noodles, pork innards (liver, spleen, kidney), pork fat, shrimp stock, crushed pork cracklings, garlic, scallions, and seasonings. *Method:* Egg noodles are blanched, topped with pork offal, crushed pork cracklings, garlic, spring onions, and slices of pork. A rich, savory broth made from pork bones and shrimp stock is poured over.	"A well-known noodle soup of Iloilo that represents the city's culinary heritage and reflects local pride." – Food Entrepreneurs "A traditional dish that embodies the food identity and cultural pride of Iloilo." – Resident
Pancit Molo	*Ingredients:* Ground pork, chicken, shrimp, garlic, onions, wonton wrappers, chicken broth, and seasonings. *Method:* Dumplings filled with minced pork, chicken, and shrimp are wrapped in wonton wrappers, then simmered in a chicken broth with shredded chicken and garlic.	"An expression of Chinese culinary influence in Iloilo's local food traditions." – Local Chef "A soup commonly enjoyed during family occasions and community celebrations." – Resident
KBL (*Kadyos, Baboy, Langka*)	*Ingredients:* Pork, pigeon peas (kadyos), unripe jackfruit (langka), Garcinia binucao fruit (batuan), garlic, onions, and seasonings. *Method:* Pork is simmered with kadyos (pigeon peas) and unripe jackfruit. The broth is soured using *batuan* fruit, giving it a distinct tangy taste.	"It remains a staple food in rural areas, and common consumption in everyday households" – Stakeholder "A dish that reflects ingenuity in cooking and harmony of flavors." – Food Entrepreneurs "A comforting food that evokes a sense of home and familiarity." – Resident
"*Chicken Binakol*" Native Chicken with Coconut Water	*Ingredients:* Native chicken, young coconut water, coconut meat, papaya, lemongrass, ginger, onions, and seasonings. *Method:* Native chicken is stewed in young coconut water with coconut meat, ginger, onions, and green papaya. Traditionally cooked in bamboo tubes over an open fire.	"A dish that highlights culinary creativity through the use of coconut water and traditional cooking in bamboo or clay vessels, reflecting harmony with nature." – Stakeholder "A unique local food known for its rich and savory taste." – Tourists

The richness of Ilonggo culinary heritage is beautifully reflected in its rice-based delicacies, which highlight simplicity, creativity, and cultural meaning, as reflected in Table 2. *Baye-baye*, made from young rice pounded and mixed with grated coconut and sugar, is a chewy treat often enjoyed during snacks and town fairs. *Inday-inday* transforms sticky rice flour into festive food. *Bitso-bitso* is a twisted fried rice cake made from glutinous rice flour, deep-fried to golden perfection, and coated with caramelized sugar. *Suman*, perhaps the most iconic, is glutinous rice cooked in coconut milk, sweetened, and carefully wrapped in banana leaves before steaming. These delicacies embody stories of family, community, and identity where every grain of rice becomes a vessel of Ilonggo heritage and pride.

Table 2: Rice-Based Delicacies

Dishes	Preparation	Participants Culinary Heritage Perspective
"*Baye-baye*" Pounded Young Rice	*Ingredients:* Pinipig (young rice), grated coconut, sugar. *Method:* Young rice (*pinipig*) is pounded and mixed with grated coconut, then sweetened to form a chewy treat.	"A heritage delicacy that reflects the simplicity of Ilonggo food traditions." – Local Chef "Commonly consumed during in-between-meal times and local festivities." – Food Entrepreneurs "A dish that emphasizes the use of locally sourced rice and coconut." – Tourists
"*Inday-Inday*" Sticky Rice Flour	*Ingredients:* Glutinous rice flour, muscovado sugar, grated coconut. *Method:* Sticky rice flour is shaped, steamed, and topped with grated coconut and melted muscovado sugar.	"A delicacy that reflects culinary creativity by enhancing sticky rice with layered textures and flavors, making it suitable for celebrations." – Residents "Typically prepared and shared during community gatherings and town fiestas." – Stakeholder "A food that conveys the warmth and hospitality associated with Ilonggo culture." – Tourists
"*Bitso-bitso*" Twisted Fried Rice Cake	*Ingredients:* Glutinous rice flour, sugar, oil. *Method:* Glutinous rice flour is shaped into twisted strands, deep-fried until golden, and coated in caramelized sugar.	"Highlights the traditional use of muscovado sugar and glutinous rice in local food preparation." – Local Chef "Recognized as a common street snack among locals." – Stakeholder "A sweet, crisp delicacy enjoyed for its texture and flavor." – Tourists
"*Suman*" Glutinous Rice Cooked in Coconut Milk	*Ingredients:* Glutinous rice, coconut milk, sugar, and banana leaves. *Method:* Glutinous rice is cooked in coconut milk, wrapped in banana leaves, and steamed.	*"Suman* is more than food, it is tradition wrapped in banana leaves, a taste of heritage.*"* – Stakeholder "Snack wrapped in banana leaves, it also represents Ilonggo resourcefulness." – Resident

Ilonggo baked goods highlight both tradition and creativity, offering flavors that have become part of daily life and pasalubong culture. Biscocho, made from toasted bread with butter and sugar, is a household staple often paired with coffee or hot chocolate. Meanwhile, Barquillos, delicate wafer rolls sometimes filled with caramelized milk, showcase craftsmanship and patience. Equally cherished is Galletas de Patatas, thin and crisp biscuits baked from flour, sugar, milk, and eggs. Simple yet comforting, they reflect everyday Ilonggo resourcefulness and remain a humble favorite for both locals and visitors. In contrast, Butterscotch represents a modern addition to Iloilo's baked specialties. Bake goods embody Ilonggo warmth, creativity, and heritage. Is presented in Table 3.

Table 3: Baked Goods

Dishes	Preparation	Participants Culinary Heritage Perspective
Biscocho	*Ingredients:* Bread slices, butter, sugar. *Method:* Bread is toasted until crisp, spread with butter, and sprinkled with sugar before a final bake.	"A common household snack typically enjoyed with coffee or hot chocolate." – Resident "A well-known Iloilo food item valued as a customary souvenir." – Tourists
Barquillos	*Ingredients:* Flour, sugar, milk, butter. *Method:* Thin batter is cooked, rolled into delicate wafers, and sometimes stuffed with caramelized milk.	"Symbolizes culinary craftsmanship, patience, and artistry, commonly consumed during celebrations and given as food souvenirs." – Stakeholder "A refined snack that reflects the technical skill and expertise of Ilonggo bakers." – Food Entrepreneur
Galletas de Patatas	*Ingredients:* Flour, sugar, milk, eggs. *Method:* A thin dough is shaped into round biscuits and baked until crisp and golden.	"A modest and comforting delicacy that reflects everyday Ilonggo ingenuity and preference for simple snacks." – Stakeholder "A plain biscuit that embodies the flavors and traditions of Ilonggo culinary heritage." – Tourists
Butterscotch	*Ingredients:* Brown sugar, butter, flour, eggs, vanilla, and cashew nuts (or other local nuts). *Method:* Butter and brown sugar are melted together to create a caramel base, then mixed with flour, eggs, and vanilla to form a rich batter. Chopped cashew nuts are folded in before baking. The result is a chewy, golden-brown bar with a perfect balance of sweetness and nuttiness.	"The chewy sweetness of butterscotch reflects Ilonggo warmth and food-based hospitality." – Resident "Butterscotch illustrates Ilonggo skill in combining traditional flavors with creative adaptation." – Local Chef "A contemporary local delicacy that is proudly offered as pasalubong by residents." – Food Entrepreneur "A recognized Iloilo specialty commonly chosen as a take-home food souvenir." – Stakeholder

Iloilo City's culinary heritage, as recognized through its UNESCO Creative City of Gastronomy designation, reflects a rich tapestry of flavors, traditions, and cultural practices. The city's noodle and soup dishes, such as *La Paz Batchoy, Pancit Molo, KBL (Kadyos, Baboy, Langka),* and *Chicken Binakol*, exemplify communal dining, family gatherings, and the use of locally sourced, seasonal ingredients, highlighting both comfort and tradition. Rice-based delicacies, including *Baye-baye, Bitso-bitso, Inday-inday,* and *Suman,* showcase the city's agricultural heritage, resourcefulness, and indigenous food practices, reflecting simplicity and sustainability in everyday cuisine. Meanwhile, baked goods such as *Biscocho, Barquillos, Galletas de Patatas,* and *Butterscotch* demonstrate a fusion of traditional craftsmanship with modern baking techniques, serving as both signature souvenirs and popular street foods that reinforce local identity. Together, these culinary categories illustrate that Iloilo's iconic dishes are not only gastronomic creations but also cultural artifacts, embodying the city's gastronomic identity, historical continuity, and role as a living repository of food heritage. Diagram 1 presents a tree diagram, created using the Venngage design platform, that provides a clear, illustrative food guide that builds on Iloilo City's culinary heritage. The guide promotes cultural preservation, gastronomic tourism, and sustainable engagement with the city's rich culinary traditions. This visual synthesis organizes qualitative findings into an interpretative framework, reflecting the generalized context of consumption derived from participant narratives and translating cultural insights into an accessible and engaging format.

Overall, this study identified the iconic noodle and soup dishes, rice-based delicacies, and baked goods that define Iloilo City's culinary heritage, as expressed through participants' narratives and cultural meanings. Building on these findings, the study developed an illustrative food guide that visually organizes and presents Iloilo City's culinary traditions. The guide reflects Iloilo City's gastronomic identity and supports cultural preservation, tourism promotion, and sustainable development.

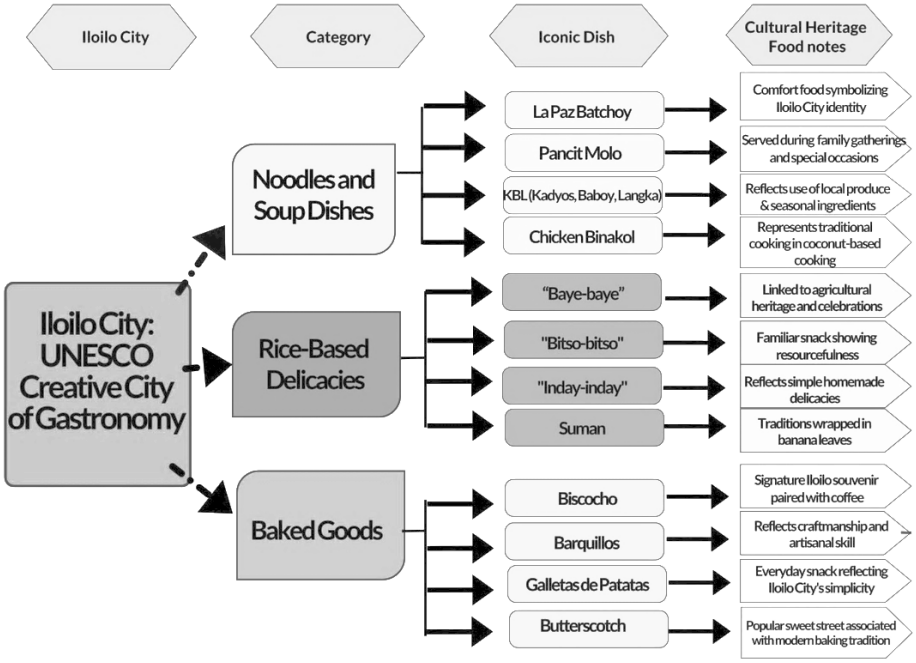


Figure 2: Cultural Heritage Food Guide to Iloilo City of Gastronomy

8. Discussion

The findings revealed the rich culinary heritage of Iloilo, Philippines, as reflected in its iconic noodle and soup dishes, rice-based delicacies, and baked goods. Respondents expressed strong appreciation for these food traditions, recognizing them as important expressions of Ilonggo culture and identity. Noodle and soup dishes, particularly La Paz Batchoy, symbolized cultural exchange and local pride. Rice-based delicacies highlighted the creative use of staple ingredients such as glutinous rice and coconut, while baked goods like Biscocho illustrated the balance between tradition and modern culinary influences. The study affirmed that Iloilo's culinary practices serve as cultural symbols that embody history, ingenuity, and community values. The findings further emphasized that Iloilo's culinary heritage is not only central to its cultural identity but also plays a significant role in tourism promotion and sustainable local development, reinforcing the city's recognition as a UNESCO Creative City of Gastronomy.

9. Conclusion and Recommendations

The study concluded that Iloilo City of Gastronomy, Philippines, possesses a rich and dynamic culinary heritage, clearly reflected in its iconic noodle and soup dishes, rice-based delicacies, and baked goods. The findings demonstrated that these food traditions are highly valued by respondents for their cultural meanings, historical significance, and role in everyday life. Iloilo's culinary practices were affirmed as important cultural symbols that embody history, creativity, and shared community values. The illustrative food guide serves as a foundational framework from which more comprehensive and context-specific food guides may be developed, reinforcing the understanding of Iloilo's cuisine not only as a marker of cultural identity but also as a valuable asset for tourism development and sustainable local growth, thereby strengthening the city's status as a UNESCO Creative City of Gastronomy.

To further strengthen and sustain Iloilo's culinary heritage, several strategies are recommended. First, cultural preservation efforts should prioritize the documentation of traditional recipes, cooking techniques, and food practices through collaboration among local government units, cultural agencies, and academic institutions. Second, tourism promotion may be enhanced by integrating iconic dishes into culinary tours, food festivals, and destination branding initiatives. Third, incorporating local cuisine into hospitality and tourism education can help transmit cultural knowledge and encourage sustainable food practices. Fourth, increased support for local food entrepreneurs through skills training, financial assistance, and improved market access can help sustain traditional dishes and small-scale enterprises. Finally, expanding cultural exchange through local and international partnerships, as well as digital platforms, can increase awareness of Ilonggo cuisine and further strengthen Iloilo's recognition as a UNESCO Creative City of Gastronomy.

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AI Declaration

The use of AI tools, including ChatGPT, WordArt, Venngage, Grammarly, and QuillBot, was employed in the preparation of this manuscript. These tools facilitated drafting and refining responses to peer review comments, summarizing and organizing selected literature for the Review of Related Literature, improving the clarity and flow of arguments, paraphrasing sections for enhanced readability, and assisting in the creation of diagrams and figures.

Ethics Declaration

Ethical considerations were observed in this study. Informed consent was obtained from all participants before their involvement. Confidentiality and anonymity were strictly practiced to protect participants' identities and sensitive information. Ethical integrity was maintained throughout the research process, and the author declares no conflicts of interest related to this study.

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Contribution of the Digitisation of Cultural Tourism to the Resilience of Local Communities in the Face of Global Crises: An Integrative Review

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Abstract: The use of digital technologies offers communities opportunities to strengthen their economic and social resilience, preserve their cultural heritage, and sustain tourism activity in times of crisis. However, its adoption remains uneven, limiting the development of community-based tourism and influencing visitor behaviour. This paper critically analyses how the digitalisation of cultural tourism contributes to the resilience of local communities in the face of pandemics, natural disasters, and social conflicts. An integrative literature review was conducted through an exhaustive search of the Scopus databases; high-impact articles (Q1 and Q2) published in the last five years and available in English were prioritised. The information was organised into an analytical matrix and synthesised by theme to identify convergences, gaps and practical guidelines. The findings indicate that geographic information systems, digital platforms, and immersive content (augmented reality and 360-degree video) are driving the transformation of cultural destinations. These tools improve heritage management and protection, guide data-driven conservation and adaptation strategies, and support authentic narratives that reinforce local identity. They also democratise access to culture, strengthen community empowerment and diversify income through digital channels, raising visibility in the recovery. Digital communication influences the image of the destination and travel decisions, while spatial planning allows risks to be anticipated and interventions to be prioritised. Limitations remain: connectivity and capacity gaps, uncertain financial sustainability and low visitor awareness. Policies and training are needed that integrate digital inclusion, collaborative governance, and indicators of authenticity and accessibility. In conclusion, the digitalisation of cultural tourism acts as a catalyst for a more resilient, sustainable and participatory tourism model, in line with SDG 11. Its consolidation requires investment in a technological base that enables secure connection and data exchange between different systems using open standards, content co-created with communities, and rigorous evaluation of results, with special attention to rural destinations and the effectiveness of emerging technologies.

Keywords: Digital Heritage, Local Empowerment, Post-crisis Recovery, Digital Inclusion and Accessibility, Digital Cultural Content.

1. Introduction

Digitalisation has become a key instrument for strengthening the resilience of local communities in the face of public health emergencies, natural disasters, and economic crises. Beyond preserving social cohesion, this process enables the continuity of productive activities and supports community self-organisation, even under conditions of restricted mobility (Li et al., 2024). In this regard, the articulation between digitalisation and local self-organisation emerges as a crucial mechanism for facilitating adaptation to crisis situations, promoting income generation, and safeguarding cultural identity (Xiang et al., 2024; Cordova-Buiza et al., 2025). Within the tourism sector, this transformation is particularly strategic, as it allows small and medium-sized enterprises (SMEs) to develop collaborative and adaptive capacities in an increasingly competitive environment (Hernández and Oskam, 2025).

Information and communication technologies (ICTs) are redefining the ways in which rural and urban communities construct, articulate, and disseminate their cultural narratives (Agboola et al., 2023; Del Vecchio et al., 2025). These tools facilitate more autonomous and efficient management of local resources, while also enabling direct connections with potential visitors, thereby strengthening communities' adaptive capacity in the face of the challenges posed by a dynamic and uncertain global context (Shen et al., 2022). Moreover, digitalisation fosters collaborative governance among multiple actors, reinforcing the resilience of cultural tourism at the local level (Silva and Raposo, 2023).

In this study, the resilience of local communities is understood as the collective capacity to anticipate, absorb, adapt to, and recover from external shocks while maintaining social cohesion, cultural identity, and economic

functionality. Within the context of cultural tourism, community resilience goes beyond short-term economic recovery and involves the preservation of cultural practices, the strengthening of participatory governance, and the mobilisation of endogenous resources through collaborative processes (Beckley et al., 2008; Gabriel-Campos et al., 2021; Basyar et al., 2025). This perspective conceives resilience as a dynamic and multidimensional process rooted in social capital, local knowledge, and institutional coordination, particularly relevant for territories exposed to recurrent crises such as pandemics, climate-related events, or economic disruptions (Brown, 2017; Cartier and Taylor, 2020).

The COVID-19 pandemic intensified pre-existing structural crises within the tourism sector, generating an unprecedented contraction in global supply and demand (Guardia et al., 2022). While the lack of community participation following disasters limits the effectiveness of recovery processes and preparedness for future crises (Nian, 2019), organised communities are better positioned to strengthen their resilience in adverse contexts such as pandemics and climate change (Gabriel-Campos et al., 2021). Consequently, the limited integration of digital solutions into cultural tourism and community resilience strategies represents a central challenge, as it constrains the potential of community-based tourism and shapes visitor behaviour. This situation highlights the need to rethink tourism models towards more resilient, inclusive, and adaptive approaches (Menezes et al., 2023; Brown, 2017).

From a practical perspective, this research is particularly valuable for cultural stakeholders and tourism entrepreneurs, as it provides evidence and analytical insights to support the design of digitalisation strategies that strengthen community resilience, promote sustainable tourism, and ensure economic and cultural continuity during periods of crisis. The transition towards a knowledge-based economy centred on heritage has demonstrated that the integration of digital tools can enhance adaptive capacity, facilitate access to tourism markets, and strengthen local heritage management (Shen et al., 2022). Furthermore, this study is aligned with Sustainable Development Goal 11, insofar as the digitalisation of cultural tourism contributes to heritage preservation and reinforces community resilience by fostering innovation, diversifying tourism offerings, and encouraging local participation, thereby strengthening social cohesion and promoting the development of more sustainable communities (Organización Mundial del Turismo, 2021; Huang et al., 2025).

Against this backdrop, the general research problem guiding this study is as follows: How does the digitalisation of cultural tourism contribute to strengthening the resilience of local communities in the face of global crises? From this overarching question, four secondary research questions are derived: (i) What is meant by the digitalisation of cultural tourism within the framework of community strengthening? (ii) What types of digital cultural content are most effective in attracting tourist interest during periods of crisis? (iii) What empirical evidence demonstrates that the digitalisation of cultural tourism has strengthened economic, social, or cultural resilience in local communities facing global crises? and (iv) How are digital mechanisms being applied within cultural tourism, and what functions do they fulfil in responding to global crises?

The general objective of this study is to analyse the contribution of cultural tourism digitalisation to strengthening the resilience of local communities in the face of global crises. Based on this central aim, four specific objectives are proposed: (1) to define the concept of cultural tourism digitalisation in relation to community strengthening under global crisis conditions; (2) to identify the types of digital cultural content that are most effective in capturing tourist interest in crisis contexts; (3) to determine the economic, social, and cultural impacts of cultural tourism digitalisation on local communities during such crises; and (4) to establish the digital strategies that enhance community resilience through cultural tourism in contexts of uncertainty.

2. Methods

This study was conducted through an integrative literature review, with the aim of providing a comprehensive analysis of the role of cultural tourism digitalisation in strengthening community resilience in contexts of global crises (Snyder, 2019). This approach enabled the collection, comparison, and synthesis of findings from recent empirical and theoretical studies, ensuring a broad and up-to-date understanding of the phenomenon. The integrative review was particularly appropriate for this research, as it allowed for the simultaneous examination of multiple types of evidence, including case studies, qualitative research, quantitative approaches, and conceptual models related to technology, culture, and resilience.

The bibliographic search was carried out between March and June 2025 using a systematic strategy applied to the Scopus and Web of Science databases. Information retrieval was based on combinations of English-language

keywords related to digitalisation, cultural tourism, community resilience, digital technologies, and crisis management. A temporal range covering the period from 2020 to 2025 was established to ensure the relevance of the selected studies, as this timeframe encompasses major technological and social transformations associated with the COVID-19 pandemic and other recent crises that have significantly affected the tourism sector. The article selection followed a transparent sequential process: duplicate records were removed, titles and abstracts were screened for thematic relevance, and full texts were assessed for conceptual alignment and methodological soundness. While priority was given to high-impact journals (Q1 and Q2), studies from other quartiles were included when they provided relevant theoretical or contextual contributions, ensuring analytical coherence and transparency without imposing rigid exclusion criteria.

The selection of studies followed inclusion criteria focused on thematic relevance, full-text availability, methodological rigour, and alignment with the research objectives. Only indexed articles examining digitalisation processes applied to cultural tourism, community-based capacity-building strategies, or resilience mechanisms in response to crises were considered. Exclusion criteria comprised non-empirical studies without direct applicability to the research focus, institutional reports, non-indexed publications, and works that employed digital tools but were not explicitly connected to community resilience or cultural tourism.

As a result of the selection process, a total of 28 documents were included in the final analysis. The information was subsequently organised using an analytical matrix specifically designed for this study. This matrix enabled the classification of each article according to its analytical approach, research methodology, types of digital technologies employed, level of community participation, implications for cultural heritage management, and contributions to resilience. The use of this matrix facilitated the identification of common patterns, divergences across approaches, thematic gaps, and opportunities for the development of digital strategies oriented towards community strengthening.

Finally, the data were analysed comparatively in order to construct thematic categories that captured the complexity of the phenomenon under study. This process involved identifying emerging trends, assessing the impact of digital technologies across different contexts, and linking the findings to the stated research objectives. The integrative review thus supported the development of a critical synthesis that underpins the results presented in the following section, ensuring coherence between the research objectives and the scientific evidence reviewed.

From a methodological standpoint, the integrative review prioritised analytical relevance over mechanical exclusion criteria. Although high-impact journals (Q1 and Q2) were prioritised to ensure academic quality, the selection process remained flexible in order to include indexed studies from other quartiles when they provided substantial theoretical, empirical, or contextual contributions aligned with the objectives of this review. This decision is consistent with the interpretative nature of integrative literature reviews, which seek to synthesise diverse forms of evidence rather than apply rigid filtering procedures, thereby strengthening analytical depth, transparency, and coherence (Snyder, 2019).

3. Results and Discussion

3.1 Digitalisation of Cultural Tourism Within the Framework of Community Strengthening

The digitalisation of cultural tourism involves the use of technological tools to preserve and disseminate heritage, facilitate access to cultural resources, and reinforce local identity. At the same time, it promotes community participation and enhances the visitor experience through digital solutions that enable more sustainable and inclusive tourism management (Yan et al., 2025; Zhang et al., 2025; Huerta-Tantalean et al., 2024). In rural and traditional contexts, such as Chinese villages, digitalisation has been shown to stimulate cultural creativity and foster greater economic and social resilience following crises such as the COVID-19 pandemic (Chen and Li, 2022).

This digital transformation allows communities to improve resource management, increase income generation, and promote sustainable models adapted to local territorial characteristics through tools such as digital marketing, augmented reality, and data analytics. These mechanisms strengthen destination visibility and enrich visitor experiences (Zhang et al., 2025). In crisis situations, digital technologies also support heritage conservation and reinforce a sense of cultural continuity, as evidenced in the historic district of Yazd, Iran, where resilience frameworks supported by digital tools were successfully implemented (Salehi et al., 2025).

3.2 Digital Cultural Content Strategies to Attract Tourists During Times of Crisis

During periods of crisis, the most effective forms of digital cultural content for attracting tourist interest include virtual tours and 360-degree videos, as these tools allow users to explore destinations without physical presence, generating immersive experiences that sustain engagement under conditions of uncertainty (Shen et al., 2022; Fan et al., 2022). Short-form videos shared through social media platforms also play an important role in maintaining audience attention (Chen and Li, 2022), while the digitalisation of intangible heritage, such as dances, rituals, and oral narratives, reinforces the cultural identity of destinations (Yan et al., 2025).

The impact of this content is significantly enhanced when it conveys authenticity. Digital materials that portray everyday practices, traditions, and lived experiences tend to generate emotional connections with potential visitors and positively influence destination choice (Hussain et al., 2024; Ruiz-Palacios et al., 2024). In this context, digital platforms are essential for ensuring that such content reaches relevant audiences, as demonstrated in Javanrood, Iran, which has managed to maintain international visibility through the strategic use of social media, websites, and online booking systems (Komasi et al., 2025). Accordingly, digitalisation facilitates a sustainable integration of culture and tourism, acting as a key instrument for economic recovery following global crises (Zhao et al., 2023).

Nevertheless, while artificial intelligence enables the delivery of more personalised and efficient experiences, it may also exacerbate digital divides, particularly among small and medium-sized enterprises with limited resources (Muhammad et al., 2025). Moreover, despite the perceived convenience of digitalisation, tourist awareness of its implications for sustainability remains limited. These tools can only achieve their full potential when combined with active participation from both communities and visitors (Pinto et al., 2025).

3.3 Impact of Cultural Tourism Digitalisation on Community Resilience in the Face of Global Crises

Community empowerment through digitalisation is reflected in initiatives such as Cultural Gems, a platform that employs Linked Open Data to map tangible and intangible cultural heritage across European cities (Consoli et al., 2023). This tool not only facilitates democratic access to culture, but also enables communities to actively participate in the identification, preservation, and dissemination of their cultural heritage (Sarabia et al., 2023). At the same time, it strengthens civic engagement and promotes social inclusion by making less-recognised cultural expressions visible, highlighting the potential of ICTs to enhance communities through their identities (Agboola et al., 2023; Olavarría-Benavides et al., 2021; Gocer et al., 2024).

In the post-pandemic context, many rural communities have found digital technologies to be an effective pathway towards strengthening development and stability (Consoli et al., 2023). In traditional villages in China, for example, the adoption of digital tools to promote and disseminate cultural heritage has contributed to tourism recovery and local economic revitalisation (Lee et al., 2024). This transformation has not only reinforced residents' connections to their cultural identity but has also created new opportunities to address future challenges through the diversification of productive activities and the adoption of more sustainable development pathways (Chen and Li, 2022).

Empirical evidence further demonstrates that involving local communities in the management and delivery of authentic tourism experiences enhances their capacity to recover from social and economic adversity (Beckley et al., 2008). This model supports cultural and environmental conservation while empowering communities and promoting more equitable and sustainable development outcomes (Cartier et al., 2020). The resilience of community-based tourism is thus expressed in its ability to adapt to changing conditions, leverage endogenous resources, and build strong relationships with visitors, ensuring sustainable growth and preservation under conditions of global uncertainty (Sarabia et al., 2023).

In parallel, the integration of crisis management and community response approaches is essential for strengthening sustainability, as recovery strategies must address social, environmental, and economic dimensions simultaneously (Cartier et al., 2020). Effective management supported by transparent communication and participatory leadership reinforces community resilience and facilitates recovery following disasters (Filimonau and De Coteau, 2019). Collectively, these actions contribute to ensuring tourism continuity and sustainable community recovery during crisis scenarios.

3.4 Application of Digital Mechanisms in Cultural Tourism and Their Role in Responding to Global Crises

The resilience of cultural tourism destinations in the face of crises such as climate change requires proactive spatial planning supported by digital tools (Papageorgiou, 2025). The integration of technologies such as geographic information systems, climate scenario simulations, and spatial analytics enables tourism managers to anticipate potential impacts and make data-driven decisions (Santos-Lacueva et al., 2024). These tools facilitate the identification of vulnerable areas and support the design of land-use strategies that protect cultural and natural resources (Scott and Gössling, 2022).

Digital communication also plays a critical role in shaping destination perceptions during crisis periods and is widely recognised for its influence on trust and destination image (Chemli et al., 2020). Analyses of resilience-oriented communication strategies indicate that effective information management can directly influence tourist decisions and behaviour (Avraham, 2020). Consequently, well-planned digital communication is essential for maintaining destination reputation and supporting recovery in critical moments (Martínez et al., 2024). Digital platforms further enable the construction of authentic narratives that reinforce cultural identity and promote more responsible, conscious, and participatory tourism practices (Vecco et al., 2022). In this context, the digitalisation of cultural tourism contributes not only to heritage conservation, but also to the economic and social recovery of communities (Milano et al., 2024).

In post-crisis contexts, such as those experienced following the pandemic, the resilience of cultural tourism depends on collaboration among local actors and the use of digital mechanisms to facilitate communication, planning, and cultural promotion (Martínez et al., 2024). Technologies such as participatory online mapping, mobile applications for cultural storytelling, and virtual engagement platforms support the development of collaborative and resilient cultural tourism models that respond to community needs and strengthen local capacities to cope with global disruptions (Mandić et al., 2024; Komasi et al., 2025).

Table 1 summarises the cultural, technological, community-based, socio-economic, and crisis-management dimensions identified in the reviewed studies, providing a comparative overview of how cultural tourism digitalisation contributes to strengthening community resilience under conditions of uncertainty.

Table 1: Dimensions of digitalisation and community resilience identified in the integrative review

Category	Aspect 1	Aspect 2
Cultural-pedagogical	Preservation and dissemination of cultural heritage.	Strengthening of local identity and cultural continuity.
Technological	Use of immersive tools (virtual reality, 360-degree video, augmented reality).	Application of digital platforms for promotion, booking, and content co-creation.
Community participation	Empowerment through collaborative narratives and digital inclusion.	Strengthening governance through participatory digital platforms.
Socio-economic impact	Income diversification through digital tourism channels.	Reinforcement of local economies and visibility in post-crisis recovery processes.
Crisis management	Data-driven resilience strategies (GIS, artificial intelligence, planning).	Rapid adaptation of communication and tourism services during emergencies.

4. Conclusion

The objective of this study was to analyse how the digitalisation of cultural tourism contributes to strengthening the resilience of local communities in the face of global crises. The findings indicate that the integration of digital technologies not only enables the preservation and dissemination of cultural heritage, the continuity of economic activities under conditions of uncertainty, and the reinforcement of community cohesion through participatory processes, but also incorporates tools that are particularly effective when they combine

authenticity, immersion, and accessibility. Virtual tours, 360-degree videos, collaborative platforms, and digital narratives help sustain visitor interest even under mobility restrictions, strengthen emotional connections with destinations, diversify income sources, and promote participatory governance. At the same time, these mechanisms consolidate cultural identity and enhance territorial management through emerging technologies, thereby supporting the development of more resilient, sustainable, and inclusive tourism models.

The theoretical implications of this review highlight the interaction between technology, sustainability, collaborative governance, and community resilience, expanding current understanding of how territories can respond to crises through digital solutions. From a practical standpoint, the results provide concrete guidance for cultural managers, local authorities, and tourism entrepreneurs by informing the design of digital strategies that foster community participation, economic recovery, and heritage preservation through innovative and adaptive approaches.

Finally, this study acknowledges certain limitations, particularly the methodological heterogeneity of the reviewed studies and the limited availability of empirical evidence from rural areas with constrained digital infrastructure. Future research could further examine the digital divide, assess the effectiveness of emerging technologies in community-based contexts, and identify digital resilience indicators applicable across different territories. Taken together, the findings support the projection of a more resilient and equitable cultural tourism model, in which digitalisation functions as a key driver of community transformation and development in response to global challenges.

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Ethics Declaration

This study is based on secondary data from published academic literature and did not require ethical approval.

AI Declaration

Artificial intelligence tools were used only to support language editing. The authors are fully responsible for the content of this paper.

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Revaluing Ancestral Culinary Techniques through Sustainable Use in Contemporary Gastronomy: A Literature Review

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Abstract: Contemporary gastronomy faces the challenge of maintaining a balance between culinary innovation and the preservation of traditional knowledge that shapes cultural identity. In this context, ancestral culinary techniques have re-emerged as a valuable source of knowledge for developing sustainable gastronomic models that integrate ecological, cultural, and social dimensions. The purpose of this research is to analyse the revaluation of ancestral culinary techniques from a sustainability perspective, identifying their contribution to cultural, ecological, and economic innovation in contemporary gastronomy. The applied methodology corresponds to an integrative literature review based on scientific articles indexed in Scopus and Web of Science, with priority given to studies published in Q1 and Q2 journals. A qualitative interpretative analysis was conducted to identify patterns and trends regarding the incorporation of traditional knowledge into modern culinary innovation processes. The findings reveal that practices such as earth oven cooking, natural fermentation, the use of clay utensils, and the inclusion of wild ingredients have gained prominence in contemporary gastronomy, providing symbolic value, authenticity, and sustainability to culinary experiences. These techniques not only contribute to the preservation of cultural heritage but also promote fairer and more resilient food systems that respect the environment. However, theoretical gaps remain regarding the integration of ancestral knowledge into sustainable gastronomy policies and technological innovation frameworks. This highlights the need to strengthen interdisciplinary research linking culinary tradition, sustainability, and responsible tourism, fostering a dialogue between local knowledge and emerging sustainable development trends. In conclusion, the revaluation of ancestral culinary techniques constitutes a key strategy for promoting gastronomic innovation and reinforcing cultural identity, thereby contributing to the achievement of the Sustainable Development Goals, particularly SDG 9, which focuses on innovation and sustainability.

Keywords: Sustainable Gastronomy, Ancestral Techniques, Cultural Innovation, Sustainability, Integrative Review.

1. Introduction

Over recent decades, gastronomy has witnessed a renewed interest in ancestral culinary techniques, understood as traditional practices transmitted across generations that are now re-emerging as sustainable alternatives to contemporary challenges associated with biodiversity loss, food disconnection, and the socio-environmental impacts of industrial production systems (Nguyen and Tran, 2024; Cordova-Buiza et al., 2024). Techniques such as natural fermentation, solar drying, earth oven cooking, or the responsible use of wild ingredients not only embody expressions of culinary identity but also represent functional bodies of knowledge deeply adapted to local environments. These practices are capable of fostering resilient, ethical, and low-impact food systems, while also enhancing visitor motivation and satisfaction (Cordova-Buiza et al., 2021).

In contrast to the standardisation imposed by the food industry, ancestral methods offer viable alternatives to intensive models that have contributed to ecosystem degradation and the displacement of local communities (Kabacık, 2024; Hassan et al., 2024). From a gastronomic perspective, their incorporation into contemporary kitchens responds not merely to a logic of heritage preservation, but to an active process of innovation in which chefs, producers, and communities collaborate to adapt these practices to new demands without compromising their original essence (Collado, 2025).

Clear examples of this articulation can be observed in identity-based restaurants, rural food-processing cooperatives, and culinary experiences linked to sustainable tourism (García and López, 2024). This phenomenon also generates significant social and economic impacts by contributing to community empowerment, stimulating rural entrepreneurship, and energising local economic circuits. At the same time, it enables the construction of narratives that highlight the origin and cultural meaning of food, fostering a more ethical and conscious relationship with consumption (Montesdeoca-Calderón and Gil-Saura, 2023). Within this context, ancestral techniques hold a dual value, functioning both as living heritage and as strategies for sustainable innovation. Their revaluation provides technical responses to current challenges through approaches grounded in circularity, efficient resource use, and the preservation of endemic varieties or non-refrigerated preservation methods. This framework aligns closely with Sustainable Development Goal 9, which

promotes resilient infrastructure, inclusive industrialisation, and responsible innovation (Villacis-Zambrano et al., 2023).

From both theoretical and practical standpoints, this study proposes an integrated perspective that positions ancestral techniques as part of an innovative ecosystem of solutions to contemporary food-related challenges. At a theoretical level, the analysis contributes to a reinterpretation of the concept of innovation by incorporating cultural and territorial dimensions that have traditionally been excluded from mainstream discourse. From a practical perspective, the findings may be valuable to chefs, gastronomic entrepreneurs, policy makers, and communities interested in integrating these forms of knowledge into new dynamics of production, tourism, and ethical trade. In this sense, the active recovery of ancestral culinary techniques does not constitute a nostalgic exercise, but rather a concrete strategy for transforming contemporary gastronomy towards more humane, sustainable, and culturally rooted food systems.

In Latin American countries, whose biocultural diversity is among the richest in the world, culinary techniques inherited from Indigenous peoples have profoundly shaped national food identities. Nevertheless, these practices face significant challenges, including the loss of traditional knowledge, substitution by globalised techniques, and limited systematic documentation (López-Maldonado et al., 2024). In response, recent studies emphasise that the recovery of traditional knowledge must go beyond a nostalgic approach and be articulated with strategies for sustainable territorial development and responsible tourism (de Souza and da Silva, 2024; Avram and Șoaita, 2025). Furthermore, the use of local products and traditional knowledge in gastronomy can act as a mechanism of cultural resistance to the global homogenisation of flavours, strengthening identity, social cohesion, and the economic vitality of rural communities (Chatzidakis and Chronis, 2025; Bakr et al., 2025).

The biocultural approach further enables the articulation of the value of culinary techniques as nodes of intergenerational knowledge, biodiversity, and food justice. In this regard, López-Maldonado et al. (2024) contend that traditional food plants, when embedded within local knowledge systems, contribute to food security and environmental conservation. Barros et al. (2024), in northern Portugal, demonstrate that the transmission of recipes and traditional methods strengthens community cohesion and promotes respect for sustainable production cycles. Similarly, Duarte and Bressan (2024) show that in rural areas of southern Europe, traditional gastronomy acts as a catalyst for the empowerment of local actors, particularly women and small-scale producers. These findings suggest that ancestral techniques are not merely symbolic resources, but active drivers of equity and economic resilience in the regions where they are practised.

Moreover, de Souza and da Silva (2024) emphasise that incorporating traditional “knowledge and flavours” into sustainable territorial development policies can reconnect communities with their roots and foster new forms of cultural citizenship. This holistic vision reinforces the idea that traditional cuisine is not only a legacy of the past, but also a contemporary tool for social transformation. Taken together, these contributions indicate that the integration of ancestral culinary techniques into contemporary gastronomy requires a comprehensive approach that considers ethical, economic, ecological, and symbolic dimensions, reaffirming their potential to generate tangible impacts on communities, the environment, and living culture.

Despite the growing body of literature on sustainable gastronomy and culinary heritage, existing studies tend to approach ancestral culinary techniques either from a cultural preservation perspective or through isolated sustainability frameworks. There remains a notable lack of integrative analyses that examine these techniques simultaneously as cultural heritage, drivers of innovation, and practical tools for sustainable gastronomic systems. This gap is particularly evident within contemporary gastronomy, where traditional knowledge is increasingly reintroduced without sufficient analytical linkage to sustainability policies, innovation processes, and territorial development strategies.

The general objective of this research is to analyse the revaluation of ancestral techniques through their sustainable use in contemporary gastronomy, as well as their practical contribution as tools for cultural and ecological innovation. From this overarching aim derive the specific objectives, which are to assess the viability of ancestral techniques as sustainable practices for modern cuisine; to identify ancestral culinary techniques that have been successfully reintroduced into contemporary gastronomy; to evaluate their social, economic, and environmental impacts; to examine the technical and cultural challenges associated with their integration into gastronomic systems; and to explore their relationship with principles of sustainability and territorial development.

2. Methods

This study was conducted using a qualitative approach with an exploratory and descriptive scope, employing an integrative literature review that enabled the synthesis and critical analysis of recent studies on ancestral culinary techniques and sustainability within contemporary gastronomy. The literature review method is particularly suitable for examining phenomena of a cultural, social, environmental, and economic nature, as demonstrated by recent research in the field of sustainable gastronomy (Kabacık, 2024).

The information search was carried out exclusively in the Scopus and Web of Science databases, selected for their reliability, academic standards, and broad international coverage. To ensure the relevance and timeliness of the sources, filters were applied to restrict the review to empirical articles published between 2023 and 2025, written in English, and appearing in journals indexed in the Q1 and Q2 quartiles. The selected studies focused on gastronomy, sustainability, cultural heritage, and tourism. In addition, other literature reviews and scholarly books were incorporated to complement the analysis.

The search strategy was structured around four core thematic axes: food sustainability, circular economy, cultural identity, and ancestral techniques. Boolean operators were used to combine key terms, employing search strings such as “ancestral culinary techniques” AND “sustainability”, “traditional gastronomy” AND “cultural heritage”, and “indigenous food knowledge” AND “gastronomic innovation”. The inclusion criteria comprised publication recency, direct relevance to the study objectives, academic credibility through peer review, an interdisciplinary perspective, and theoretical contributions applicable to the Latin American context. Conversely, documents with limited methodological rigour, redundant findings, or those falling outside the defined time frame were excluded.

A critical reading of 22 selected sources was undertaken, allowing the identification of key findings, research gaps, and emerging trends. Studies such as those by Barros et al. (2024) emphasise the role of traditional techniques in cultural preservation and local development. Similarly, Duarte and Bressan (2024) highlight their potential to stimulate rural economies, while de Souza and da Silva (2024) examine their impact on territorial sustainability. These contributions served as key references for strengthening the conceptual framework of the present research. Through this methodological process, a robust theoretical foundation was established, enabling a critical analysis of ancestral culinary techniques as tools for sustainability, cultural innovation, and the evolution of contemporary gastronomic systems. Furthermore, the review process followed a transparent and replicable protocol to ensure methodological rigour and analytical consistency.

3. Results and Discussion

To facilitate the analytical organisation of the findings, the results and discussion were structured into thematic categories derived from a qualitative interpretative synthesis of the 22 selected studies. This process involved an iterative reading and comparison of the literature, through which recurring concepts, analytical patterns, and convergent discussions were identified. The grouping of results into thematic sections responded to shared conceptual emphases across the reviewed papers, particularly regarding sustainability conditions, the reintroduction of ancestral techniques, their social, economic and environmental impacts, the challenges associated with their implementation, and their alignment with innovation and sustainable development frameworks. This thematic structuring allowed for an integrated discussion that connects empirical insights with broader theoretical debates in sustainable gastronomy.

3.1 Conditions of Viability for Integrating Ancestral Techniques Into Sustainable Systems

The integration of ancestral techniques into sustainable gastronomic systems depends on a combination of ecological, institutional, and sociocultural factors that shape their applicability. From an environmental perspective, Ghosh (2025) highlights that methods such as natural preservation and the use of locally available resources significantly reduce ecological impact and offer adaptive responses to climate change. In a similar vein, Nguyen and Tran (2024) emphasise that these practices contribute to the resilience of supply chains, particularly in territories with limited access to modern technology. Complementarily, Barroetaveña and Pildain (2022) underscore their potential to foster local development models that are respectful of biodiversity.

Within the educational sphere, Franchini et al. (2024) examine how certain gastronomic institutions have begun to incorporate content related to traditional practices into their curricula, thereby promoting their academic recognition and legitimacy. Along these lines, Cordova-Buiza et al. (2025) note that digital strategies on social media platforms have played a key role in the revaluation and dissemination of traditional cuisines,

while Kabacık (2024) highlights the role of gastronomic festivals as spaces for visibility and cultural exchange. From a sociocultural standpoint, García and López (2024) identify these techniques as symbolic expressions that reinforce local identity, and Montesdeoca-Calderón and Gil-Saura (2023) demonstrate their contribution to the empowerment of women entrepreneurs engaged in sustainable cooking practices in rural contexts in Ecuador.

Taken together, these perspectives indicate that the viability of ancestral techniques depends not solely on their practical efficiency, but on their capacity to generate cultural, environmental, and educational value in the construction of a more sustainable gastronomic model. In this sense, the use of ancestral culinary techniques emerges as a viable alternative for promoting more sustainable food systems.

3.2 Ancestral Culinary Techniques Reintroduced in Contemporary Gastronomy

The literature consistently points to a renewed interest in recovering and adapting traditional techniques widely used in pre-industrial culinary systems as a strategy to preserve their original meaning. Among the most frequently highlighted practices are natural fermentation, sun drying, cooking in clay or earth ovens, hot-stone cooking, the use of natural leaves to wrap food, and stone grinding. Beyond preserving nutrients and enhancing flavours, these techniques align closely with contemporary sustainability principles due to their low energy consumption and their grounding in local ecological knowledge. Furthermore, evidence suggests that innovative gastronomy rooted in cultural identity tends to achieve higher levels of consumer acceptance, particularly when associated with values such as ethics, authenticity, and territorial pride (Siddiqui et al., 2023).

Their application has expanded from rural restaurants to signature and fine-dining kitchens seeking differentiation through proposals linked to territorial identity, where these techniques enable the creation of deeper sensory and emotional experiences that strengthen the bond between diners and place. In addition, the use of wild plants and non-domesticated products forms part of this revaluation process, requiring a profound understanding of the environment and the active participation of harvesting communities (Toribio-Tamayo et al., 2024).

Moreover, professional training in gastronomy is no longer centred exclusively on Western or modern techniques, but increasingly incorporates local forms of knowledge with high cultural value. This shift demonstrates that traditional cuisine is not incompatible with modernity, but can actively contribute to contemporary innovation, beginning with the incorporation of ancestral techniques as expressions of authenticity and as means of reconnecting with history and territory (García and López, 2024).

3.3 Social, Economic, and Environmental Impacts of Ancestral Techniques

The results indicate that the integration of ancestral techniques generates significant impacts across three key dimensions. At the social level, these practices strengthen cultural identity, preserve intergenerational knowledge, and reinforce a sense of belonging among communities that act as custodians of this heritage, particularly in rural regions where traditional cooking is transmitted orally and serves as a central axis of social cohesion (Zegarra-Alva et al., 2024).

From an economic perspective, their application facilitates the creation of value-added products linked to local identity, which can be incorporated into tourism circuits, niche markets, or short supply chains. This benefits small-scale producers, reduces dependence on imported or highly industrialised products, promotes circular economy dynamics, and strengthens business models grounded in sustainability (Haid et al., 2024).

At the environmental level, the techniques reviewed offer substantial advantages. Practices such as natural drying, chemical-free fermentation, and cooking with locally sourced materials reduce the use of energy, water, and industrial chemicals. They also encourage the sustainable management of native or wild species and help prevent the overexploitation of cultivated resources. Overall, the evidence suggests that ancestral culinary techniques are not merely acts of cultural preservation, but practical responses to contemporary food system challenges. Their application supports ecological sustainability, reinforces social cohesion, and sustains local economies through circular practices and community-based food production. These findings highlight the capacity of traditional techniques to function as scalable and context-sensitive tools for sustainable gastronomic development (Montesdeoca-Calderón and Gil-Saura, 2023).

3.4 Technical, Ethical, and Cultural Challenges in Integrating Traditional Techniques

Despite their potential, the incorporation of ancestral techniques faces technical, cultural, and ethical barriers that condition their adoption. From a technical standpoint, the lack of standardisation complicates their application in professional kitchens or industrial contexts, as many of these practices depend on climatic conditions, sensory judgement, or the empirical knowledge of the cook, making uniform replication difficult. At the cultural level, persistent negative perceptions associate these practices with "outdated" or "improvised" forms of cooking, limiting their acceptance in contemporary settings. This is compounded by limited professional training in traditional knowledge, which generates gaps in understanding regarding their proper implementation (Brako, 2024).

From an ethical perspective, cultural appropriation represents one of the most critical challenges. The use of ancestral techniques without recognition of the communities that safeguard them entails a loss of meaning, origin, and collective value. As Orozco and Poonamallee (2014) warn, the absence of legal frameworks protecting ancestral knowledge leaves these practices vulnerable to commercial exploitation that disregards their identity and may lead to their distortion or trivialisation. Nevertheless, the reviewed literature also documents cases in which direct collaboration with communities has enabled the development of responsible gastronomic projects grounded in mutual respect and shared benefits (Zakrzewska et al., 2024).

3.5 Connection with SDG 9: Innovation and Sustainable Development

Ancestral culinary techniques align closely with the principles of Sustainable Development Goal 9, which seeks to foster innovation, promote resilient infrastructure, and strengthen sustainable productive systems. These practices, based on efficient resource use, decentralised local economies, and low dependence on industrial inputs, represent forms of appropriate innovation for developing rural territories, generating new ways of creating value without compromising sustainability or cultural identity (Chukwurah et al., 2025).

Practices such as sun drying, natural fermentation, and earth-oven cooking enable food production without reliance on electricity, fuel, or chemical inputs, thereby reinforcing the resilience of food systems. At the same time, their application stimulates local economies, encourages rural entrepreneurship, and strengthens ethical trade circuits. As Kabacık (2024) notes, recovering these techniques not only preserves culinary heritage but also constitutes a concrete pathway towards more humane, responsible, and culturally inclusive food models.

From the perspective of sustainable innovation, these techniques also contribute to strengthening a form of cultural infrastructure that complements the productive infrastructure promoted under SDG 9. Their incorporation into responsible gastronomic policies has enhanced culinary creativity, fostering processes of controlled experimentation, the recovery of forgotten practices, and their adaptation within contemporary proposals supported by sustainable and culturally grounded narratives (Shakya and Vagnarelli, 2024).

4. Conclusion

The aim of this study was to analyse the revaluation of ancestral culinary techniques and their sustainable use within contemporary gastronomy, as well as their practical contribution as tools for cultural and ecological innovation. The findings demonstrate that these practices represent not only living cultural heritage, but also relevant alternatives to current challenges related to climate change, biodiversity loss, food homogenisation, and the growing disconnection between production and consumption. The literature review identified a range of techniques that have been preserved, adapted, or reintroduced in both rural and urban contexts across different regions of the world, highlighting their continued relevance and applicability within contemporary food systems.

Furthermore, the analysis confirms that ancestral techniques generate positive impacts across social, economic, and environmental dimensions by strengthening cultural identity, stimulating local economies, and promoting culinary practices with low ecological impact. Their integration is also closely linked to processes of sustainable innovation aligned with Sustainable Development Goal 9, as they support resilient productive infrastructures, encourage territorial entrepreneurship, and foster culinary creativity grounded in cultural values. In this regard, the study provides a conceptual foundation for understanding these practices as legitimate forms of innovation capable of transforming food systems in ethical, sustainable, and territorially coherent ways.

Nevertheless, the analysis also revealed several limitations that constrain the full integration of ancestral techniques into contemporary gastronomy. These include the lack of technical standardisation, limited scientific documentation, persistent negative perceptions associated with traditional practices, and the risks of cultural appropriation when such techniques are applied without proper recognition of the communities that safeguard them. These barriers highlight the need to promote legal frameworks, educational programmes, and collaborative processes that ensure the responsible and respectful use of ancestral culinary knowledge.

Finally, further interdisciplinary research is recommended to empirically assess the environmental, nutritional, social, and economic impacts of these techniques, as well as to develop applied case studies across diverse territories. Exploring their incorporation into intercultural public policies, sustainable gastronomic initiatives, and circular economy models would contribute to consolidating a more comprehensive and inclusive perspective.

From an academic standpoint, this study contributes to the existing literature by reframing ancestral culinary techniques as legitimate forms of innovation within sustainable gastronomy, rather than as static or nostalgic practices. By integrating perspectives on cultural heritage, sustainability, and innovation, the research offers a conceptual basis for future empirical studies and policy-oriented discussions, particularly in contexts characterised by rich biocultural diversity.

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Ethics Declaration

This study is based on secondary data from published academic literature and did not require ethical approval.

AI Declaration

Artificial intelligence tools were used only to support language editing. The authors are fully responsible for the content of this paper.

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Tourism Transformation, Spatial Justice and Inner Peripheries

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Abstract: Climate change is profoundly reshaping tourism geographies, particularly in mountain regions and inner peripheral areas where historically dominant, climate-sensitive development models are becoming increasingly unstable. While a growing body of literature addresses tourism adaptation through the lenses of sustainability and resilience, less attention has been paid to the role of infrastructure in mediating uneven adaptation processes and their spatial justice implications. This contribution advances a critical, spatially grounded perspective on tourism transformation by conceptualizing infrastructure as a socio-spatial territorial mediator that selectively organizes accessibility, visibility, and investability across territories. Drawing on theories of spatial justice, uneven geographical development, and mobilities, the paper links tourism adaptation to processes of territorial selectivity and peripheralization. Mountain and inner peripheral regions – focusing on the Italian context–are approached as analytical laboratories in which the spatial effects of climate change and adaptation strategies become particularly visible. Historically, selective infrastructural investments oriented toward mass and seasonal tourism have generated strong path dependencies, locking territories into development trajectories increasingly misaligned with evolving climatic and socio-economic conditions. More recent adaptation strategies emphasize slow tourism, soft mobility, and low-impact infrastructures, often framed as inclusive and sustainable alternatives. The paper critically interrogates these narratives, arguing that "soft" infrastructures may function as new spatial filters, producing selective accessibility and symbolic valorization without necessarily redistributing essential services or long-term economic opportunities. To capture this tension, the paper introduces the concept of selective resilience as an analytical category that contributes to ongoing debates on uneven adaptation and spatial justice in tourism geographies. Rather than offering prescriptive solutions, the paper provides analytical tools to interpret how climate change, infrastructure, and tourism intersect in shaping future geographies of accessibility, marginality, and resilience in inner peripheral regions.

Keywords: Tourism Adaptation, Climate Change, Spatial Justice, Inner Peripheries, Selective Infrastructures

1. Introduction

Climate change is increasingly reshaping tourism geographies, challenging development models that have long relied on relatively stable environmental conditions and predictable seasonal patterns. This transformation is particularly evident in mountain regions and inner peripheral areas, where tourism systems have historically depended on climate-sensitive resources and on infrastructural arrangements oriented toward seasonal concentration and functional specialization. In these contexts, climate change acts not merely as an external shock affecting tourist demand, but as a structural force that exposes deeper territorial vulnerabilities embedded in long-term development trajectories (Scott, Gössling, 2022; Njoroge, 2015; Magnani, 2023).

A growing body of literature has addressed tourism adaptation to climate change, focusing on sustainability, resilience, and diversification strategies (Scott, Gössling, 2022; Njoroge, 2015; Xiao et al., 2020). While this research has significantly advanced understanding of sectoral responses to climatic stress, it has often treated space and infrastructure as secondary dimensions. Adaptation is frequently framed as a matter of practices, technologies, or governance instruments, while the infrastructural conditions that shape differential access to adaptation opportunities across territories remain underexplored. As a result, uneven spatial outcomes are often acknowledged but insufficiently theorized (Pathak et al., 2021; Janiszek, Krzysztofik, 2023).

This paper argues that infrastructure represents a critical analytical lens for understanding how climate change reconfigures tourism geographies, particularly in inner peripheral regions. Infrastructure does not simply enable tourism mobility; it actively mediates access, visibility, and investability, functioning as a socio-spatial device that selectively organizes space (Soja, 2010; Dunn et al., 2016, de Andreis, 2025). From this perspective, adaptation is not a neutral or evenly distributed process, but one that unfolds through historically sedimented infrastructural choices and produces differentiated territorial effects.

The concept of inner peripheries is central to this argument. Unlike external or remote margins, inner peripheries are territories located within economically developed regions but characterized by intermittent accessibility, functional dependence, and cumulative forms of marginality (Bock, 2016; Boschma, 2005). Their peripheral status is not given, but produced through long-term processes of selective investment, institutional

prioritization, and infrastructural path dependency. Climate change intensifies these dynamics by destabilizing the environmental and economic assumptions that have historically underpinned tourism-led development strategies in such areas.

Drawing on critical geography and tourism studies, this paper develops a conceptual framework linking tourism adaptation, spatial justice, and territorial selectivity. Rather than presenting original empirical data, the contribution adopts a theoretically grounded and interpretative approach, using mountain and inner peripheral regions–particularly in the Italian context–as analytical fields through which broader spatial dynamics can be critically examined. The framework builds on Soja's notion of spatial justice, Harvey's work on uneven geographical development and selective territorial investment, and insights from mobilities and post-tourism studies (Sheller, Urry, 2006; Urry, Larsen, 2011; Cresswell, 2011; 2012). Within this framework, climate change is understood not only as a driver of changing tourist preferences, but as a process that reorders the spatial logics of tourism systems by redefining which places remain accessible, functional, and symbolically visible.

Mountain and inner peripheral regions provide a particularly revealing analytical field for exploring these dynamics. In many European contexts, and especially in Italy, tourism development has historically been supported through selective infrastructural investments oriented toward mass tourism models, such as ski resorts, road-based accessibility, and mono-functional facilities (Debarbieux, Price, 2008; Scott; Gössling, 2022). These choices have generated strong path dependencies, locking territories into development trajectories that are increasingly misaligned with evolving climatic and socio-economic conditions.

More recently, adaptation strategies have increasingly emphasized slow tourism, soft mobility, and low-impact infrastructures as alternatives to climate-exposed models (Pileri, 2020; Moscarelli, 2021). While often framed as inclusive and sustainable responses, their spatial implications remain ambiguous. Existing research has only partially addressed how such "soft" infrastructures may operate as new forms of spatial filtering, producing selective accessibility and symbolic valorization without necessarily redistributing essential services or economic opportunities in inner peripheral regions.

Against this background, this paper adopts a critical, spatially grounded approach to tourism adaptation. Rather than offering prescriptive policy solutions, it aims to provide analytical tools for interpreting how tourism, infrastructure, and climate change intersect in shaping future geographies of accessibility, marginality, and resilience. By foregrounding inner peripheries and infrastructure as central analytical categories, the paper contributes to ongoing debates on uneven adaptation and spatial justice in tourism systems.

Although grounded in the Italian context, the analytical framework developed here has broader relevance for understanding uneven tourism adaptation in inner peripheral regions across Europe and other climate-sensitive territorial contexts.

2. Conceptual Framework: Tourism Adaptation, Spatial Justice and Territorial Selectivity

To conceptualize the uneven spatial effects of tourism adaptation to climate change, this paper brings together three complementary strands of critical scholarship: spatial justice, uneven geographical development and territorial selectivity, and mobilities-oriented approaches to tourism and infrastructure. Combined, these perspectives allow adaptation to be interpreted not simply as a set of responses to environmental change, but as a spatially differentiated process shaped by historically sedimented infrastructural choices and power relations.

The notion of spatial justice, as developed by Soja (2010), provides a foundational lens for examining how social and economic processes are unevenly distributed across space. Spatial justice emphasizes that inequalities are not only social or economic in nature, but are also produced, maintained, and reproduced through spatial arrangements, institutional decisions, and infrastructural configurations. From this perspective, access–to services, opportunities, and mobility–is a central dimension of justice, and its uneven distribution reflects deeper structural asymmetries. Applied to tourism adaptation, spatial justice invites attention to how climate change responses may redistribute benefits and burdens unevenly, privileging certain territories while leaving others increasingly exposed or excluded.

This spatial perspective is closely connected to Harvey's theorization of uneven geographical development and asymmetric territorial investment (Harvey, 2006). Harvey highlights how capital and public investment do not spread evenly across space, but instead concentrate selectively, producing landscapes of advantage and disadvantage. Infrastructure plays a key role in this process, as it both reflects and reinforces investment priorities over time. In tourism regions, selective infrastructural investment has historically shaped which places

become accessible, profitable, and visible, while others remain peripheral or functionally dependent. Climate change does not interrupt these dynamics; rather, it intensifies them by destabilizing the environmental assumptions that supported earlier rounds of asymmetric investment.

Within this framework, territorial selectivity refers to the systemic tendency through which certain areas are rendered more accessible, investable, and narratively central within tourism systems, while others are characterized by intermittent accessibility, weak service provision, and limited adaptive capacity. Selectivity is not understood as the outcome of isolated policy choices, but as the cumulative effect of long-term infrastructural trajectories, institutional priorities, and governance arrangements. Inner peripheral regions are particularly exposed to these dynamics, as their marginality is often produced not by remoteness alone, but by their relative position within broader spatial systems (Boschma, 2005; Bock, 2016).

A further contribution to the conceptual framework comes from mobilities and post-tourism studies, which have emphasized the role of movement, infrastructure, and representation in shaping spatial experience (Sheller, Urry, 2006; Cresswell, 2011; 2012; Urry, Larsen, 2011). From this perspective, mobility is not a neutral flow but a socially organized practice structured by infrastructures, norms, and imaginaries. Tourism infrastructures–whether large-scale facilities or diffuse networks–do not merely enable movement; they actively configure routes, thresholds, and points of access, shaping what can be seen, reached, and experienced.

This insight is particularly relevant in the context of climate adaptation, where a shift from concentrated, climate-sensitive infrastructures toward diffuse and "soft" infrastructures is increasingly promoted. Walking paths, cycling routes, trail networks, and micro-equipment are often framed as low-impact and inclusive alternatives. However, mobilities research suggests that such infrastructures can also function as filters, producing new hierarchies of access and visibility by privileging certain routes, landscapes, and forms of use over others. In this sense, adaptation strategies centered on slowness and soft mobility may reorganize tourism geographies without necessarily addressing underlying territorial inequalities (Romeo et al., 2025).

Bringing these strands together, this paper conceptualizes tourism adaptation as a spatially differentiated process, mediated by infrastructure and shaped by path dependency. Infrastructure is understood not simply as a technical support, but as a socio-spatial structuring element that structures access, conditions feasibility, and stabilizes certain development trajectories while constraining others. Adaptation, therefore, is not only about adjusting practices to climatic change, but about negotiating inherited spatial arrangements that unevenly distribute adaptive capacity (Darcy, Dickson, 2009).

This framework allows for a critical interrogation of adaptation narratives that emphasize resilience without addressing questions of justice and redistribution. In particular, it foregrounds the risk of selective resilience, whereby some territories succeed in repositioning themselves within evolving tourism systems, while others remain marginal due to persistent infrastructural and institutional constraints. By focusing on inner peripheral regions, the framework highlights how climate change interacts with long-standing processes of peripheralization, making visible the spatial consequences of adaptation choices.

The following section applies this conceptual framework to mountain and inner peripheral regions, examining how climate vulnerability, infrastructural path dependency, and territorial selectivity intersect in shaping tourism development trajectories. Italian mountain areas are approached as an empirical field through which these dynamics can be critically explored.

3. From Conceptual Framework to Empirical Focus

Building on this conceptual framework, the paper now turns to mountain and inner peripheral regions as a privileged empirical field through which the spatial effects of tourism adaptation can be examined. If infrastructure operates as a socio-spatial device shaping access, visibility, and adaptive capacity, then territories characterized by long-standing infrastructural selectivity and path dependency offer particularly revealing conditions for analysis.

Mountain and inner peripheral areas are not approached here as marginal by nature, but as spaces in which processes of peripheralization, differentiated investment, and uneven accessibility become especially visible under conditions of climate change. Their exposure to climatic variability, combined with historically sedimented tourism infrastructures, allows for a critical observation of how adaptation unfolds through inherited spatial arrangements rather than through neutral or evenly distributed adjustments.

From this perspective, focusing on Italian mountain regions enables an examination of how climate vulnerability

intersects with territorial selectivity, producing differentiated trajectories of tourism transformation. The following section therefore situates these territories within broader dynamics of infrastructural lock-in, peripheralization, and adaptive reconfiguration, providing the empirical grounding for the analytical arguments developed above.

4. Why Focus on Mountain and Inner Peripheral Areas

Mountain areas and inner peripheral territories represent a particularly revealing empirical field for observing how climate change is reshaping tourism geographies. In these contexts, vulnerability cannot be reduced to environmental or biophysical factors alone; rather, it takes on a more complex and layered character. It is also territorial, economic, and institutional, as it intersects with local economies that are often strongly dependent on consolidated seasonal models and with infrastructural arrangements shaped by selective decisions accumulated over time. Climate change thus intervenes in already fragile structures, amplifying pre-existing tensions and making visible the growing misalignment between emerging environmental conditions and inherited development trajectories.

Within this framework, climate change does not operate merely as a factor that "changes visitors' preferences" or reduces the reliability of key resources–most notably snow–but rather as a structural force that reconfigures conditions of accessibility, economic attractiveness, and symbolic visibility within tourism systems. Some territories gradually become less practicable or less investable, while others are able to maintain or renegotiate their position through uneven forms of adaptation (Scott, Gössling, 2022; Magnani, 2023). The literature on tourism adaptation clearly shows that these processes are far from neutral: they depend on local capacities, available resources, past development trajectories, material constraints, and governance arrangements, and they therefore produce differentiated–and often unequal–spatial outcomes (Njoroge, 2015; Scott, Gössling, 2022). In winter tourism, for example, perceptions, strategies, and adaptation practices vary significantly across territories and user groups, reflecting–and in some cases reinforcing–existing asymmetries in terms of infrastructure, access to capital, and adaptive capacity (Xiao et al., 2020).

It is in this sense that Italian mountain regions can be understood as a genuine "laboratory of peripheralization": not because they represent a natural or residual margin, nor because they are intrinsically disadvantaged, but because they make particularly visible the ways in which climatic vulnerability and territorial selectivity intertwine and reinforce one another. Peripheralization is not treated here as a given condition, but rather as the outcome of historical and institutional processes that have progressively differentiated access to resources, services, and development opportunities.

From this perspective, territorial selectivity can be understood as a systemic tendency to concentrate public and private investments, infrastructures, and access devices on only certain portions of space, rendering them "convenient," functional, and visible within dominant economic and tourism circuits. Other areas, although located within the same geographical context, remain characterized by intermittent forms of accessibility, strong functional dependence on external poles, and conditions of cumulative fragility, where environmental, economic, and social vulnerabilities overlap. Mountain regions allow these mechanisms to be observed with particular clarity, precisely because their climatic exposure amplifies the long-term effects of selective infrastructural choices.

In the Italian mountain context, such selectivity has historically translated into infrastructural and organizational arrangements strongly oriented toward relatively rigid and climate-sensitive tourism development models. The centrality of ski resorts and related facilities, the priority given to road-based accessibility, and the construction of equipment and services designed to sustain intense seasonal peaks and highly concentrated patterns of consumption have contributed to shaping local economies that are deeply dependent on specific environmental conditions and tightly synchronized tourist flows. Over time, this model has produced strong functional specialization in some places and, in parallel, the marginalization of others that are less compatible with the logics of seasonality and concentration.

These choices have generated strong path dependencies and forms of infrastructural and institutional lock-in that today appear increasingly misaligned with rapidly changing climatic conditions and with broader socio-economic transformations affecting inner and mountain areas (Scott, Gössling, 2022; Magnani, 2023). The declining reliability of climatic conditions–particularly in ski-based contexts–does not simply result in a sectoral crisis, but calls into question the entire set of decisions that have made certain territories highly dependent on a single development trajectory.

The issue, therefore, is not to schematically oppose an "old tourism" to a "new tourism," nor to suggest a linear substitution of models. Rather, the aim is to clarify how infrastructures–both material and institutional–have functioned and continue to function as socio-spatial devices that unevenly distribute opportunities and vulnerabilities. They do not merely support specific tourism uses, but actively shape which forms of adaptation are feasible and which, by contrast, become structurally difficult or even impracticable. In this sense, Italian mountain regions offer a privileged observatory for understanding how adaptation to climate change is not played out solely at the level of practices or tourist preferences, but at the deeper level of infrastructural trajectories and territorial selection mechanisms that underpin them.

5. Slow Tourism and "Soft" Infrastructures: a Change of Model or a new Form of Selection?

As tourism systems shift away from climate-exposed–and increasingly unstable–models toward adaptation strategies framed as sustainable and resilient, a significant share of recent policies and practices has converged on slow tourism, soft mobility, and low-impact infrastructures. Walking routes, cycling paths, greenways, trail networks, signage, micro-equipment, and rest areas are progressively promoted as alternatives capable of reducing tourism's environmental footprint while offering new forms of engagement compatible with fragile territorial contexts. This shift can also be understood in light of the so-called mobility turn, which has contributed to framing mobility not merely as functional movement but as a structuring dimension of social and territorial experience (Sheller, Urry, 2006), as well as through reflections on the tourist gaze, which highlight how the visibility, desirability, and recognizability of places are constructed through cultural, narrative, and infrastructural devices (Urry, Larsen, 2011).

From a territorial perspective, slow mobilities are often valued as immersive practices capable of strengthening relationships with the landscape, supporting processes of territorial education and narration, and offering modes of use considered more compatible with environmentally and socially sensitive contexts (De Vecchis, 2014; Castiglioni et al., 2020; Pileri, 2020; Paragano, Vincenti, 2021). Moreover, if marginality is understood as a relational rather than purely physical condition, these networks can be interpreted as attempts to reconnect proximities and link places, potentially mitigating some historically entrenched territorial asymmetries (Bock, 2016; Boschma, 2005; Moscarelli, 2021).

At this point, however, the issue becomes more complex, particularly in relation to the conceptual framework outlined in the abstract. "Soft" infrastructures are neither automatically inclusive nor intrinsically redistributive. Precisely because they operate through routes, thresholds, nodes, and minimum conditions of access, they can become new spatial filters, selecting what becomes accessible, practicable, and above all "narratable," while leaving other areas outside the geographies of valorization. On the one hand, slow routes may render previously overlooked places visible again; on the other, they may produce subtle yet effective hierarchies between territories that are crossed and those that are excluded, between nodes equipped with basic services and areas lacking the conditions required for use, and between landscape portions easily convertible into experience and others that remain marginal because they are incompatible with dominant imaginaries or local organizational capacities (Moscarelli, 2020; Moscarelli et al., 2022).

From this perspective, the main risk is not tourism development per se, but rather a selective form of valorization that generates symbolic capital and passing micro-economies without addressing the structural factors underpinning territorial inequality: access to essential services, less intermittent economic opportunities, and stable–rather than episodic – conditions of accessibility. Slowness may thus become a powerful register of territorial narration and legitimation, without automatically translating into redistribution or spatial rebalancing.

For this reason, rather than assuming slow tourism as an inherently virtuous solution or as a natural endpoint of climate adaptation, it is analytically more productive to treat it as a field of tension. A field in which processes of territorial reconnection coexist with practices of spatial selection, producing ambivalent effects on geographies of accessibility. Light infrastructures do not simply "reduce impact," but actively contribute to redefining which places become traversable, investable, and symbolically recognizable within contemporary tourism systems. In this sense, the apparent expansion of opportunities for use may go hand in hand with a new hierarchization of routes, where access is no longer determined by large mono-functional infrastructures, but by a territory's capacity to insert itself into selective networks of mobility, narration, and service provision.

The shift from concentrated infrastructural devices–typical of seasonal and climate-exposed tourism models–to diffuse networks does not necessarily imply a democratization of access. On the contrary, it may produce more

subtle forms of territorial selectivity, based on less visible yet equally effective criteria: continuity of routes, minimum service provision, management and maintenance capacity, and compatibility with specific imaginaries of use. Within this framework, adaptation to climate change risks translating into an unequal reorganization of opportunities, in which some territories succeed in reconfiguring themselves as attractive nodes within the new geographies of slowness, while others remain marginal due to the lack of material and institutional conditions required for stable accessibility.

From this standpoint, the central issue is not the sustainability of practices per se, but rather the transformations in geographies of accessibility and investability that accompany the shift in infrastructural paradigms. When adaptation moves from large facilities to diffuse networks, what changes is not only the scale of intervention, but also the way visibility, resources, and development expectations are distributed. Some places become traversable but not habitable, visible but not structurally supported, symbolically valorized without any corresponding strengthening of territorial resilience. In such cases, slowness functions more as a selective device than as an instrument of rebalancing.

It is precisely here that the notion of resilience takes on a meaning that cannot be reduced to the simple capacity to absorb the shock of climate change. When understood in a transformative sense, resilience refers to the possibility of unlocking development trajectories that are rigidly dependent on climatically misaligned models, by questioning the infrastructural, economic, and symbolic assumptions that sustain them. However, when adaptation is limited to reorienting modes of use without addressing the deeper structures of territorial inequality, the risk is that of differentiated resilience: effective for some places and insufficient for others, capable of ensuring continuity of flows without necessarily transforming the conditions that produce cumulative vulnerability (Scott, Gössling, 2022; Njoroge, 2015; Mitchell, 2003).

From this perspective, interrogating slow tourism ultimately means asking who benefits from adaptation, under what conditions, and with what long-term effects on the geographies of marginality and access. This does not imply denying its potential, but rather situating it within a critical reading of infrastructures as socio-spatial devices that, even when "light," contribute to selecting territories, ordering priorities, and defining what can–and cannot–become resilient in a context of structural climate change.

6. Conclusions: Adaptation, Infrastructure and Selective Resilience

Tourism adaptation to climate change cannot be adequately understood without a spatially grounded analysis of infrastructure and territorial selectivity. Moving beyond sectoral or practice-oriented approaches, adaptation emerges as a process shaped by historically sedimented infrastructural trajectories, uneven investment patterns, and differentiated conditions of accessibility. Climate change thus appears not only as an environmental stressor, but as a structural force that reorders tourism geographies by redefining which places remain accessible, investable, and symbolically visible within tourism systems.

Mountain and inner peripheral regions highlight these dynamics with particular clarity. These territories are not marginal by nature, but have been progressively shaped by asymmetric infrastructural choices that privileged specific development models–most notably seasonal and climate-sensitive forms of tourism–while constraining alternative trajectories. Under conditions of climatic instability, such inherited configurations reveal their limits, exposing the vulnerability of development paths increasingly misaligned with evolving environmental and socio-economic conditions. In this sense, inner peripheries function as critical frontiers where the spatial consequences of adaptation become especially visible.

The growing emphasis on slow tourism and soft infrastructures as adaptive responses to climate change exemplifies the ambivalence of contemporary transformation strategies. Although frequently framed as inclusive and sustainable alternatives, these approaches do not automatically translate into spatial redistribution. Light infrastructures can operate as socio-spatial filters, selectively organizing routes, nodes, and thresholds of access, and producing new hierarchies of visibility and valorization. Symbolic recognition and episodic micro-economies may thus emerge without addressing deeper structural inequalities related to service provision, economic continuity, and stable accessibility.

To capture this tension, the notion of selective resilience proves particularly useful. Selective resilience refers to forms of adaptation that enable certain territories to reposition themselves within changing tourism systems, while others remain exposed to cumulative vulnerability due to persistent infrastructural and institutional constraints. From a spatial justice perspective, resilience cannot be evaluated solely in terms of continuity or recovery, but must be assessed in relation to how adaptive capacity, resources, and opportunities are unevenly

distributed across space.

By foregrounding infrastructure as a socio-spatial spatial mechanism, tourism adaptation can be reframed as a question of spatial justice rather than as a purely managerial or environmental challenge. Infrastructure actively shapes territorial futures by stabilizing certain imaginaries of development while foreclosing others, mediating access to mobility, investment, and symbolic recognition. This perspective allows for a critical reading of adaptation strategies that prioritize visibility and circulation without addressing the structural conditions that underpin long-term marginality.

The analytical framework developed here contributes to broader debates on uneven adaptation by integrating spatial justice, territorial selectivity, and mobilities perspectives into the analysis of tourism transformation. It provides a conceptual framework for interpreting how climate change interacts with infrastructural path dependency. Rather than advancing prescriptive solutions, the focus remains on understanding the spatial effects of adaptation processes and the conditions under which they reproduce or challenge existing inequalities.

Future research could extend this approach to other inner peripheral contexts, including rural hinterlands, post-industrial regions, or climate-exposed coastal interiors, in order to further explore how infrastructural trajectories shape adaptive capacity across different territorial settings. Such comparative perspectives would deepen understanding of how adaptation, accessibility, and justice intersect in diverse spatial configurations.

Ultimately, adaptation to climate change in tourism should be understood as a deeply spatial process that reorganizes access, visibility, and opportunity. Without confronting the infrastructural and territorial conditions through which adaptation operates, responses to climate change risk reinforcing selective resilience rather than enabling genuinely transformative and spatially just territorial futures.

Ethics Declaration

This study is based exclusively on secondary data and academic literature. It did not involve the collection of primary data, human participants, personal data, or sensitive information. Therefore, ethical clearance was not required for the research referred to in this paper.

AI Declaration

An artificial intelligence tool was used exclusively for linguistic proofreading purposes. Specifically, the tool was employed to improve the clarity, grammar, and stylistic consistency of the English language. The AI did not contribute to the conceptual development, data analysis, interpretation of results, or formulation of original arguments. All scientific content, interpretations, and conclusions remain the sole responsibility of the author.

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Fashion, Futurity and Cultural Narratives: Virtual Influencer Kim Zulu in Cultural Tourism Marketing

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Abstract: This study investigates how narratives about South African virtual influencer Kim Zulu in media coverage position fashion as a part of cultural tourism marketing. A qualitative research design and an interpretive worldview were adopted to analyse media articles published between 2020 and 2025. The analysis was conducted with Voyant Tools for topic modelling using the Latent Dirichlet Allocation (LDA) algorithm, cluster analysis and interpretive reading of the corpus supported by three theoretical lenses, namely cultural tourism, Destination Image Theory and Afrofuturism. The results indicate that fashion is not presented in isolation when reporting on Kim Zulu in media coverage. Rather fashion links to culture, futurity, and destination branding that strengthens South Africa's visibility and appeal in the global tourism market. The paper adds to the literature on cultural tourism marketing, digital culture, and virtual influencer marketing while adding to research on digital cultural tourism in the Global South.

Keywords: Cultural Tourism Marketing, Destination Image Theory, Fashion, Afrofuturism, Virtual Influencer

1. Introduction

According to recent statistics, African tourism is on the rise. The UN Tourism World Tourism Barometer (May 2025) indicates that Africa's international arrivals increased by 9% in the first quarter of 2025, outperforming Europe, the Americas, and the Middle East. Interestingly, Africa outpaced pre-pandemic estimates by 16%, reflecting a demand in tourism despite global challenges such as the COVID-19 pandemic and rising cost of living (UN Tourism, 2025). While the rise in tourism in Africa presents numerous opportunities for marketers in the tourism and hospitality sector to promote destinations, tourism marketing today extends beyond promoting destinations but also involves creating meaningful visitor experiences (Geng et al., 2024). Like its global counterparts, tourism marketing in Africa has become more digital because of technologies presenting more marketing opportunities (Mkwizu, 2019). Yet, studies indicate that many African tourism organisations still underuse digital tools, particularly those that showcase cultural identity through online storytelling (Abate, 2024).

In this context, the case of Kim Zulu, South Africa's first virtual influencer, provides an opportunity to examine cultural tourism branding in the digital age. Kim Zulu is a South African black virtual influencer created by The Avatar Company in 2020 and known for her presence in global fashion events with a model collection that represents the concept of Afrofuturism (see Sinwamali, 2020). As a cultural movement Afrofuturism combines aspects of science fiction, fantasy, and African heritage to envision different futures for people of African origin (Womack, 2013).

Destination branding provides a conceptual lens for this approach and refers to the strategic development of distinctive perceptions of a place that attract tourists through a coherent brand identity (Ruiz-Real et al., 2020). Brand identity and image interact, namely while identity reflects how marketers define and communicate a destination's uniqueness, image represents how audiences perceive it (Crompton, 1979; Zuo et al., 2023). Recent work shows that immersive digital technologies and virtual influencers can facilitate brand perceptions by integrating narratives, interactivity, and authenticity (Ezzatian et al., 2025). However, most destination branding research focuses on the Global North, with African perspectives underrepresented (Makumbi & du Preez, 2024).

Consequently, this study examines how media narratives about Kim Zulu represent culture through fashion and how such representations contribute to cultural tourism in the digital environment. It is argued that these narratives inform destination branding, portraying South Africa as an established cultural tourism destination. Consequently, this study attempts to answer the following research question: How do the media narratives about virtual influencer Kim Zulu position fashion as part of cultural tourism marketing?

In doing so, a qualitative research design and an interpretive viewpoint were adopted to analyse media articles about Kim Zulu published between 2020 and 2025. The analysis was conducted with Voyant Tools for topic modelling using the Latent Dirichlet Allocation (LDA) algorithm, cluster analysis and interpretive reading of the corpus supported by three theoretical lenses, namely cultural tourism, Destination Image Theory and

Afrofuturism. The paper is structured as follows: First E-tourism and hospitality marketing are discussed, followed by digital culture and cultural tourism, influencer marketing, virtual influencers and the destination image theory. Thereafter the methodology and findings are discussed. The paper ends with a discussion of the findings and conclusion.

2. Literature Review

2.1 E-Tourism and Hospitality Marketing

Due to the advancement of technologies, tourism and hospitality marketers have adopted numerous digital marketing tools to reach a wider target audience. These tools include but are not limited to traditional digital tools (SEO), social media, email, content marketing) emerging technologies, such as artificial intelligence (AI), virtual reality (VR), augmented reality (AR) and chatbots. In addition to these tools, interactivity and data-driven customisation are important considerations to influence travellers' intention and the image of the destination (Elrayah & Alshiha, 2024).

Similarly, Calisto and Sarkar (2024) point out that new technologies such as VR, AR, AI, and meta-universes can make tourism and hospitality marketing more effective due to immersive experiences. Catala Consulting (2025) adds that social media and influencer marketing (including nano-influencers), voice search optimisation, smart marketing automation, online booking platforms, and data-driven marketing strategies can personalise traveller experiences and create relationships between clients and tourism and hospitality organisations. In this regard, Gidumal et al.'s (2024) study found that AI will lead to mass personalisation and customisation in the tourism and hospitality sector, but also questions whether consumers will accept what they refer to as "hyper-personalization." Nonetheless, the use of technologies in the metaverse to enhance traveller experiences presents a notable development in the tourism and hospitality sector, not only globally but also in the African context.

2.2 Digital Culture and Cultural Tourism

Despite COVID-19 affecting cultural tourism, more recently it has become one of the fastest-growing segments of the tourism industry, especially when marketing destinations (Future Market Insights, 2025). How the cultural tourism sector has digitally transformed because of emerging metaverse technologies also contributed to how cultural heritage is interpreted (Shehade & Stylianou-Lambert, 2020). While culture and tourism have always been connected, more recent perspectives refer to cultural tourism as also including aspects such as creativity, lifestyle, and everyday culture, not only sites and monuments (Richards, 2018). This change of perspective is evident in the perspective of cultural tourism by the World Tourism Organisation (UNWTO, 2017) that states that travel is motivated by the desire to experience and engage with a destination's cultural expressions (both tangible and intangible) such as its art, heritage, cuisine, music, traditions, and ways of life. The UNWTO's (2018) report also indicates that cultural tourism has become broader and more inclusive of diverse cultural practices, with less emphasis on Western heritage. For this study, it is significant that the *World Tourism Organization and Università della Svizzera italiana* report (2025) highlights the connection between fashion and cultural tourism in that fashion enhances cultural expression, attracts visitors, and strengthens destination branding by promoting cultural heritage.

Cultural tourism benefits from digital tools that integrate technologies changing how cultural expression is accessed, shared, and marketed with visitors engaging with culture either remotely or online (Satiti & Udin,2025). Digital culture can thus also enhance cultural tourism through virtual and augmented reality experiences, mobile applications and interactive platforms, making cultural experiences more accessible through global reach and visitor engagement. It can thus be argued that fashion expression through technologies not only enhances cultural tourism experiences but also redefines how heritage and creativity are communicated to global audiences. Using digital tools such as virtual reality, augmented reality, and immersive media, fashion can act as both a cultural artefact and an interactive platform since they enable tourists to experience cultural traditions in new ways while contributing to sustainable destination branding (*World Tourism Organization & Università della Svizzera italiana*, 2025).

2.3 Influencer Marketing in Tourism

Influencer marketing is "a marketing tactic in which advertisers or brands use social media influencers (SMIs) to promote their products, brands, or ideas and convey a brand message to a wider audience through native

advertising or product placement in the content shared by SMIs" (Polat et al., 2024, p322). It draws on aspects such as credibility, expertise, authenticity, popularity, and reputation to communicate brand messages through social media channels, which influence how other users respond and make purchasing decision (Buyn & Ahn, 2023). Due to its enormous potential to provide authentic information about destinations to a wide audience on social media, influencer marketing has also impacted the tourism industry. As a result, social media influencers have increasingly been used by tourism organisations to attract visitors to destinations (Femenia-Serra, & Gretzel, 2020). Social media influencers are classified by how many followers they have on social media, namely micro (between 10 000 and 100 000), macro (between 100 000 and one million) and mega (more than one million) (Hernández-Méndez & Baute-Díaz, 2023). Polat et al's (2024) bibliometric analysis emphasises the need for more research on emerging technologies like the metaverse, virtual influencers, and AI-driven marketing in tourism marketing.

Human influencers have extended into virtual influencers, who have become a trend in marketing, including tourism marketing. According to Byun and Ahn (2023, p.293), virtual influencers are "computer-generated characters that serve as influencers, offer novel and cost-effective advertising strategies." They have a social media presence and can do the same as human influencers, namely, post about their lives, such as travelling, portraying fashion or other daily activities while promoting a travel brand, whom consumers can perceive as authentic and credible (Byun & Ahn, 2023; Guthrie, 2020). Virtual influencers can also convey culture and knowledge about a destination (Bassano et al., 2019). Despite the increasing popularity of virtual influencers, human influencers remain important for destination marketing because they generate more credibility, connection, and behavioural intention (Hernández-Méndez et al., 2024). However, Byun and Ahn (2023) suggest that virtual influencers also have several advantages. For example, they can be fully controlled, easily scaled across markets, and are not involved in personal controversies or scandals. These characteristics make them appealing for use in cultural tourism.

Virtual influencers are more prominent in the fashion sector, where they act as models, ambassadors, and brand storytellers (Byun & Ahn, 2023). Since fashion is a cultural product, these virtual influencers also participate in cultural representation and cultural tourism marketing. In this regard Shin and Lee's (2023) work shows that virtual influencers can mediate between fashion and cultural tourism and that destinations can be positioned through digital cultural narratives. Rossi and Revitti's (2023) work have put forward virtual influencers involved in fashion as an innovative marketing tool that can complement virtual influencer marketing. In the case of Kim Zulu, this kind of mediation takes on am Afrofuturist character. With her futuristic styling, she draws directly from Afrofuturist traditions that blend African cultural heritage with imaginary, forward-facing narratives (Womack, 2013).

2.4 Destination Branding and Destination Image Theory

Cultural tourism is linked to the concept of destination branding which is a strategic process of creating positive perceptions of a place among potential tourists via a distinct brand identity to attract them to visit (Ruiz-Real et al., 2020). A distinctive brand identity in tourism marketing allows tourists to identify the place they wish to visit, with culture often serving as the most distinctive sign of identity (Escobar-Farfán et al., 2024).

Recent literature argues that brand identity is also mediated through immersive technologies, including the metaverse, which create an opportunity for tourism marketers to integrate cultural narratives into destination branding efforts (Ezzatian et al., 2025). In this regard, this study positions Kim Zulu as a means of communicating South Africa's cultural identity in cultural tourism marketing by also blending Afrofuturist elements with fashion.

While brand identity reflects how destinations strategically define and communicate their uniqueness, destination image theory helps explain how these messages are perceived, interpreted, and internalised by tourists. Crompton's (1979) seminal definition defines destination image "as the sum of beliefs, ideas and impressions that a person has of a destination." Destination image theory explains how cognitive perceptions (knowledge and beliefs about a place) and affective responses (emotions and feelings toward it) combine to inform tourists' overall impression of a destination, which in turn impacts their behavioural intentions of visiting the destination. It also includes two dimensions, namely projected image and perceived image. In tourism studies, the image that Destination Marketing Organisations (DMOs) deliberately construct and disseminate through media channels is referred to as the projected image, while the impressions, beliefs, and emotions that tourists or potential tourists form about a place constitute the perceived image (Zuo et al., 2023). In destination image theory, cultural aspects influence both cognitive and affective perceptions of a location (Zhou et al., 2024).

3. Methodology

A qualitative research design with an interpretive research paradigm was adopted to explore how media narratives about virtual influencer Kim Zulu position fashion as part of cultural tourism marketing. An interpretative worldview was appropriate to understand the social phenomenon of a virtual influencer involved in fashion and its potential for cultural tourism marketing, as evident in the data (Croucher & Cronn-Mills, 2024). Since Kim Zulu's social media presence consists of visuals that limited textual analysis, it was deemed appropriate to analyse media coverage spanning 2020 to 2025 through topic modelling, cluster analysis and a close reading of the corpus. Unlike visuals on social media, media coverage could provide narrative framing of Kim Zulu's social media activities using words that could be studied (Zaklama, 2025; Geise & Xu, 2024). Furthermore, news articles circulate widely on platforms such as Facebook and X and are thus part of the social media ecosystem (Elliott, 2025). News articles were identified with a purposive sample through online searches using combinations of keywords such as Kim Zulu South Africa, virtual influencer South Africa and virtual influencers fashion. The inclusion criteria were as follows: 1) the articles were required to mention Kim Zulu and 2) the publication date had to fall within the period 2020 (since her launch) to 2025 (latest media coverage). A purposive sample was best suited for this study to find media coverage about Kim Zulu to answer the study's research question because the selected articles had to meet the inclusion criteria (Emmell, 2013).

The selected articles were collated into a corpus for analysis by following different steps. Articles were first manually retrieved and converted into text in Word document format. Thereafter advertisements, images and unrelated links were removed. After data cleaning, the size of the final corpus included 16 815 total words and 2 861 unique word forms.

The corpus was imported into Voyant Tools, a free, web-based and widely used text analysis platform to analyse digital text (Hetenyi, Lengyel, & Szilasi, 2019) and proceeded in two phases.

During phase 1, the topics tool was used to retrieve a cluster of words taken from the first 1000 words. Clusters of recurrent terms and co-occurring concepts were important since they highlight latent discursive structures. Voyant Tools uses the Latent Dirichlet Allocation (LDA) algorithm to group terms into clusters (or topics) that frequently appear together across the articles (Blei, Ng, & Jordan, 2003). The topic modelling tool was used to identify thematic clusters whereafter correlation analysis was performed to identify pairs of words whose occurrence patterns were statistically associated across the corpus (see Table 1). The second stage involved close reading of the corpus using the concordance and visualisation tools to interpret the thematic clusters through relevant theoretical lenses, namely destination branding, Afrofuturism, digital culture, cultural tourism and destination image theory. This interpretive phase thus also included reading the context and understanding the meaning of the computational outputs.

4. Results

After analysis five thematic clusters emerged supported by topic modelling results and correlation analysis. Topic modelling identified the main terms within each theme, the probabilities generated by the LDA algorithm (indicating the importance of each word in defining the topic), and the percentage coverage in the corpus (showing the prevalence of each theme in the corpus). Correlation analysis complemented these results by identifying pairs of words whose occurrence patterns were statistically associated across the corpus and were linked to the theory.

Table 1: Thematic clusters supported by topic modelling and correlation analysis and theory

Thematic Cluster	Topic Modelling (top terms, probability and coverage %)	Correlation Pair (Coefficient)	Theory
Fashion and brand identity	fashion (0.087), brand (0.075), ambassador (0.063), identity (0.059) Coverage: 22%	Boundaries ↔ Fashion (0.887)	Destination branding

Thematic Cluster	Topic Modelling (top terms, probability and coverage %)	Correlation Pair (Coefficient)	Theory
Africa and digital innovation	Africa (0.092), future (0.081), digital (0.077), innovation (0.072) Coverage: 18%	Africans ↔ Afrofuturism (0.895); Digital ↔ Fashion (0.847)	Afrofuturism and digital culture
Tourism and destination marketing	destination (0.095), tourism (0.082), marketing (0.074), culture (0.068) Coverage: 21%	Marketing ↔ Destination (0.913); Brands ↔ Destination (0.884)	Destination Image Theory
Global events and partnerships	event (0.088), New York Fashion week (0.071), Mercedes (0.066), company (0.062) Coverage: 16%	Connections ↔ Destination (0.885)	Cultural tourism Destination Image Theory
Positive appeal	appealing (0.083), benefit (0.069), entertaining (0.064), fans (0.059) Coverage: 23%	Appeal ↔ Marketing (0.879); Great ↔ Marketing (0.803)	Affective branding

The thematic clusters are as follows:

4.1 Fashion and Brand Identity

Topic modelling revealed key terms such as *fashion, brand, ambassadorship, and identity* that made up 22% of the overall corpus. Notably, fashion showed a strong correlation with the concept of boundaries (r = 0.887), indicating that Kim Zulu is often depicted as someone who transcends cultural divides while representing African identity within global cultural contexts. In this regard the media portrays Kim Zulu as a cultural ambassador whose look (bald head, dark skin, Afrocentric features) communicates authenticity.

This theme also links to destination branding, where fashion emerges as a distinctive cultural indicator that links her fashion style to national brand identity (Makumbi & du Preez, 2024; Escobar-Farfán et al., 2024). This theme thus supports Rossi and Revitti's (2023) view that virtual influencers can serve as creative brand storytellers in a fashion environment.

4.2 Africa and Digital Innovation

Topic modelling highlighted key terms like *Africa*, *future*, *digital*, and *innovation*, which together accounted for 18% of the corpus. Correlation shows strong associations between *Africans* and *Afrofuturism* (r = 0.895), as well as between *digital* and *fashion* (r = 0.847). This theme indicates that Kim Zulu is portrayed as blending cultural heritage with a sense of futurity aligning with how Afrofuturism is theorised by Womack (2013) and Eshun (2003). This positioning also strengthens the idea of digital culture in culture tourism by presenting South Africa as not only rooted in African traditions but also aligned with digital innovation.

4.3 Tourism and Destination Marketing

Topic modelling revealed key terms such as *destination*, *tourism*, and *marketing* accounting for 21% of the corpus. Notably, strong correlations emerged between *marketing* and *destination* (r = 0.913), as well as between *brands* and *destination* (r = 0.884). This theme emphasises the integration of fashion within tourism marketing efforts in that fashion becomes part of the symbolic resources used to construct a destination's identity. Media narratives link Kim Zulu's fashion presence with tourism marketing suggesting that cultural style is not presented in isolation, but as a resource through which South Africa's attractiveness as a destination is represented. The results also align with Destination Image Theory which highlights how projected images inform tourists' cognitive and affective perceptions of a place (Crompton, 1979; Stylidis, Shani, & Belhassen, 2017).

4.4 Global Events and Partnerships

Topic modelling revealed key terms such as *event*, *NYFW*, *Mercedes*, and *company*, accounting for 16% of the overall content. Correlations confirmed strong links between *connections* and *destination* (r = 0.885), illustrating how media narratives situate Kim Zulu within global cultural industries while reinforcing destination identity. Fashion events in which Kim Zulu participates connect South Africa to global visibility and in doing so, strengthen the connection between culture and tourism. This theme thus reinforces the relevance of cultural tourism in that international fashion events and global partnerships with brands function as symbolic ways through which South African culture is portrayed to global audiences (World Tourism Organization & Università della Svizzera italiana, 2025). This theme also aligns with Destination Image Theory in that cultural associations formed in a global context contribute to both the projected and perceived images of a place (Crompton, 1979; Stylidis, Shani, & Belhassen, 2017).

4.5 Positive Appeal

Topic modelling identified key terms such as *appealing*, *benefit*, and *entertaining* accounting for 23% coverage of the corpus. Correlations linked *appeal* and *marketin*g [r=0.879] and *great* and *marketing [*r=0.803]. This unexpected cluster shows that media narratives are affectively portraying Kim Zulu's campaigns as engaging and attractive. This theme resonates with Fedeli and Cheng's (2022) caution that influencer marketing can blur the line between authenticity and persuasion, but at the same time it also puts forward the idea of affective branding in enhancing loyalty towards a tourist destination. Figure 1 below depicts how the results link fashion and cultural tourism which is further explored in the discussion section.

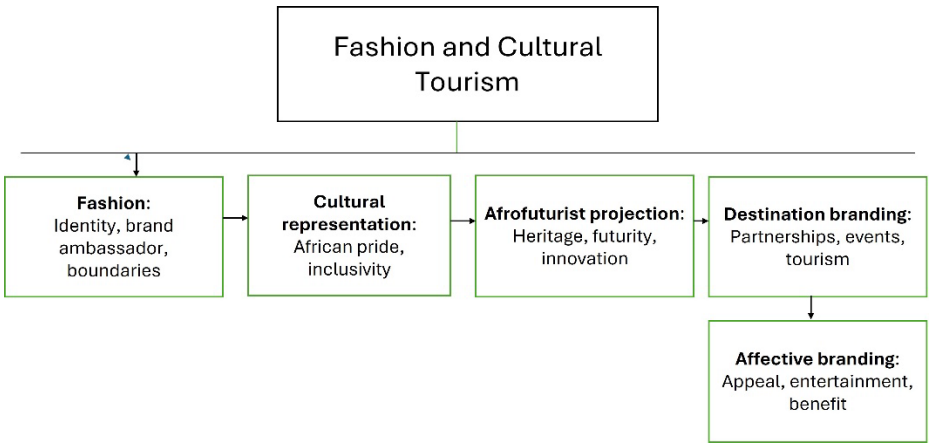


Figure 1: How fashion and cultural tourism are linked based on the results.

5. Discussion

Using topic modelling and correlation analysis with Voyant Tools, the study explores how the media narratives about virtual influencer Kim Zulu position fashion as part of cultural tourism marketing. Topic modelling and cluster analysis confirm that fashion is not presented in isolation when reporting on Kim Zulu in media coverage but links to culture, futurity, and destination branding.

Returning to the research question, the results indicate that media narratives about Kim Zulu position fashion through cultural representation, Afrofuturist projection, destination branding and affective branding that illustrate Kim Zulu's role as a digital ambassador who bridges African heritage with global digital culture. The correlation analysis' overall results summarised in Figure 1 indicate that the media do not describe South Africa only as a physical place, but also as part of a broader futuristic African vision. In this regard, Kim Zulu's fashion's role is to cross boundaries, link with fashion events, brands and partnerships to connect African identity with inclusivity and futurity. Also, the media narratives present marketing activities as inseparable from informing South Africa's tourism cultural identity as supported by the Destination Image theory (Zhou et al., 2024; Rossi and Revitti, 2023). Media portrayals about Kim Zulu tie cultural pride to futuristic narratives, presenting Africans as both established and innovative. These results align with literature that virtual influencers can be used to convey culture and knowledge about a destination (Bassano et al., 2019) in that they can be customised and controlled without any personal controversies (Byun & Ahn 2023). Metaverse technologies such as creating virtual influencers can thus contribute to how a destination's cultural heritage is interpreted (Shehade &

Stylianou-Lambert, 2020). The results align with the World Tourism Organization and Università della Svizzera italiana report (2025) that fashion can play a role in cultural expression to drive cultural tourism. Tourism marketers now have an opportunity to integrate cultural narratives into destination branding efforts using virtual influencers (Ezzatian et al., 2025).

6. Conclusion

The results indicate that media narratives about virtual influencer Kim Zulu position fashion as both a cultural expression, a strategic destination and affective branding tool that strengthens South Africa's visibility and appeal in the global tourism market. In the context of Kim Zulu as a visual influencer, fashion is not merely artistic but is positioned as part of cultural tourism marketing. However, several limitations must be acknowledged. First, the study relied on a specific dataset, which may not represent different interpretations surrounding Kim Zulu. The corpus was also limited to English-language content, potentially excluding narratives in other languages. The results also do not fully account for visual semiotics or audience reception which are important in understanding the impact of virtual influencers in tourism marketing. Future research could expand on these results by conducting audience-centered studies to explore how users engage with and interpret virtual influencers across diverse cultural or demographic groups.

Ethics and AI Declaration

The study has received ethics approval on 20 October 2025 from the University of South Africa's College of Human Sciences (Ref #: 10904). No AI tools were used to write this paper.

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Implementing Circular Practices in Tourism: Examples From Portugal's Hospitality and Restaurant Sectors

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Abstract: The transition to more sustainable tourism models is essential to address environmental degradation, the mismanagement of natural resources, and the social challenges exacerbated by overtourism. Within this context, the circular economy (CE) emerges as a solution to make the tourism value chain more efficient and even regenerative. By presenting concrete and diverse examples, this study seeks to inform policymakers and stakeholders of the significant potential of CE strategies in advancing tourism sustainability. Eight practical cases from the Portuguese tourism sector – particularly within hospitality and food service – are examined, each illustrating one of eight dimensions of circularity: waste management, energy, water, food and beverages, packaging, infrastructure management, consumables, and transport and suppliers. The study adopts a qualitative and exploratory approach. The examples were selected to demonstrate the diversity of CE applications in tourism, ensuring that they reflected distinct domains of intervention. Preference was also given to cases awarded certifications or prizes in the field of sustainability, as indicators of impact, credibility, and relevance. The findings show that CE practices are already being implemented in Portugal's tourism sector through innovative and efficient strategies. The examples analysed include zero-waste kitchens, textile upcycling, closed-loop water systems, and locally sourced food supply chains. These initiatives demonstrate not only the feasibility of CE in tourism but also its multiple benefits, such as resource efficiency, community engagement, and enhanced brand recognition. For such practices to become more widespread, supportive policy frameworks and cross-sectoral collaboration are required. Future research should incorporate stakeholder interviews in order to provide a more holistic understanding of CE practices in tourism.

Keywords: Circular Economy, Sustainable Tourism, Hospitality Industry, Resource Efficiency, Circular Business Models, Portugal

1. Introduction

Growing awareness of the planet's ecological limits and the impacts of human activity has triggered a transition toward more sustainable development models. This shift, which cuts across economic, environmental, and social sectors, calls for innovative solutions capable of reconciling economic growth with social well-being and environmental responsibility.

Tourism, one of the most dynamic global industries, generates significant economic and social benefits but also exerts pressure on natural and cultural resources. The sector's strong dependence on these resources makes it particularly vulnerable to environmental degradation, excessive waste generation, and social inequalities. In this context, the circular economy (CE) emerges as a transformative approach that reconfigures the dominant *take–make–dispose* model into a regenerative and inclusive framework.

By promoting efficient resource use, extending product life cycles, and minimising waste, CE offers a systemic strategy for rethinking tourism development. Integrating circular principles requires a structural transformation in how destinations are managed, how experiences are designed, and how resources are consumed by visitors and local communities. Circularity thus becomes a distinguishing factor for competitiveness, efficiency, reputation, and innovation in tourism.

This study explores the application of the CE within the tourism industry. Following a brief conceptual overview, it outlines the key principles of circularity in tourism, identifying related opportunities and challenges. Finally, eight illustrative examples from Portugal are presented to illustrate how circularity can be integrated into the management of tourism supply and demand, highlighting the CE's potential to support territorial regeneration, strengthen local communities, and foster sustainability across the entire tourism value chain.

2. Literature Review

2.1 Circular Economy

The concept of circular economy, according to Ekins et al. (2019), was originally theorised by Boulding (1966). This author highlighted the differences between open and closed systems, considering their three essential elements: materials, energy and information/knowledge. Economically speaking, the open system corresponds to the linear economy model (aka “extract-produce-dispose” or “take-make-dispose”), as opposed to a closed system with finite resources, which characterises the CE model, where it is vital the stock maintenance and the reduction of negative externalities.

However, the concept of the CE only came to the attention of academia at the turn of the century. It can be said, that it was with the creation of the Ellen MacArthur Foundation (EMF), in 2010, that the issue of the CE acquired the level of respectability that is widely recognised today (Ekins et al., 2019). The publication of the three-volume series "Towards the Circular Economy" (EMF, 2013), the first of which included the famous "butterfly" diagram (Figure 1), marked the institutionalisation of a new field in the approach to industrial development.

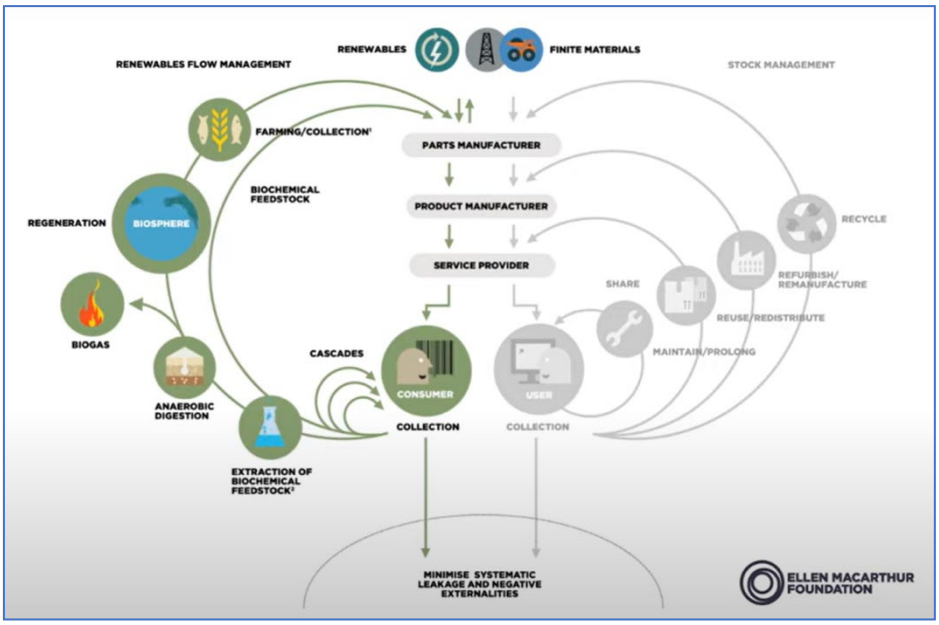


Figure 1: The ‘butterfly’ circular economy diagram

Source: www.ellenmacarthurfoundation.org

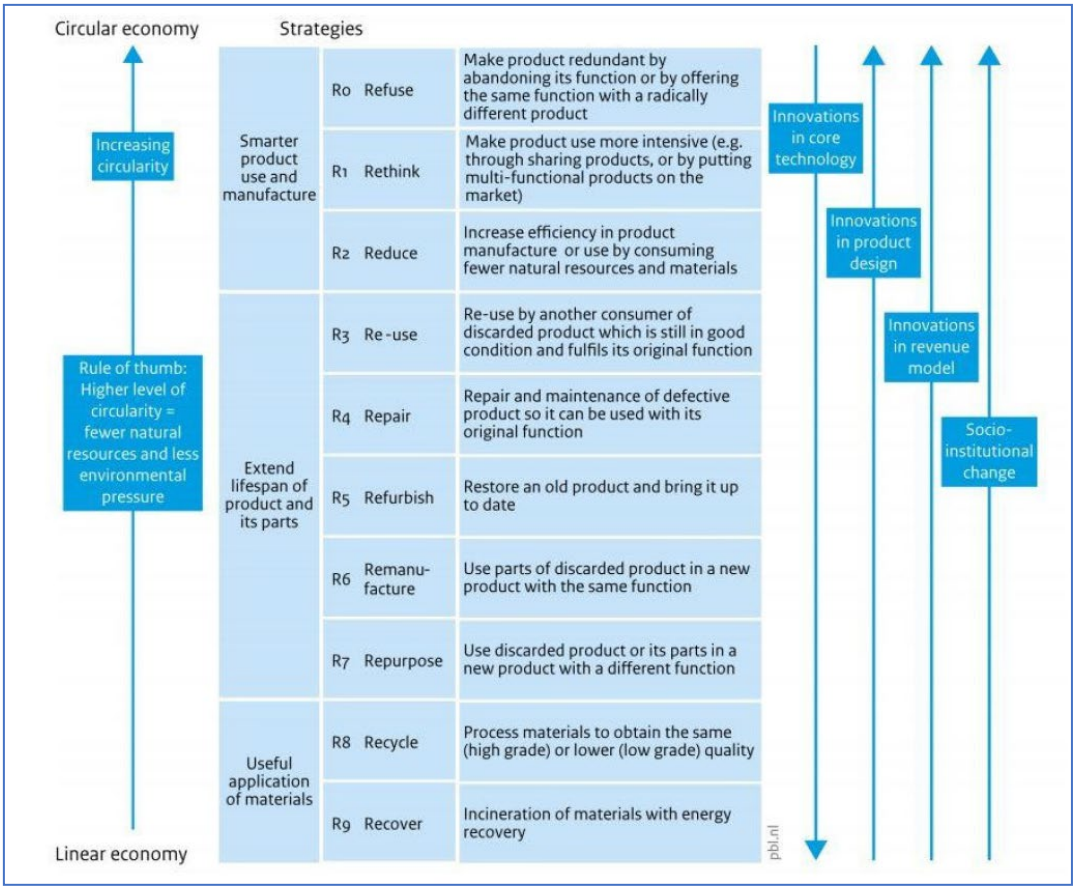
Despite some scarce references in scientific literature to this topic in the last decade of XX century, the publications of the Ellen MacArthur Foundation (EMF, 2013) have been so impactful that in 2017 it was possible to identify 114 definitions of the CE (Kirchherr et al., 2017). On the basis of this huge body of theory, Kirchherr et al. (2017) proposed the following summary definition: "circular economy describes an economic system that is based on business models which replace the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes, thus operating at the micro level (products, companies, consumers), meso level (eco-industrial parks) and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development, which implies creating environmental quality, economic prosperity and social equity, to the benefit of current and future generations" (Kirchherr et al. 2017: 224-225).

The central concepts of the definition proposed by Kirchherr et al. (2017) are reflected in the 4 Rs approach: reduce, reuse, recycle and recover. However, in the same year, Potting et al (2017) proposed a CE model structured around 10 “R” strategies: Refuse, Rethink, Reduce, Re-use, Repair, Refurbish, Remanufacture, Repurpose, Recycle, Recover (see Table 1).

Potting et al's (2017) model has the advantage of integrating the two main aspects of the CE concept: on the one hand, the aspect related to the flow of materials through an economy (the downward vertical arrow relating to innovations in core technology) and, on the other, the aspect of reflection about the economic conditions

that might bring about such a flow (the upward vertical arrows relating to innovations in product design, innovations in revenue models and socio-institutional changes). However, to the 10 Rs approach proposed by Potting et al. (2017) should be added the 2 Rs of the classic definition advocated by the Ellen MacArthur Foundation: restoration and regeneration.

Table 1: Circularity strategies in the production chain, in order of priority



Source: Ekins *et al.* (2019)

In contrast to the traditional linear economy of "take-make-dispose", the CE model aims to keep resources in use for as long as possible, extracting their maximum value. And, according to the Ellen MacArthur Foundation (EMF, 2013), the CE is based on three fundamental principles: (1) eliminate waste and pollution; (2) circulate products and materials; (3) regenerate natural systems. Based on these principles, the transition to a CE can be achieved through various strategies and business models:

- *Product as a service*: companies retain ownership of their products and lease them to customers. This encourages manufacturers to design for longevity and durability. Examples include furniture rental or car-sharing services.
- *Sharing platforms*: digital platforms facilitate the sharing of idle assets, such as tools or food, among users to maximise their use and minimise waste.
- *Remanufacturing and refurbishment*: involves restoring used products or components to a "like new" or better state, with a focus on sectors such as electronics and automotive parts.
- *Industrial symbiosis*: waste or by-products from one sector are used as raw materials for another. This creates a resource exchange network that reduces waste and consumption.

According to many authors (Ghisellini *et al*., 2016; Sauvé *et al*., 2016; Geisendorf and Pietrulla, 2018; McCarthy *et al*, 2018), the CE brings clear benefits to businesses, society and the environment, namely: (1) *environmental protection* (conserving natural resources, minimising pollution and reducing greenhouse gas emissions); (2) *economic growth and innovation* (creating new business opportunities, strengthening economic resilience by reducing dependence on volatile raw material markets, and creating jobs in new sectors such as repair and remanufacturing); (3) *cost reduction* (optimising resource use and minimising waste can lead to substantial long-

term savings in materials, energy and waste disposal); (4) *improving brand image and customer loyalty* (with consumer demand for sustainable practices on the rise, companies that embrace circularity can enhance their reputation and attract loyal customers).

2.2 Circular Economy in the Tourism Industry: Opportunities and Challenges

The tourism sector is particularly well positioned to benefit from CE principles, given its dependence on local resources and its potential for innovation. However, implementation remains uneven and often limited to pioneering enterprises.

The "three Rs" – reduce, reuse, and recycle – remain the foundation of circular strategies in hospitality and tourism. Many hotels and restaurants have introduced initiatives to minimize food waste, reduce water and energy consumption, and improve recycling (Rodríguez-Antón and Alonso-Almeida, 2019). Sustainable waste management plays a key role in urban destinations with high visitor density, where preventive measures and waste sorting help build resilient urban ecosystems (Camilleri, 2021).

Technological innovation, particularly through digitalisation, is expanding the scope of CE in tourism. Artificial intelligence, automation, and smart systems allow real-time monitoring and optimization of resource use, enabling businesses to reduce waste and repurpose materials more effectively (Vargas-Sánchez, 2023). Such innovations are vital to transforming supply chains and operational models.

Applying CE principles to tourism also involves ecologisation – adapting circular strategies to broader sustainability goals. This includes developing assessment systems to measure progress, thus moving from abstract commitments to measurable outcomes (Xu et al., 2022).

In cultural tourism, *adaptive reuse* of heritage buildings and underutilized spaces is a particularly valuable approach. It preserves cultural assets while generating economic opportunities, revitalizing local economies, and minimizing the environmental costs of new construction (Rudan, 2023).

Circularity encourages companies to embed sustainability within their core operations, integrating smart technologies, renewable energy, and eco-friendly accommodation solutions. Such models enhance efficiency and competitiveness while aligning with evolving consumer expectations (Vecchio et al., 2021).

Despite its potential, the transition toward a circular model faces multiple challenges. The most significant barrier is cultural – shifting from linear to circular thinking requires changes in consumer behaviour, management practices, and policy frameworks. Many CE initiatives still rely on technological or market-based mechanisms that do not fully address the systemic nature of environmental crises. Culture-led approaches emphasizing regeneration, degrowth, and community-driven place-making are needed for deeper transformation (De Martino et al., 2024).

In developing countries, structural obstacles such as weak infrastructure, inadequate regulation, and limited public awareness hinder the effective implementation of CE practices in tourism (Bittner et al., 2024).

Furthermore, tourism's complexity – encompassing governments, businesses, communities, and tourists – demands cross-sectoral coordination. Regulatory frameworks must evolve to support CE adoption, offering incentives for businesses that reduce their environmental footprint (Camilleri, 2021). Governments play a crucial role in providing policy support, tax benefits, and funding schemes, while enterprises must invest in supply chain innovation, sustainable design, and consumer education to ensure a long-term transition (Holly et al., 2023).

The integration of CE principles into tourism offers an opportunity to align economic performance with environmental and social sustainability. By rethinking production, consumption, and management models, CE can transform tourism into a regenerative system that supports territorial resilience, community empowerment, and ecological balance.

However, realizing this potential requires coordinated action among public authorities, private stakeholders, and local communities. Only through such collaboration can the tourism sector move beyond incremental improvements toward a genuinely circular and sustainable future.

3. Methodology

This study adopts a qualitative and exploratory approach based on concrete examples from Portuguese tourism enterprises, aiming to understand how CE principles are being implemented, with a particular focus on the

accommodation and food service sectors. CE practices were identified based on national-level guidelines and policy frameworks promoting sustainability and circularity in tourism.

The analytical dimensions used in this study were drawn from the Guides of Good Practices for a Circular Economy developed by Turismo de Portugal and AHRESP (the Portuguese Association of Hotels, Restaurants and Similar Establishments), namely the Guide of Good Practices for a Circular Economy in Tourist Accommodation (2021) and the Guide of Good Practices for Circular and Sustainable Restaurants (2021). These documents define eight dimensions of intervention, which were also applied in this study: waste management, energy, water, food and beverages, packaging, infrastructure management, consumables, and transport and suppliers.

The eight practical examples selected illustrate different levels of maturity and diverse approaches to the implementation of circular practices in tourism. Their selection aimed to ensure heterogeneity in terms of geographical location, innovation, and typology across the various dimensions. This diversity enables the exploration of a wide range of experiences and strategies, consistent with the exploratory nature of the study (Flyvbjerg, 2006).

The analysis of the examples was based on secondary data sources, including institutional websites, public reports, technical documents, and information on sustainability awards and certifications (Dias et al., 2024).

The following section presents the selected examples, providing a concise description of their context and the circular practices implemented by each enterprise, categorised according to their main dimension of intervention.

4. Results

Estratégia Turismo 2027 is a document that outlines strategic and priority areas for action to be pursued in the short and long term to foster tourism development in Portugal (Turismo de Portugal, 2017). In this framework, one of the lines of action for the economic growth of tourism activities is based on the encouragement and promotion of the CE. Therefore, some of the projects and initiatives carried out in this area are in terms of economic, environmental, social and governance sustainability, as well as integrated circular practices, such as recycling, recovery and reuse. Furthermore, the strategy underscores the increasing relevance of sustainability as a criterion in the evaluation and classification of tourist establishments, encouraging the adoption of both environmental and social good practices.

In this sense, it is relevant to assess what practices, measures and initiatives are being undertaken by Portuguese tourism companies (specifically tourist accommodations and restaurants) in the field of the CE. In this section, the good practices adopted by each specific tourism service case are analysed for each of the following areas of CE: energy, water, food and beverages, packaging, consumables, waste management, infrastructure management and transport and suppliers.

4.1 Energy

When it comes to the CE in the tourism industry, one of the main points is energy efficiency (Kaszás et al., 2022). Some of the activities that consume the most electricity in tourist accommodation are room air conditioning, the preparation and production of hot water, lighting, food preparation using equipment and sports, health and leisure facilities (Turismo de Portugal, I.P. and AHRESP). The design, architecture and planning of buildings with renewable energy sources, such as solar thermal and photovoltaic panels, heat pumps, biomass for heat generation, among others, are a solution capable of reducing energy consumption and, consequently, greenhouse gas emissions (Kaszás et al., 2022). Technology is an effective tool for monitoring energy consumption. Through motion sensors in communal areas, light level control panels, air conditioning automation, etc., consumption can be reduced. However, regular maintenance of this equipment is essential (Turismo de Portugal, I.P. and AHRESP, 2021).

Example 1. Energy

MH Hotels is a group formed by two hotels, the MH Peniche and the MH Atlântico, both located in Peniche. From an energy perspective, the hotel group has installed 190 solar panels and 1520 photovoltaic panels to produce electricity and reduce carbon emissions. In both hotels, LED lights have been installed in the buildings and the electronic equipment is more efficient (rated A++). On the televisions, guests have access to an internal channel that highlights the energy being produced from greener and more renewable sources in the hotels (Marteleira Hotelaria Lda, 2024).

Certification: Green Key 2024

4.2 Water

The tourist industry urgently needs to implement measures to manage water resources, otherwise the number of environmental problems, such as pollution, waste and water scarcity, will increase (Ingrao et al., 2023). In leisure accommodation facilities, water consumption primarily occurs across several key operational areas. These include laundry processes, recreational water-based activities, housekeeping, personal hygiene (showers and baths), and food preparation procedures (Styles et al., 2015; Strippoli et al., 2024). Through systems and wastewater treatment plants, it would be possible to recycle and reuse grey water, for example for irrigation and flushing toilets. The collection of rainwater for storage and subsequent use in irrigation systems or for general cleaning is also encouraged (Turismo de Portugal, I.P. and AHRESP, 2021).

Example 2. Water

Rio do Prado is a tourist property located near the Óbidos Lagoon, which adopts and encourages the practice of a sustainable lifestyle. At Rio do Prado, grey water from baths and sinks, as well as rainwater, is treated in its own wastewater treatment plant (ETAR) for future reuse, namely for watering the gardens (Rio do Prado, 2025).

Award: Sustainability Award Boa Cama Boa Mesa 2024

4.3 Food and Beverages

Eating is a basic human need that requires the consumption of nutritious products on a daily basis (Gómez, 2023). The raw materials used to make dishes, i.e. animal and vegetable proteins, must be carefully selected, namely sustainable, certified and responsibly sourced. To reduce the amount of food waste, measures should be taken such as reusing and recycling "vegetable scraps, fruit peels, coffee grounds, and eggshells" into compost, which nourishes the soil and contributes to vegetation (Strippoli et al., 2024, p. 8). Monitoring refrigeration equipment, managing stocks, encouraging take-away and implementing consumer-friendly portions are some of the strategies that restaurants and accommodation services should adopt to reduce food waste (Turismo de Portugal, I.P. and AHRESP, 2021).

Example 3. Food and Beverages

Hotels such as the Sheraton Hotel Lisboa & SPA, the Moxy Lisboa Oriente, the Lisboa Marriott Hotel, among others, which belong to the Marriott International Business Council Portugal Group, announced in September 2024 the launch of a craft beer. This drink produced by Cervejeira Aldeana, called Rooster Ale, stands out for its creation process, as it is made with leftover bread from the different hotel units that belong to the Group. At any Marriott International hotel bar in Portugal, you can now consume this drink, which transforms surplus bread from the hotels into an essential ingredient for the development of the beer.

Certifications: Green Key 2025 (Sheraton Hotel Lisboa & SPA, Moxy Lisboa Oriente, Lisboa Marriott Hotel); Biosphere Certification (Sheraton Hotel Lisboa & Spa)

4.4 Packaging

Plastic packaging has a negative impact on the environment, as its production requires materials derived from fossil fuels (Gabisa et al., 2023). They are one of the most widely used and disseminated because of their properties of preventing contamination, preservation and combating waste. In order to introduce CE strategies in the tourism industry on this issue, the search for more sustainable materials and substitutes for plastic is being reinforced, as is the elimination of non-essential plastic items. Some of the practices to increase in tourist accommodations are related to changing plastic key cards for other materials (e.g. wood or digital) and exchanging single-use items for refillable dispensers (e.g. shampoos, shower gels, etc.) (Turismo de Portugal, I.P. and AHRESP, 2021).

Example 4. Packaging

At Areias do Seixo, large bottles/dispensers of cosmetic products are available instead of individual disposable amenities. This makes it easier to re-stock the products in line with guests' current needs. In the hotel's restaurant, everything made of disposable plastic has been removed, such as straws and water bottles (Areias do Seixo Empreendimentos Hoteleiros Lda, n.d.).

Certification/Award: Green Key 2024; Chave Michelin 2025

4.5 Consumables

Consumables are recognised as disposable, single-use and replaceable products that have an impact on the environment as they cause considerable waste. In the tourism industry, these include cleaning products, work

utensils, uniforms and other textile products. All these consumables must meet certain safety, hygiene and health standards without jeopardising the environment. Thus, some of the measures to be implemented by tourism companies are: (a) using cleaning products of plant origin and that are cruelty-free; (b) purchasing textile products made from recycled fibres; (c) donating textile products to non-profit institutions and associations; (d) using textile material instead of paper towels and napkins (Turismo de Portugal, I.P. and AHRESP, 2021).

Example 5. Consumables

The You and the Sea aparthotel, located in Ericeira, has created a new project called, 'Cura by the Sea'. The aim of this initiative is about transforming sheets that are no longer used in the aparthotel into unisex shirts. Other actions adopted for the creation of each garment were: the use of natural ingredients for dyeing, collaboration with local artists for the creation of new collections, the buttons used are not new but come from other products and the threads are 100% organic cotton (Cura by the Sea, 2025).

These shirts can be bought at the reception of the aparthotel or online and the proceeds of each sale go to the Zero association. Some of the leftover fabrics have been used to create uniforms for the different departments of the aparthotel (Cura by the Sea, 2025).

Certification/Award: Biosphere Certification; One key - Michelin 2025

4.6 Waste Management

Gastronomy is a tourist product that shows tourists the traditions and culture of a destination (Turismo de Portugal, I.P. and AHRESP, 2021). However, more food waste is appearing, which is causing problems for both the consumer and the producer (Al-Obadi et al., 2022). Waste has negative impacts on the environment, namely "GHG emissions, land use change, biodiversity loss, and increased water scarcity" (Strippoli et al., 2024, p. 8). There is therefore a need to manage consumption responsibly and reduce waste. Some strategies in the tourist industry to encourage cutbacks are, for example, investing in agrotourism, where food from organic gardens produced in the surroundings of the accommodation is consumed by tourists. In addition, decreasing the number of journeys is reinforced in order to guarantee seasonal, quality and fresh products (Camilleri, 2021). Educating and involving visitors, the community and workers in CE strategies reinforces the adoption of efficient and sustainable behaviour and consumption (Meschini et al., 2021; Segarra-Oña et al., 2024).

Example 6. Waste Management

The Restaurante da Herdade do Esporão, located in Reguengos de Monsaraz, stands out by using ingredients from its organic farms or from other local and national producers who adopt a regenerative agriculture. The preparation of the dishes is determined by the seasonality of the produce, so the menu is subject to change. The waste produced at the restaurant is reused and repurposed in different ways, for instance as food for the chickens at Herdade do Esporão. The restaurant also makes use of all the animal parts and incorporates the waste from some roasted vegetables to create a dessert. Therefore, the leftovers from one dish are transformed into another, making this restaurant's cuisine zero-waste (Esporão, 2025).

Award: Estrela Verde Michelin 2025

4.7 Infrastructure Management

When planning and designing a tourist accommodation or restaurant, it is important to consider what type of construction and decoration materials should be applied. When making a decision, some important points to take into account are quality, style, cost-effectiveness, state of repair, durability, environmental impact, maintenance, among other aspects. Reusing, reconditioning and repairing furniture, utensils, equipment and textiles are essential circular practices that not only benefit the company financially but also on the environment (Turismo de Portugal, I.P. and AHRESP, 2021).

Example 7. Infrastructure management

São Lourenço do Barrocal, located in Monsaraz, is a property that has belonged to one family for over 200 years. One of the generations of owners has developed a project in which the neglected agricultural estate of around 780 hectares is transformed into different facilities dedicated to tourism/hospitality and agriculture. The result is a rural hotel surrounded by a natural landscape of vineyards, olive trees and holm oaks. There was a concern to rebuild the property, more specifically 7 buildings, in a sustainable, traditional way, in keeping with the region's identity and authenticity. In the construction process, priority was given to materials that already existed on the estate, such as the recovery of around 70,000 bricks from the buildings and the rehabilitation of approximately 250,000 old terracotta tiles for the foundations, roofs and other structures. In addition, around 350,000 bricks were produced using local, artisanal processes. The furniture outside and inside the hotel has been restored by a carpentry company for this purpose (São Lourenço do Barrocal, 2025).

Certification/Award: Biosphere Certification; One key - Michelin 2025

4.8 Transport and Suppliers

As tourism depends heavily on travel, it inevitably leads to higher consumption of fossil fuels. To combat the increase in pollution, some of the strategies that stakeholders should encourage in this area are: (a) selecting public transport for long-distance journeys; (b) travelling by bicycle, scooter or other small electric vehicles in the grounds of the accommodation; (c) installing electric car charging stations in the accommodation; (d) exploring more sustainable deliveries with suppliers; (e) optimising delivery routes and times. The method by which an ingredient is grown, processed and transported has an impact on the carbon footprint, so local suppliers and the choice of products close to the preparation sites are favoured. By reducing transport distances, CO_2 emissions are consequently reduced (Turismo de Portugal, I.P. and AHRESP, 2021).

Example 8. Transport and suppliers

The 'aCozinha' restaurant in Guimarães is committed to its community, its products, and the environment. To this end, it has developed the 'aCozinha Km zero' project, which aims to include ingredients from local producers in its menus and dishes. This initiative has the potential to reduce the ecological footprint because it reduces the distance between suppliers and the restaurant. At the same time, the use of regional products allows local gastronomy to be valued and promoted, in addition to incorporating the traditions and customs of the community. The mission is to develop meals with products 100 per cent sourced in Guimarães, which even the restaurant's own chef can walk to collect. The restaurant intends to maintain constant communication with suppliers and all other partners in order to reduce the amount of packaging used and to guarantee and encourage safety when transporting food in reusable containers (Restaurante aCozinha por António Loureiro, 2025).

Certification/Award: Green Key 2024; Sustainability Award Boa Cama Boa Mesa 2024

Considering the examples presented above, each hospitality and restaurant business was examined across all eight CE dimensions (Table 2). This cross-dimensional analysis made it possible to assess whether establishments demonstrated engagement beyond their primary dimension of intervention. It also facilitated the identification of key environmental challenges and areas requiring further development. The findings indicate that the dimensions showing the strongest collective progress towards CE implementation are Waste Management, Food & Beverages, Packaging, and Transport & Suppliers.

Table 2: Identification of restaurants and hotels in 8 circular economy dimensions

	aCozinha (Restaurant)	**Areias do Seixo** (Boutique Hotel)	**Restaurante Herdade do Esporão** (Restaurant)	**MH Hotels**	**You and the Sea** (Aparthotel)	**Rio do Prado** (Hotel)	**São Lourenço do Barrocal** (Hotel)
Waste Management	x	x	x	Not identified	Not identified	x	x
Energy	Not identified	x	Not identified	x	Not identified	x	x
Water	Not identified	x	Not identified	x	Not identified	x	x
Food & Beverages	x	x	x	x	x	x	x
Packaging	x	x	x	Not identified	x	x	x
Infrastructure Management	Not identified	x	x	Not identified	Not identified	x	x
Consumables	Not identified	Not identified	Not identified	Not identified	x	Not identified	x
Transport & Suppliers	x	x	x	x	x	x	x

Source: Own elaboration

Note: "Not identified" indicates that no publicly available information was found regarding initiatives in that specific dimension.

5. Conclusion and Recommendations

The transition to a circular economy in tourism is both an opportunity and a necessity. The sector's traditional dependency on finite resources and its contribution to environmental degradation call for an urgent reconfiguration of existing models. While the early adoption of CE principles has already yielded promising results – particularly in waste reduction and business model innovation – scaling up these practices will require systemic change, cross-sector collaboration, and robust policy frameworks (Camilleri, 2021).

This study has demonstrated that circularity in tourism is not merely a technical solution but a transformative paradigm that redefines how value is created, preserved, and regenerated across the tourism system. The successful implementation of CE principles in tourism holds significant potential to enhance sustainability, resilience, and inclusivity in the face of growing environmental and social challenges.

The eight examples analysed from different accommodation and food service establishments in Portugal provide valuable insights for managers seeking to deepen their transition towards more sustainable and circular business models. These practices are economically viable, help strengthen brand differentiation in the market, and contribute to greater operational efficiency (Del Vecchio et al., 2021).

At a theoretical level, this study contributes to advancing knowledge on the applicability of circular economy concepts within the tourism sector. By categorising the examples according to distinct operational dimensions, it becomes evident that circularity in tourism is multifaceted, encompassing both traditional and technological solutions.

Since this study relies primarily on secondary data sources, future research should include interviews with those responsible for implementing these initiatives in order to better understand their motivations, challenges, and the actual environmental, economic, and social impacts of the circular practices adopted (Rodríguez-Antón and Alonso-Almeida, 2019).

Ethics Declaration

This study did not require ethical clearance, as it relies exclusively on secondary data.

AI Declaration

No generative AI tools were used in the development of this paper.

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Sustainability Practices in Lebanese Wineries and Their Impact on Tourism Development and Economic Growth

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Abstract: The aim of this study is to examine how sustainability practices adopted by Lebanese wineries influence tourism development and contribute to broader economic growth. Lebanese wineries have increasingly integrated environmental initiatives into their operations in response to both local and global challenges. Such initiatives include reducing paper waste and transform wine corks into renewable energy, reforestation initiatives, energy-efficient practices, and green architecture. A variety of sustainability practices are implemented by wineries in Lebanon; however, an investigation deems necessary to evaluate their impact. Methodologically, this study employed open-ended exploratory interviews with two groups of stakeholders: (a) winery managers and owners, and (b) tourism stakeholders and community representatives. This approach was necessary in order to investigate how winery practices enhance destination attractiveness, support community development and employment, influence Lebanon's image as a sustainable tourism hub, and contribute to long-term economic growth while preserving environmental and cultural heritage. The findings of this study are particularly important for winery stakeholders by offering insights into strengthening competitiveness and innovation, while tourism and community stakeholders could gain a deeper understanding of how sustainability-driven wine tourism can create employment, support local economies, and enhance Lebanon's global tourism profile.

Keywords: Sustainability, Lebanese Wineries, Wine Tourism, Economic Growth, Community Development

1. Introduction

1.1 Background of the Study

Winemaking in Lebanon dates back thousands of years, with evidence of early technology in the north and biblical associations in the southern village of Qana (Barnard et al., 2011; Royster, 1999). Since the Phoenicians settled in Lebanon, the country's wine production has undergone significant development (El Chami & El Moujabber, 2014). In 1993, only three major wine producers existed in the country: Château Musar, Ksara, and Kefraya (Saleh, 2014). Currently, 24 wineries are registered with the Lebanese Wine Union, with more than 40 unregistered (Lebanon Wines, 2025). Furthermore, the Lebanese winemaking industry is expected to grow by about $86.3 million from 2025 to 2030 (Strategy Helix Group, 2025).

Lebanon produces around 9 million wine bottles annually, with a significant impact on the Lebanese economy (Kattar, 2020). Annually, according to the FAO (2024), wine sales contribute $50-$60 million, with 40% of the sales being exported.

Several global sustainability initiatives have been introduced and implemented in wineries, including initiatives focused on oak planting, cork management, and energy conservation. In Lebanon, wineries are progressing inconsistently (Château Ksara, 2022; Ixsir, 2025).

1.2 Research Gap

Despite the growing global focus on sustainable winemaking, there is limited empirical research exploring how such practices influence Lebanon's tourism and economic development. The Lebanese wine industry's sustainability initiatives have received little attention from the scientific community (El Chami & El Moujabber, 2014); thus, wineries are increasingly focusing on environmental responsibility (Boiko, 2025). Current research in Lebanon primarily focuses on the history and heritage of Lebanese wineries, as well as their economic contributions to the country. However, there is a lack of empirical evidence on the impact of sustainability initiatives on the economic and tourist growth of Lebanese wineries. Furthermore, according to Milich (2012), it

is crucial to integrate sustainable wine initiatives in Lebanon to benefit the tourism industry. Therefore, it is vital to conduct this study to investigate and recommend more sustainable practices for Lebanese wineries, thereby contributing to the development of Lebanese tourism and the economy. This, in turn, plays a positive role in rural development, destination promotion, and employment opportunities, while supporting the Lebanese image as a contributor to sustainability.

1.3 Research Objectives, Questions, and Method

This research aims to examine how sustainability practices adopted by Lebanese wineries influence tourism development and contribute to broader economic growth. To address the research gap and reach the research objectives, the following research questions will be kept in mind:

- What sustainability practices are currently implemented by the Lebanese wineries?
- How do these practices contribute to tourism development?
- In what ways can these practices contribute to local community development and employment opportunities?
- How do stakeholders perceive the role of sustainability practices of the Lebanese wineries?

To achieve the research objectives, qualitative, exploratory, semi-structured interviews were conducted with winery owners or managers, as well as tourism and community stakeholders. These interviews were conducted online via Zoom and analysed after summarizing the key ideas discussed during the interviews.

In-depth interviews were carried out to extract the inner meaning and understand how the sustainability topic is interpreted from different perspectives within the winery industry context, aligning with Creswell's and Poth's (2018) interpretive paradigm. Furthermore, the purpose of this research isn't about testing a hypothesis, but is more about investigating and exploring the impact of sustainability practices on the Lebanese tourism and economy from the perspective of winery experts. Regarding sample selection, triangulation was employed across the sample categories; therefore, more than one sample was selected for each category. In this case, the first sample consisted of winery general managers in Lebanon, while the second category comprised stakeholders in the Lebanese winery industry.

2. Sustainability Practices in Lebanese Wineries

Sustainability awareness has increased in Lebanon over the last decade, while its application across industries remains limited. In the Lebanese winemaking industry, several winemakers have implemented innovative sustainability practices to preserve the environment, conserve natural resources, and enhance profitability.

Château Ksara has implemented multiple sustainability initiatives. In collaboration with Sicomo, the winery converts used wine corks into renewable energy (Château Ksara, 2022). Moreover, for every 500 corks collected, Château Ksara and Sicomo plant one oak tree in parallel. These initiatives resulted in 3.5 Hectares of land in the West Bekaa area have been newly planted from 2022 to the present.

At Ixsir winery, 75% less energy consumption than global wineries have been achieved through fermentation, which requires minimal pumping and consequently minimal energy consumption. Then, the winery's cellars are located 12 meters underground, which protects them from the soil and, in turn, reduces the need for an electrical refrigerator (Ixsir, 2025). Combined with roof planting, Ixsir Winery was recognized by CNN as one of the world's greenest buildings. To benefit the community, Ixsir conducts long-term contracts with farmers and provides an exceptional workplace for its employees.

At Château Musar, aligning with UN Sustainable Goal 12 (sustainable production and consumption), the winery utilizes organic materials and composites instead of chemicals in its planting practices, thereby supporting natural life. Furthermore, Château Musar reduces its carbon footprint through manual pruning and harvesting, rather than relying on heavy machinery, which has a negative environmental impact. In this case, bottles with the minimum weight are selected, local cardboard boxes are used for shipping instead of wooden boxes, and shipments are consolidated to reduce the number of shipments. In line with their sustainable use of natural resources, water consumption is minimized. Natural corks are used instead of plastic ones, and labels and the wood used are certified by the FSC (Forest Stewardship Council). Additionally, old barrels are not discarded but repurposed for use as furniture.

Moving to the Domaine des Tourelles, they limit exposure to sunlight, utilize thick walls, and employ natural river water pumping, all of which eliminate the need for refrigeration (Domaine des Tourelles, 2025).

Furthermore, the winery employs an old filtration technique, utilizing dried thistle rose plants as a filter. The winery employs organic farming practices with minimal intervention, utilizing locally produced sugar, solar energy, recycled wine bottles, natural fertilizers, and lighter-weight glass bottles. Socially, the winery employs locals and supports artisans.

Overall, many Lebanese wineries are integrating sustainability initiatives into their operations, reflecting a growing awareness about their importance, including environmental, social, and cultural preservation initiatives. However, these initiatives remain implicit and less formalized, since the main motivators for the wineries are ethical considerations only. The upcoming table provides an overview of the main sustainability practices implemented by the discussed Lebanese wineries.

Table 1: Comparative Overview of Best Sustainability Practices Among Selected Lebanese Wineries

Winery	Env. Sustainability	Soc. Sustainability	Eco. /Ops. Sustainability
Château Ksara	Recycles corks via Sicomo, planting one oak per 500; promotes eco-awareness.	Engages community in environmental awareness.	Cuts costs through recycling and renewables.
Ixsir Winery	Uses gravity fermentation (–75% energy); underground cellars; green roof.	Supports local farmers via land contracts; ensures safe workplaces.	Energy-efficient design recognized globally.
Château Musar	No chemicals; manual harvesting; FSC materials; aligns with SDG 12.	Fosters stewardship among staff/community.	Saves costs via local sourcing and waste minimization.
Domaine des Tourelles	Uses solar energy, organic fertilizers; recycles bottles; light glass.	Employs villagers; promotes local crafts and food.	Low costs via natural energy and sustainable operations.
Château Kefraya	Limits preservatives; maintains biodiversity.	Promotes sustainable farming culture.	Ensures long-term ecological balance.
Clos de Phoenix	Produces organic, chemical-free wine.	Promotes awareness of sustainable consumption.	Differentiates in niche organic market.

Sources: Ksara (2022); Ixsir (2025); Musar (2025); Tourelles (2025); Kefraya (2025); Clos de Phoenix (2025).

3. Impact of Sustainability Practices in Lebanon

Lebanese winemaking has a range of positive impacts at various levels. In this section, the impact on tourism development, the local community, and investor attraction, as well as economic revitalization, will be discussed further.

3.1 Impact on Tourism Development

Wine tourism is a significant contributor to a country's economic development in the modern economy, as it attracts investors and provides opportunities for export, while enriching the domestic tourism (Boiko, 2025). In Poland, the increase in the number of winemakers had a positive impact on the attractiveness of the regions where wineries are located (Haberla, 2024).

Previous research indicates that sustainability initiatives can enhance tourism development in Lebanon. As a result of these initiatives, wine exports have increased in Lebanon, which in turn boosts the country's recognition, leading to increased interest among wine customers to learn more and visit Lebanon. Similarly, these initiatives also attract investors and stimulate local businesses. Additionally, the number of visitors to wineries has increased due to sustainability initiatives, which in turn boosts tourist activity in the area. However, effective marketing for these initiatives is needed in Lebanon to reach visitors, investors, and countries interested in importing Lebanese wine, specifically, and foreign wine in general.

3.2 Local Community Benefits

Winemaking in Lebanon is an employment generator in its operating areas. It provides jobs for thousands of people, from viticulturists and winemakers to winery staff and marketing workers (Villalon, 2025). Furthermore, winemakers create opportunities for local farmers to work, boosting their sense of belonging to their village and, as a result, enhancing local identity (Milich, 2012). An example of this is the emergence of several winemakers in the Bhamdoun area in Mount Lebanon, such as Château Cana and Iris Domain, which helped the local economy. This, in turn, helped Bhamdoun residents obtain job opportunities and increased their loyalty to their village.

In addition, wine-making encourages expatriates to return to their mother country and village, increasing their pride in them (The Daily Star, 2018). An example of this, as discussed by the Daily Star (2018), is the story of Maher Harb, who left Paris after living there and keeping his family's land since the Lebanese civil war. Mr. Harb developed his own winery on his family's land, which strengthened his sense of belonging to the homeland. Additionally, winemaking promotes the local heritage and culture of the area where the winery is located, supporting agricultural and tourism development (Haberla, 2024). In Moldova, the increase in the number of wineries led to a fivefold increase in employment needs, while benefiting local entrepreneurs and small businesses (Diana, 2025).

Building on previous research, it is evident that sustainability practices among Lebanese winemakers benefit the local community in various ways. From increasing employment opportunities, providing opportunities for local farmers and suppliers, emphasizing the Lebanese identity, and strengthening the sense of belonging to the homeland, winemaking can change the mindset and lifestyle of local communities, which in turn benefits the entire society. However, to achieve this, there is a legal responsibility on the rule makers and an ethical responsibility on the winery decision-makers to recruit and benefit the local community, rather than outsiders.

3.3 Investor Attraction and Economic Revitalization

According to Sanchez-Garcia et al. (2025), wine-making generates high-margin revenues and fosters local economic linkages, which, in turn, are attractive to investors. Similar to Poland and Moldova, Lebanon's wineries attract investors and foster economic growth through sustainability-oriented branding (Haberla, 2024; Diana, 2025).

In Lebanon, winemaking has been an attractive investment opportunity, driven by factors such as economic returns and emotional attachment to the homeland (The Daily Star, 2018). Winemaking development in Lebanon is also supported by institutional partnerships that strengthen coordination, sustainability, and promotional activities, supporting small local wineries. An example of this is the Comité National du Vin au Liban (CNTL), which supports training and certification programs, thereby contributing to a collective effort to promote Lebanese wine (L'Orient Le Jour, 2025). Furthermore, non-governmental organizations (NGOs) have also contributed to winemakers in Lebanon, mainly in addressing sustainability-related issues.

As a result, sustainability practices in Lebanon are beneficial from a financial perspective as well, not only from a touristic and cultural angle. The sustainability initiatives adopted by Lebanese wineries attract investors, boost exports, and are profitable. Because of this, wineries should consider investing in these initiatives to achieve higher financial returns. However, winery managers should not focus on the short-term impacts; instead, a long-term orientation for this investment is necessary.

3.4 Conclusion of the Literature

The literature discussed provides a clear understanding of the sustainability initiatives adopted by Lebanese wineries, as they are multidimensional in their effects, which means they impact tourism, the community, and the economy. However, it is explicitly clear that there is a lack of empirical assessment of how these initiatives translate into measurable contributions to the Lebanese tourism and economy, which aligns with the current research objectives.

Through collecting data from general managers and stakeholders in the winery industry, valuable opinions will be gathered from experts. This valuable opinion leads us to an evidence-based understanding of the impact of the sustainable initiatives in the Lebanese wineries and reinforces its position as a sustainable wine tourism destination.

The two main theories grounding this study are sustainable tourism development and stakeholder theories, both of which emphasize the interrelationship between environmental responsibility, community well-being, and economic performance. The findings indicate that ethically driven, informed sustainability practices benefit tourism, local communities, and the economy, even in the absence of strong institutional frameworks.

4. Findings and Data Analysis

After discussing the impact of winemaking in Lebanon based on the literature, this section will explore its impact through the primary data collected from winery managers and stakeholders in Lebanon. To collect data about the impact of sustainability practices in Lebanese wineries on tourism development and economic growth, six semi-structured interviews were conducted. Three of those interviews were conducted with general managers of Lebanese wineries, and the remaining three interviews were with concerned stakeholders.

4.1 Findings From Interviews with Winery Managers

The three general managers discussed the growing yet still limited integration of sustainability practices within the Lebanese winery industry. Despite differences in scale and resources, winery managers demonstrated strong awareness of sustainability importance for the environment, tourism, and the economy, as well as a strong commitment to implementing these practices.

4.1.1 Environmental Sustainability Practices

Environmental measures were the most common across all wineries. The large-scale wineries were more concerned and emphasized the importance of organized systems for energy, water, and compost through effective waste management systems, water recycling systems, renewable energy systems, and the production of compost or animal feed from grape and organic waste. For cooling, the large wineries also benefit from their natural architecture, which creates a natural cooling system. According to one of the managers (Manager 1), *"the building is literally inside the mountain… surrounded by rock. This allows us to have naturally cool temperatures and high humidity — a natural climate control — so we don't need to use air conditioning or cooling systems… We have 65 solar panels, and we are about 95% energy autonomous"*. Another manager discussed their system in treating the wastewater for irrigation, glass grinding for repurposing, and recycling. In this sense, manager 3 stated that *"We also practice sustainable use of grape residues after pressing, such as seeds and skins, which are used either for agricultural compost or as feed for sheep and livestock."*

Unlike larger-scale wineries in Lebanon, initiatives by smaller wineries continue to exist, despite existing obstacles, including the use of lightweight glass bottles, waste reduction, and the repurposing of grape leftovers into fertilizer. Although there is a difference between larger and smaller wineries in Lebanon regarding the implementation of sustainability practices, both still share a common environmental ethos, each according to its operational capacity.

4.1.2 Motivators and Strategic Alignment

General managers at the selected Lebanese wineries adopt sustainability initiatives due to their personal ethics and beliefs, rather than financial considerations. Those managers within Lebanese wineries emphasized the importance of moral practices and their significance to the Lebanese heritage, local communities, and the environment.

One manager (Manager 1) revealed that the main motivators for conducting such practices are intrinsic, and explained: *"It's mainly my own personal conviction. I strongly believe in protecting the environment whenever we can. That's my main motivation. Sometimes these practices cost us more, sometimes they save us money — but money is not the main driver."* Another manager (Manager 3) stated that this returns to the philosophical roots of the winery: *"The winery should not be a source of pollution for the environment; rather, we must keep our surroundings as clean as possible. … Building on this history, we realized that many materials we pay a high price for are discarded without benefit, so we had to rethink this approach."*

However, although not explicitly stated as their primary objective, larger wineries still recognize the strategic importance of such practices in enhancing their brand recognition, meeting global market demands, and attracting eco-conscious customers.

4.1.3 Impact on Tourism and Competitiveness

Implementing sustainability initiatives in Lebanese wineries leads to positive feedback from the wineries' on-site visitors; however, there is no quantitative evidence of their positive impact on the number of visitors or tourists. During their on-site winery tours, it is evident that tourists appreciate the eco-friendly initiatives implemented by the wineries, and especially younger generations who are more involved in sustainability.

One of the managers (Manager 3) insisted on its importance for competitiveness through stating: *"When visitors come for a tour inside the winery, we include a visit to the wastewater treatment station… Visitors see all of this firsthand during the tour, leaving a deep impression of the company's commitment to sustainability."*

While smaller wineries prioritize authenticity and family tradition, larger wineries incorporate sustainability narratives into their export branding and tourism storytelling. One of the managers (Manager 2) stated that: *"Yes, of course. I tell them about it, show them the bottles, and explain the details, but we cannot do much beyond that."* This provides a clear image of the smaller wineries' storytelling for tourists about their initiatives. Winery managers in larger wineries consider those initiatives a crucial factor in increasing their competitive levels, especially in Europe, where consumers in the European market rely more on environmental certificates obtained and actions taken in their purchasing decisions.

4.1.4 Social and Cultural Dimension

In addition to improving the environment, sustainable practices have helped local communities by creating jobs, sharing resources such as solar energy, and indirectly boosting the local economy by supporting businesses in the area. For this sake, manager 1 mentioned: *"We use solar energy to extract water from our well — no diesel. And we provide free electricity from our solar system to nearby farmers so they can pump their water sustainably too. … Because we use compost instead of chemical fertilizers, it's more labour-intensive — so that creates employment opportunities for local workers."* Additionally, managers connected sustainability to the preservation of Lebanese identity, agricultural traditions, and cultural heritage. Nonetheless, several obstacles remain, including Lebanon's inadequate recycling infrastructure, a lack of institutional support, and financial constraints.

4.1.5 Conclusion

Overall, interviews indicate that personal dedication outweighs institutional frameworks in driving sustainability. Leading wineries are developing integrated sustainability models; however, smaller wineries are still taking small steps toward this goal, even informally, and these efforts are still effective. Although several challenges and constraints exist for its effective implementation, sustainability practices in Lebanese wineries have promising potential to contribute to tourism, economic, and cultural development and preservation.

4.2 Findings from Interviews with Stakeholders

Three interviews were conducted with the winery industry stakeholders, including hospitality instructors, wine experts, and administrative members within this industry. All stakeholders emphasized the importance of sustainability initiatives in this industry, while highlighting various challenges that hinder their effective implementation.

4.2.1 Environmental Sustainability and Innovation

Various stakeholders have discussed the significance of the environmental initiatives conducted by Lebanese wineries, particularly those related to energy consumption, waste reduction, and recycling. One stakeholder (Stakeholder 1) stated *"Some wineries such as Château Ksara are producing, for example, energy from cork waste. They're trying to generate sustainable energy from this material—recycling it"*. Similarly, a winery administrative member (Stakeholder 2) mentioned that *"We don't plant every year… and we don't irrigate after the first two years—the vines become dry-farmed, because the less water, the more sugar—the better for wine"*. That evidence is not only beneficial to the Lebanese environment but to the global sustainability standards.

4.2.2 Community and Economic Development

Sustainability initiatives by Lebanese wineries benefit the local area where the wineries are located, particularly in terms of boosting the economy and creating employment opportunities. In this case, a hospitality instructor and professional (Stakeholder 1) mentioned that *"The local community benefits a lot from the wine production*

season because before production, there's grape harvesting… All of this provides employment opportunities, especially in rural areas like the Bekaa Valley". Furthermore, various stakeholders interviewed emphasized the positive impact of such initiatives on attracting wine tourists.

4.2.3 Governance and Industry Collaboration

Various stakeholders discussed the lack of awareness and government efforts to boost sustainability initiatives, as well as the lack of collaboration between wineries for this benefit. A wine expert (Stakeholder 2) *stated, "In Lebanon… we don't have something like they do in France… Unfortunately, such a body does not exist. So, everything is just talk—no proper regulation"*. Poor collaboration limits large environmental projects and national sustainability goals.

4.2.4 Cultural and Global Positioning

Sustainability enhances the Lebanese local cultural prevenance, and markets the Lebanese heritage globally. One stakeholder (Stakeholder 3) stated, *"When tourists come… if they see garbage and plastic bottles everywhere, they're discouraged. But when they visit wineries that follow good sustainable habits, they feel respect for the place and are encouraged to return"*.

4.2.5 Conclusion

Collectively, stakeholders of the winery sector in Lebanon agree that this sector initiates individual sustainability practices in the absence of any collaboration or governmental policies guiding this behaviour. However, stakeholders still hold hope for the future of this sector, particularly due to its positive economic and tourist impact.

5. Conclusion

This paper employed a qualitative approach to investigate the impact of sustainability practices implemented by Lebanese wineries on tourism and economic development. After conducting interviews with winery managers and stakeholders, the findings demonstrate a moral and strategic direction toward such practices, so as to increase their competitive advantage, increase destination attractiveness, and develop the local community.

5.1 Synthesis of Key Findings

The key findings in this research illustrate that the Lebanese wineries are adopting sustainability practices across environmental, social, and economic dimensions. Environmentally, wineries are adopting natural cooling and energy-saving practices, as well as recycling and organic farming, which reflect a growing environmental awareness. Socially, such practices enhance employment opportunities for locals, boost the business of local farmers, and boost the sense of belonging. Economically, sustainability enhances tourism, brand reputation, and attract eco-conscious customers. Despite their awareness and application, a considerable gap remains in the adoption of these practices between large and small wineries, primarily due to financial constraints and a lack of support.

5.1.1 Theoretical Implications

This research provides additional theoretical framework for researchers about the sustainability initiatives by wineries and its touristic and economic impact within the Lebanese context. Furthermore, it supports the view that sustainability-driven tourism requires not only a moral commitment but also a systematic alignment between ethical motivations, strategic objectives, and policy frameworks.

5.1.2 Policy Recommendations

An effective collaboration between Lebanese wineries and various stakeholders, including the government, should be demonstrated through an association that coordinates the activities of Lebanese wineries. The government should encourage such practices through tax reductions and funding for sustainable practices. The Ministry of Tourism should encourage those practices through foreign promotion of the wineries that adopt such practices. Educational institutions should integrate sustainability into wine and hospitality programs.

5.1.3 Research Gaps and Future Directions

Although this research provides a deep understanding of the role of sustainability practices in the Lebanese winery industry, several gaps exist. To overcome these gaps, quantitative research should be employed to measure the impact of those practices on the Lebanese economy and tourist numbers. Additionally, exploring consumer perceptions of sustainable Lebanese wines and the role of digital marketing in communicating eco-credentials represents a valuable direction for future inquiry.

Given its qualitative and context-specific nature, this study provided in-depth insights for sustainability practices within the Lebanese winery sector, without generalizing the findings statistically. Accordingly, comparative studies between Lebanon and other countries, as well as quantitative studies, are recommended in the future.

6. Limitations

In this research study, several limitations were encountered. First, the sample consisted of six interviewees, which limits the generalizability of the findings. Second, the lack of time restricted the ability to collect additional information. Third, difficulty in reaching the interviewees and taking an interview appointment reduced the breadth of the information collected. Despite these limitations, this study provides useful insights for researchers and policymakers to understand and enhance sustainability in Lebanon's wine sector.

Ethics Declaration

This study adhered to qualitative ethics guidelines to ensure the protection and integrity of participants. Before interviews, participants were informed of the study's purpose, their voluntary participation, and their right to withdraw at any time. During the literature review, proper in-text citations and references were employed.

During the interviews, the participants were informed about the confidentiality of their names. For this purpose, their names were coded during the analysis stage. Moreover, their recorded video and audio were stored on a password-protected device, accessible only by the researcher. Additionally, during the interview, participants were not enforced to provide answers.

After the interviews, the data were analysed without bias and without altering the meaning of the information collected. Finally, an ethical approval form was obtained from the institution to ensure adherence to ethical standards in data collection from humans.

AI Declaration

In this paper, AI was used to refine and edit the paper. To be more specific, OpenAI ChatGPT-5 was used to enhance clarity and coherence, refine language, and improve formatting. Additionally, Grammarly was used for grammar proofreading. However, all interpretations, expressions, and analyses were done by the author himself, and AI did not participate in the data collection or analysis phases.

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The Impact of Freight Transport on Event Tourism in Madeira Island

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Abstract: Assuming tourism as 'a social, cultural, and economic phenomenon that involves the movement of people to countries or places outside their usual environment for personal or professional purposes' (UNWTO, 2010), factors such as the availability and quality of transport and infrastructure are decisive for the success of this economic activity. These factors take on special importance when it comes to events tourism because, in this case, in addition to the movement of visitors from one territory to another, it is equally important to ensure the movement of work teams and a wide variety of goods and merchandise. Tourism has established itself as one of the main drivers of the economy of the island of Madeira, however, this economic activity depends on several conditions to thrive. Congresses, fairs, celebrations, and other events are part of the events tourism segment that has been gaining prominence on this island, but they require complex logistical organisation, where the efficiency and reliability of maritime and air transport have a direct impact on the quality, cost, and even the viability of events, thus conditioning the quality of the tourist offer, regional development, and the tourist experience. This study aims to assess the impact of the logistics and transport chain on events tourism on the island of Madeira. To this end, we sought to identify the operational challenges faced by event organisers and logistics operators, caused by the transport of goods and passengers. The methodology used for data collection and analysis includes, after a careful review of the literature, a quantitative method involving the application of a questionnaire to a universe of 50 respondents. We also used a qualitative method, conducting interviews with three logistics operators, a freight forwarder, an air carrier and a maritime carrier, all with regular operations on the island of Madeira. The results obtained allow us to highlight structural weaknesses in the air and sea freight transport systems, as well as in the logistics of events on the island of Madeira, which have a direct impact on the success of events organised in the region.

Keywords: Events Tourism, Sea Transport, Air Transport, Madeira Island, Tourism Destination

1. Introduction

Tourism, and particularly the events sector, has been assuming an increasingly significant role in Portugal, especially on the island of Madeira, where the climatic conditions are highly favourable to outdoor activities. Nevertheless, this economic activity depends on a set of interrelated factors to prosper, requiring a complex logistical organisation in which the efficiency and reliability of sea and air transport exert a direct influence on the quality, cost, and even the feasibility of events. Consequently, these factors condition the overall quality of the tourism offer, regional development, and the visitor experience.

Congresses, fairs, festivals, and other types of events constitute the event tourism segment, which has been gaining growing relevance on the island. However, Madeira's insular character, limited territorial dimensions, and rugged topography constrain land transport, thereby increasing its dependence on sea and air connections.

This study seeks to contribute to a comprehensive discussion on the relevance of sea and air freight transport for the development and enhancement of event tourism in Madeira.

To this end and drawing on a thorough review of the relevant literature, a quantitative analysis was conducted based on a questionnaire administered to a sample of 50 residents of the island of Madeira. This analysis was complemented by a qualitative component consisting of semi-structured interviews with three logistics operators: a freight forwarder, an air carrier, and a shipping company, all of which maintain regular operations on the island of Madeira.

The results indicate that freight transport plays a decisive role in the success of event tourism. Moreover, Madeira's insular condition further accentuates this dependence, rendering the efficiency of sea and air transport systems a critical factor for the sustainability and competitiveness of the sector.

2. Freight Transport and Event Tourism in Madeira

2.1 The Island of Madeira as a Tourism Destination

According to Echtner and Ritchie (1991), the image of a destination is assessed through its physical attributes — such as natural attractions, climate, and landscapes — as well as its human characteristics, which include monuments, historical sites, museums, architecture, nightlife and entertainment, sports facilities, transportation infrastructure, beaches, shopping centres, accommodation facilities, festivals, fairs, population, hygiene, safety, economic development, prices, accessibility, urban planning, political stability, hospitality, gastronomy, atmosphere, quality of services, fame, and reputation, among others.

The Island of Madeira, characterised by its mild climate, distinctive natural landscapes, and rich cultural offerings, has consolidated its position as a highly sought-after tourist destination at the global level. As noted by Marujo (2015), tourism has become one of the principal pillars underpinning the region's social and economic sustainability, exerting a significant influence across multiple sectors of society.

Madeira has been repeatedly recognised at the prestigious World Travel Awards (WTA), having been voted the World's Leading Island Destination on multiple occasions. This distinction acknowledges the efforts of professionals within the sector who contribute to consolidating Madeira's position as a destination of excellence. Among these contributors are those involved in the supply chain, with logistics operators and freight and passenger transport services assuming particular relevance, given the specific characteristics and constraints inherent to island territories.

Events such as the New Year's Eve celebrations, Carnival, the Madeira Rally, and the Flower Festival exemplify the types of festivities that attract visitors from across the globe to the island. These events not only serve to promote local culture but also play a vital role in stimulating the regional economy by generating revenue and creating employment opportunities.

2.2 The Role of Events in Promoting Tourist Destinations

Events play a pivotal role in the cultural, social, and economic spheres of a locality or region, functioning as a driving force that fosters an engaging and dynamic environment. They are currently regarded as authentic marketing instruments for destination promotion, contributing to the stimulation of the local economy and the attraction of tourists throughout different periods of the year, thereby mitigating the effects of seasonality (Barbosa, 2015). As Gaspar (2024) highlights, the organisation of events constitutes one of the most effective strategies employed by tourism promotion entities to enhance the visibility of any tourist destination.

Recognising the increasingly significant role that events assume in the promotion, dissemination, and even the consolidation of visitor loyalty towards tourist destinations, many regions have been investing strategically in this tourism segment as a means of differentiation and positioning within an increasingly competitive global market.

Getz (2008) asserts that an event is inherently unique due to the interactions established between individuals and the entire system of management, planning, organisation, and implementation, encompassing both design and programme components. According to this author, the organisation of events—regardless of their typology—necessarily entails the coordination between the organisers' competencies and the experience intended to be delivered to visitors and tourists, based on an interactive dynamic between visitors and residents.

Within these interactions, the individuals involved are as essential as the management systems themselves, which encompass transport logistics. Indeed, logistics in event tourism encompasses multiple dimensions, including the transportation and reception of goods, storage, assembly and disassembly operations, as well as the transportation of participants and overall service management.

The existence of adequate infrastructure and qualified suppliers is essential to ensuring operational effectiveness, since, as Connel et al. (2015) highlight, event management is fundamentally concerned with achieving an equilibrium between supply and demand. This represents a considerable challenge for managers, as assessing the success of events requires analysing logistical aspects from both the perspective of tour operators (supply) and that of customers or tourists (demand). Service quality is

directly associated with customer satisfaction; therefore, elements such as transport quality and product availability constitute key determinants of tourist satisfaction (Briggs et al., 2007).

Furthermore, as Jarvis et al. (2016) emphasise, it is crucial to identify the economic, social, and environmental factors that may influence tourist satisfaction, given that the satisfaction process in tourism events represents one of the most critical dimensions of the activity. Satisfied tourists tend to communicate their positive experiences to others and are more likely to return, thereby reinforcing destination loyalty and contributing to its long-term success (Prebensen, 2007).

2.3 Freight Transport and Event Tourism

Event tourism attracts a substantial number of visitors to a given destination, implying that its success is intrinsically linked to the logistical capacity of that destination. In the context of an island destination, this logistical capacity assumes an even more decisive role, since, as Pomeroy (2006) observes, an island's connectivity with the mainland or with other geographical locations is fundamental to the success of its tourism sector. Efficient transport of goods is essential to ensuring the consistent availability of the resources required to sustain tourism-related activities.

Transport logistics, by facilitating the distribution of essential products such as food, consumer goods, and technical equipment, affects not only the quality of life of the resident population but also the overall quality of the tourist experience. Indeed, the transport of goods constitutes a central component of the supply chain that underpins multiple economic sectors, including tourism.

Poor planning of transport routes and inadequate infrastructure capacity can hamper both logistics flows and the tourist experience. Ribeiro et al (2017) point out that, in island tourist destinations with poor infrastructure, the transport of goods and passengers can have a negative effect on the tourist experience. The interdependence between tourism and goods transport is also mentioned by Tovar et al. (2020), who point out that goods transport management must be optimised to minimise these potential negative impacts.

We can therefore say that a careful transport strategy, in addition to benefiting the local population, which depends on it, is fundamental to tourism, particularly when it comes to event tourism.

Efficient logistics management contributes directly to the reputation and experience of an event. Transport delays, equipment delivery failures or material unavailability can negatively affect the participant experience, as well as generate additional costs and compromise the scheduled activities. The predictability, flexibility and capacity of transport are determining factors for the logistical success of an event.

According to Lohmann et al (2013), efficiency in the transport of goods is thus one of the determining factors for the competitiveness of a tourism destination, especially in island regions that depend almost exclusively on sea and air transport for the supply of goods.

In the context of event tourism, this dependence becomes even more critical, as any failure or delay in logistics can compromise the success of an event due to the limited availability of local suppliers and the complexity of transporting goods, with a direct impact on the local economy.

According to Silva et al (2023), investments in logistics infrastructure and the efficiency of maritime and air transport can boost the local economy and improve the competitiveness of islands in the global tourism market. Thus, to ensure the competitiveness of islands as tourist destinations, it is essential that the costs of transporting goods are efficient and that goods are available at affordable prices, allowing tour operators to offer more competitive prices to visitors

3. Event Tourism and Goods Transport to the Island of Madeira

3.1 Event Tourism on the Island of Madeira

The Island of Madeira offers a highly diverse annual calendar of events, enabling the differentiation of tourist demand throughout the year and the attraction of various visitor segments. In addition to the traditional cultural events that are held on a regular and scheduled basis, there are also occasional events that enhance and diversify the island's tourism offering. These initiatives form part of a continuous effort

to position Madeira as a premier destination for high-end event tourism, with many of these events being promoted by major hotel chains operating on the island.

In addition, Madeira has been increasingly orienting its tourism offering towards the luxury and wellness segments, accompanied by a notable growth in business and event tourism. The MICE (Meetings, Incentives, Conferences, Exhibitions) sector generates substantial tourism revenue, thereby contributing significantly to the expansion of the regional economy (Proença et al., 2021). Events have emerged as a key instrument in mitigating seasonality, which remains one of the principal challenges confronting the tourism industry.

Indeed, event tourism has been consolidating on the island, supported by a high-quality hotel network equipped with integrated conference facilities, efficient air connectivity including regular and low-cost flights, institutional promotion of events by the Regional Government and local entities, and the advantage of a mild year-round climate conducive to outdoor events. However, the success of this type of tourism is closely linked to the destination's logistical capacity.

In 2022, according to INE data, Madeira recorded a 12.5% increase in the number of corporate events, reflecting not only the recovery of tourism following the COVID-19 pandemic but also the growth of business and event tourism. The rising demand for this sector necessitates continuous investment in logistical infrastructure to accommodate the increasing flow of visitors, whose presence is becoming more evenly distributed throughout the year.

3.2 Transportation of Goods to the Island of Madeira

3.2.1 Sea Transport

Due to its capacity for transporting cargo, maritime transport constitutes the primary means of supplying goods to island regions. Companies such as Transinsular, Grupo Sousa, GS Lines, and OPM play a pivotal role in maritime transport and logistics between mainland Portugal and the Autonomous Region of Madeira. These companies form the backbone of the integrated logistics chain, facilitating operations between mainland Portugal, international markets, and the Autonomous Region of Madeira (RAM) by sea. According to INE data from 2023, this activity has been experiencing consistent growth. Specifically, total freight traffic increased by 7.6% between 2022 and 2023, reaching 1.2 million tonnes. Of this total, only 155,000 tonnes correspond to goods loaded on the island of Madeira (+2.1%), while unloaded goods increased by 8.3%.

The importance of maritime freight transport is evident, given its higher cargo capacity and lower costs compared to air transport. The Regional Directorate of Statistics of Madeira, in its 2023 RAM Transport Statistics report, highlights that although most of this freight movement is domestic—with over 1.1 million tonnes traded internally—the Autonomous Region of Madeira (RAM) remains highly dependent on external sources. The volume of goods unloaded in the RAM significantly exceeds that of goods departing from the region (Fig. 1), underscoring the critical role of efficient freight transport in ensuring the region's supply and economic sustainability.

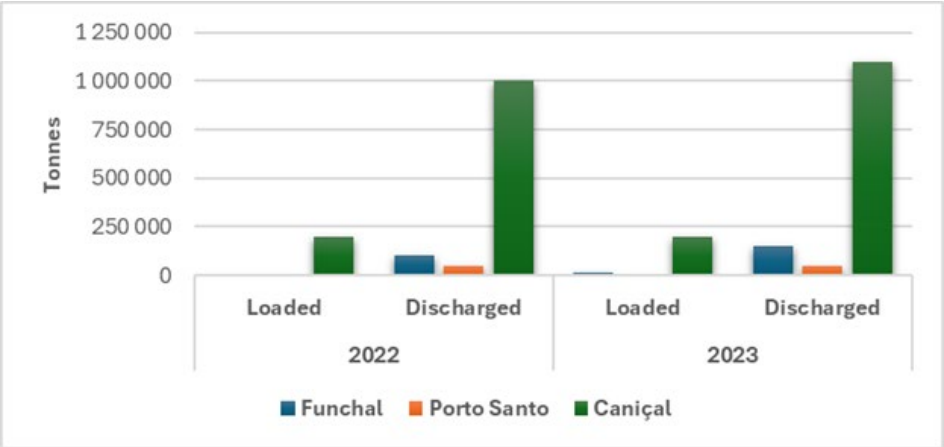


Figure 1: Movement of goods in the Ports of the Autonomous Region of Madeira, 2022 and 2023

Source: Transport Statistics for the Autonomous Region of Madeira, 2023

Naturally, as this is an island territory, we will also consider the importance of air transport for the movement of people and goods.

3.2.2 Air Transport

Regarding air transport, and according to the Management Report and Accounts of the ANA – Aeroportos de Portugal Group, which manages Funchal Airport (Cristiano Ronaldo Airport) on the island of Madeira, the airport handled approximately 4.8 million passengers and 3,970 tonnes of air cargo in 2023. Although modest compared to maritime freight movements, these figures demonstrate stability relative to the previous year.

The majority of this cargo is transported on commercial passenger flights, reflecting the integration of passenger and freight transport within the logistics system. Air cargo represents a smaller proportion of total freight due to spatial limitations, as cargo hold dimensions on passenger aircraft are restricted to a maximum height of approximately 150–160 cm. In contrast, dedicated cargo aircraft can accommodate cargo up to 240–300 cm in height, depending on the model, and offer significantly higher tonnage capacity.

The ANA Group, through Madeira Airport, plays a pivotal role in air freight transport, contributing to the island's logistical resilience and its effective connection with external markets, thereby supporting regional development. This operational dynamism underscores the airport's strategic importance as a hub for both tourism and the local economy.

Among the main air transport companies serving the Autonomous Region of Madeira, TAP Air Portugal assumes a central role in the transportation of passengers and goods, maintaining regular daily flights along the Porto–Lisbon–Funchal air bridge. TAP's operations connect Madeira to approximately 50 national and international routes. In the cargo segment, TAP Air Cargo is notable for its logistical capacity, operating weekly flights dedicated to the transport of general merchandise, perishable goods, hazardous materials, live animals, and mail.

Consequently, although multiple companies operate in the region, TAP Air Portugal plays an especially active role in promoting tourism on the island, particularly event tourism, by ensuring the reliable transport of both passengers and cargo**.**

4. Research Methodology

The methodology adopted for this project involved a thorough review of the literature, including scientific articles and selected case studies, which facilitated the establishment of an appropriate theoretical framework for the research.

In a second phase, a questionnaire was administered to both tourists and residents (including event organizers and participants) on the island of Madeira, with the primary objective of assessing their perceptions regarding the impact of freight transport on events and, consequently, on the quality of the experience within the context of Event Tourism on the island. The questionnaire comprised 12 questions, predominantly multiple-choice, and was distributed via Google Forms randomly to residents and visitors between the end of March and the beginning of June 2025, yielding a total of 50 completed responses.

When applied to tourists/visitors and residents, the questionnaire provided two distinct perspectives: an external perspective, reflecting the experience of tourists, and an internal perspective, capturing the daily logistical reality of the island and its reliance on maritime and air freight transport. This dual approach enriches the analysis, enabling a comprehensive understanding of how freight transport influences both the perceptions of event visitors and the experiences of those who organize or participate in events locally.

Thirdly, an exploratory qualitative approach was employed through interviews with three logistics operators to examine the impact of air and maritime freight transport on island tourism, with a particular focus on the island of Madeira. These interviews followed a pre-structured script, designed in advance in accordance with the research objectives. The selection of interviewees was undertaken carefully to ensure diverse and relevant perspectives: a freight forwarder, responsible for coordinating

logistics operations among the various stakeholders involved in transport and event organization; a shipping company, providing insights into maritime transport; and an airline, offering the perspective of air transport operations. This triangulated approach allowed for a comprehensive understanding of logistical requirements and their impacts on tourism and event management.

5. Results

5.1 Survey Results

The staging of events on the island of Madeira, whether cultural, sporting, conferences or popular festivals, is dependent on the transport of goods by air or sea. The analysis of the questionnaire completed by fifty respondents sought to assess how logistics capacity and goods transport influence event tourism on the island of Madeira from the perspective of tourists, residents and event organisers.

In a first approach, we sought to identify the respondents' connection (whether residents or non-residents of the island) with the events, namely whether, or not, they had participated in events held on the island of Madeira.

As we can see from the analysis of the graph in Fig. 2, we have a sample in which the information provided by residents and non-residents of the island has a similar weight, given that the respondents, although mostly non-residents of the island (52.0%), do not differ greatly from the residents (48.0%).

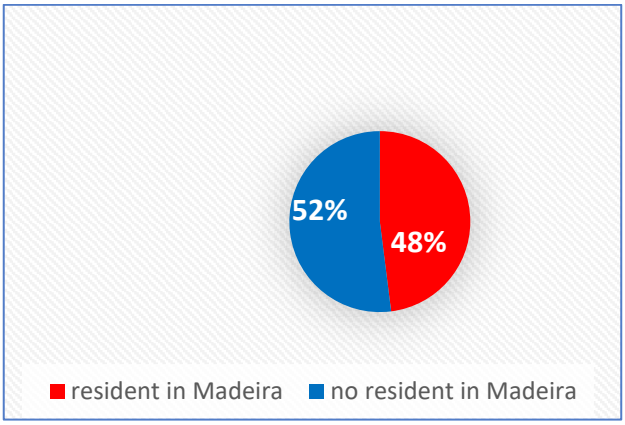


Figure 2: Respondents residing on the island of Madeira.

Source: Own elaboration

Of these, 80.0% said they had already participated in events on the island, which allows us to identify the strengths and weaknesses of the experience.

When asked about the efficiency of air freight transport, 66.0% of respondents considered it efficient in ensuring the timely delivery of goods, a critical factor in events with specific deadlines or requirements. However, we also highlight that 34.0% perceive air transport to be inefficient (fig. 3).

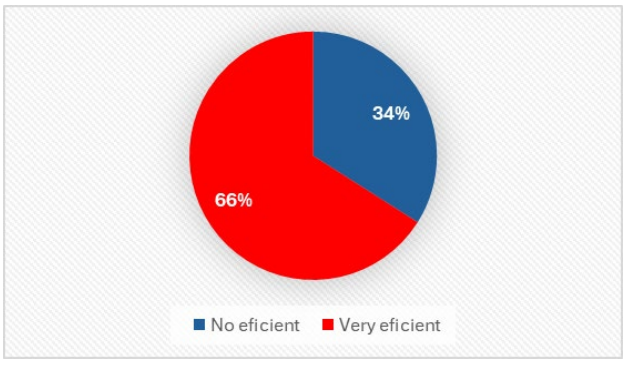


Figure 3: Air Transport Efficiency

Source: Own elaboration

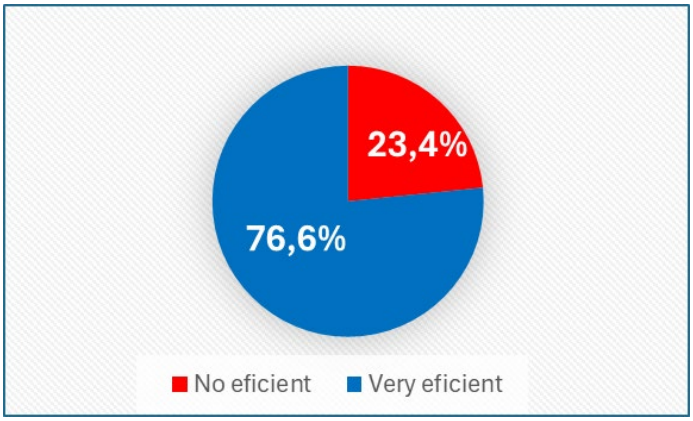


Figure 4: Sea transport Efficiency

Source: Own elaboration

Regarding sea transport (fig. 4), the image of efficiency is considerably better than that of air transport for 76.6% of respondents. This assessment reflects the importance of maritime transport as the main means of transport for supplying the island, especially for large cargoes or large quantities of goods. However, 23.4% of respondents still highlight its inefficiency. As sea transport is a less reliable solution in terms of meeting deadlines, due to its dependence on sea conditions, its exclusive use can pose a risk to the organisation of events.

In fact, as shown in the analysis in Fig. 5, more than half of respondents (58.0%) said they had experienced or were aware of delays in events caused by failures in the transport of goods. However, the fact that 42.0% did not have this experience may indicate that there is a satisfactory, functional level of operation that is able to meet needs.

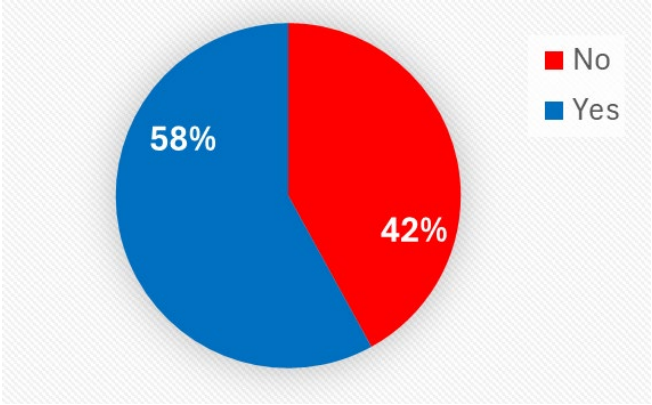


Figure 5: Experienced delays in the delivery of equipment or materials for events due to delays in air or sea transport

Source: Own elaboration

This assessment is naturally reflected in the overall analysis of the logistical experience of the events, with 64.6% of respondents highlighting that their logistical experience was below expectations and therefore of poor quality, although 29.2% considered this experience to be positive. However, 6.3% even gave it a negative rating. These figures confirm that the logistics of events in Madeira are functional, but not without significant flaws that can affect the experience and have a negative impact (fig. 6).

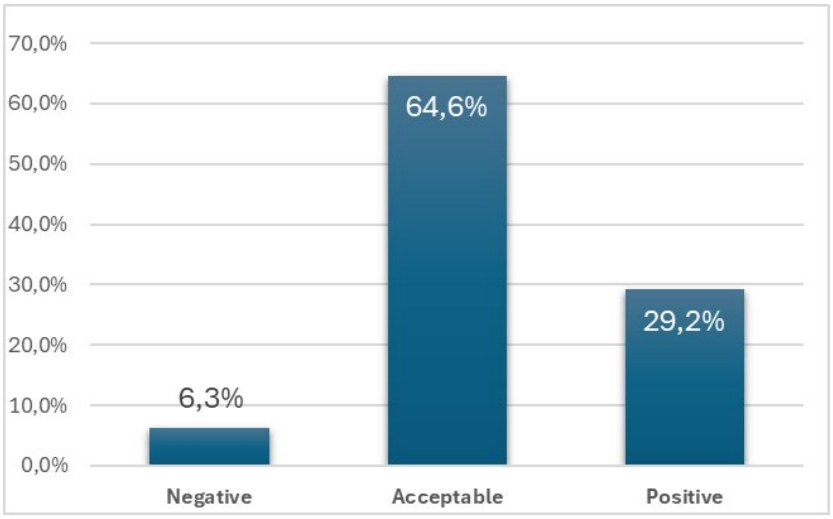


Figure 6: Logistical experience in the events in which they participated.

Source: Own elaboration

Finally, when asked about the cancellation of events due to logistical failures (Fig. 7), 26.0% of respondents said they were aware of more than one event being cancelled for this reason, in addition to those who knew of one case (14.0%). In our opinion, this reveals a real risk of organisational instability.

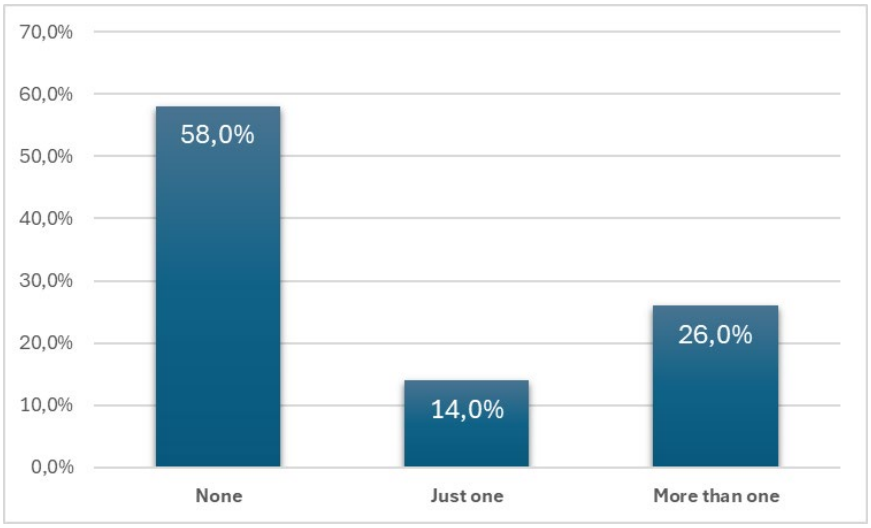


Figure 7: Events cancelled due to supply failures caused by transport issues.

Source: Own elaboration

5.2 Interviews Analysis

Event tourism has taken on an increasingly important role in Madeira Island's economy. However, it depends on a logistics network capable of ensuring the timely supply of essential goods for its operation.

Through three interviews with representatives from Transinsular Madeira, Logislink and TAP Air Portugal, it was possible to identify the main challenges, strategies and impacts associated with the transport of goods, both by sea and by air.

The companies interviewed have different but complementary logistical realities, particularly because the freight forwarder uses the services of the shipping company and the airline, as well as port and airport operators, which can help us to understand the operation. Transinsular operates a fleet of ships, in conjunction with local partners for road transport and other ETE Group operators for logistics management. Logislink has created its own Logistics Point in Madeira to streamline processes and better respond to local needs, while TAP Air Portugal

uses its air network with regular daily flights between the mainland and the island, using the hold of passenger aircraft and, occasionally, cargo aircraft to transport goods.

Regarding the type of events and cargo transported, the differences between modes of transport are evident. Maritime transport is geared towards large or high-volume cargo, such as mobile structures, vehicles and various materials. Here we highlight the nature of some goods, such as rally cars, which can only be transported by sea, and fireworks, which are dangerous goods classified as explosives and, due to their technical characteristics, require containerised packaging for sea transport and are prohibited from being transported by air. Air transport, on the other hand, is associated with technical and sports equipment, perishable products and promotional materials, often linked to conferences, sporting events and festivities.

Another aspect mentioned several times in the interviews is the critical importance of communication and coordination between logistics operators, event organisers, freight forwarders and suppliers. The lack of clear information or incomplete technical data on goods can compromise the safety and efficiency of the operation. In this regard, interviewees emphasise the need for continuous training, especially in the transport of dangerous, fragile or perishable cargo, where the risks are greater, but also in general cargo, where planning plays a key role in ensuring space and flow of goods to meet deadlines and satisfy customers. In cases of delays, rolled cargo or missed stopovers, goods are given priority and take up space on subsequent connections, causing a snowball effect. In order to stop this, companies are often forced to include additional stopovers, which is possible in air transport through charter flights, but impossible in maritime transport due to space limitations, transit times and reduced fleets.

From a strategic point of view, the proposals for improvement converge on the need to strengthen the island's logistics infrastructure. TAP warns that Funchal Airport's capacity is reaching its operational limit, especially in view of the evolution of large aircraft and the increase in the flow of goods. Logislink advocates the creation of a local logistics centre to enable the organisation and advance storage of goods destined for events. Transinsular, meanwhile, calls for greater capacity to respond to cargo requests, which could involve expanding the Port of Caniçal, specifically its depth, which would allow the company to operate with deeper-draught ships with greater containerised and conventional cargo capacity.

Despite the limitations identified, all operators agree that current logistical efficiency contributes positively to the island's development and to Madeira's attractiveness as a destination for international events, thanks to good coordination between the parties involved and proven by examples of overcoming challenges and success. TAP stands out as an institutional partner of Madeira Tourism, acting as its ambassador to the world, since, in addition to transporting goods, it is also the main carrier of passengers/tourists to the island of Madeira. The ability to respond to needs, the commitment of local operators to the available solutions and the experience accumulated over the years are factors that support this perception. However, things do not always go smoothly and there are reported cases of delays at conferences, concerts and other events due to transport failures, mainly caused by weather conditions. Of the three interviewees, only one mentioned the cancellation of an event, a music concert that was to be part of the Clube Naval do Funchal's anniversary celebrations. This cancellation was caused by the power outage in Portugal in April 2025, which led to the cancellation of several flights, including the flight that would transport the band and their equipment between Lisbon Airport and Funchal Airport.

The three interviews reveal an island logistics network that, although functional and resilient, is close to its operational limits. The success of events in Madeira depends heavily on the reliability of freight transport, whether by sea or air. The need for investment in infrastructure, effective communication between stakeholders and rigorous planning are pillars shared by all interviewees. As Madeira seeks to establish itself as a venue for international events, it will be essential to invest in a modern logistics network adapted to the demands of an island territory with global ambitions. Ultimately, strengthening the logistics system for freight transport could further enhance Madeira's image as a destination of excellence for event tourism.

6. Conclusions

Islands, as territories that integrate both natural and cultural resources, possess intrinsic characteristics that render them particularly attractive for tourism. However, these same characteristics necessitate the establishment of efficient transport systems capable of sustaining the movement of people and the circulation of goods essential to the sector’s functioning.

The island of Madeira has progressively consolidated its position as a distinguished tourist destination, a status attested by its repeated recognition in the prestigious World Travel Awards. Among the various tourism segments, event tourism has emerged as a strategic area of investment, not only due to Madeira's physical attributes—such as its favourable climate, diverse topography and lush vegetation—but also because of substantial local investment in high-end accommodation and associated services.

Our research corroborates the argument advanced by Jarvis et al. (2016), according to which the identification of economic, social, and environmental factors influencing tourist satisfaction is essential, given that the satisfaction process within the context of tourist events constitutes a core dimension of the activity. As highlighted by Briggs et al. (2007), the quality of transport and the adequacy of product supply represent significant determinants of overall visitor satisfaction.

Madeira possesses considerable potential to position itself firmly within the international events arena. Nonetheless, the realisation of this ambition presupposes a strong commitment to enhancing logistical efficiency. The optimisation of transport networks, the reinforcement of local supplier systems, and the strategic development of appropriate infrastructure are indispensable measures for ensuring an efficient and reliable logistics framework capable of responding effectively to the demands of the events sector.

The current limitations of the island's infrastructure capacity may compromise freight transport efficiency, thereby exerting a direct impact on both tourism performance and the daily needs of the resident population.

Based on the insights provided by interviewed operators and corroborated by the data obtained through the administered questionnaires, it is evident that strategic investments are required to strengthen existing logistical resources and to develop contingency mechanisms that minimise the repercussions of potential disruptions in goods transport on the organisation and execution of events. Only through such measures will it be possible to ensure that each event contributes effectively to enhancing the island's value, consolidating Madeira not merely as a leading tourist destination but also as a reference point for excellence in the organisation of international events.

In conclusion, the analysis of the collected data reveals structural weaknesses in both the air and maritime freight transport systems, as well as in the island's event logistics, all of which exert a tangible influence on the success of events held in the region. Respondents' perspectives converge towards a shared diagnosis: while the system operates, it exhibits evident deficiencies that adversely affect event tourism. Should Madeira aspire to consolidate its position as a destination of excellence within this niche, it is imperative to invest decisively in the improvement of sea and air freight transport, which will, in turn, enhance logistical support for event organisation and execution.

7. Limitations and Suggestions for Future Research

Throughout the course of this research, several limitations were identified, the most significant of which concerned the difficulty in locating up-to-date studies addressing logistical aspects within the tourism sector. This challenge was compounded by the scarcity of specific statistical data pertaining to the region under analysis, which constrained the depth and comparability of the findings.

Regarding the fieldwork, the impossibility of conducting an on-site visit presented certain challenges, particularly in terms of monitoring participant engagement and achieving a broader reach among potential respondents, thereby limiting the overall sample size. Despite repeated efforts to engage local stakeholders and continuous encouragement for participation in the questionnaire, it was not possible to attain the initially intended sample size.

In relation to the interviews, it is important to note that the research design envisaged an analysis of the entire logistics network through interviews with five key actors: a freight forwarding agent, a maritime transport company, an air transport company, the port authority, and the airport operator. However, due to constraints within two of these organisations, the corresponding interviews could not be conducted, as these entities declined to participate.

For future research, it is recommended that further studies be undertaken to explore the role and significance of transport logistics within event tourism. Although this topic is particularly relevant in insular contexts, it would also be valuable to extend such analyses to mainland destinations. Future

investigations should consider the diversity of event types (e.g., scientific, cultural, and corporate) and examine the role of event tourism in destination promotion. Moreover, it would be pertinent to assess the relationship between organised events and emerging market trends, with particular emphasis on the enhancement of customer experience as a determinant of destination competitiveness.

Acknowledgments

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Ethics Declaration

Ethical clearance was not required for this research.

AI Declaration

AI tools were not used for the creation of this paper.

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Capturing the Economic Value of Mzansi's Local Cuisine Through Storytelling in Tourism

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Abstract: Mzansi, the colloquial name for South Africa (SA) (from the Xhosa noun uMzantzi, meaning "South"), has a vast and varied national cuisine, known as the Rainbow Cuisine, that is relatively unexplored. The 2nd UN Tourism Regional Forum on Gastronomy Tourism for Africa, Arusha, identified the need to strengthen local food ecosystems as a top priority, suggesting engagement with producers, the safeguarding of culinary heritage through the promotion and use of native crops, documentation of products, processes and traditional recipes, and more sustainable food systems. In other research, Local Economic Development (LED) has demonstrated that using local food can drive a destination's competitiveness, add value to local economies, and foster tourism loyalty through high satisfaction with gastronomic offerings. The aim of this research was to present the local food-related travel tendencies of SA tourists, with a view to making recommendations to food entrepreneurs. An electronic questionnaire was made available to local South African tourists through Qualtrics. It included a demographic section to ensure participation by South African residents living and travelling locally, as well as a second section to record personal travel tendencies. Of the 276 valid responses, 97.5% indicated that they always/sometimes search for local foods when travelling locally, while 72.8% visited a local independent restaurant and 52% a food market. Our results indicate that each traveller had a mean of 4.33 (on a 5-point Likert scale) food related activities during their travels, that they were willing to try new foods (m = 4.37); purchase local food to take home (m = 4.29); can remember the food they consumed during their travels (m = 4.29); enjoy eating new foods (m = 4.27), and read up about places to eat before commencing with travels (m = 4.17). Local tourists' curiosity about other cultures' food (m = 4.16) and their desire to eat where locals eat (m = 4.16) were also highly important. These results clearly demonstrate the advantages, importance, and multiple benefits of local and cultural foods, along with storytelling, that food and hospitality entrepreneurs can utilise in their marketing and offerings to harness economic benefits and build national pride, thereby delivering broader, even inter-regional, socio-economic benefits.

Keywords: Local Food Tourism, Storytelling, Travel, Local Economy, Experience Economy.

1. Introduction and Background

Global tourism has finally returned to pre-COVID-19 pandemic levels. Tourist arrivals increased by 33.4% from 2022 to 2023 (UNWTO 2025), and in 2024, an estimated 1.4 billion overnight international tourists were recorded, surpassing pre-COVID levels.

Tourism makes a significant contribution to economies, and most countries make substantial efforts to advance both international and local tourism. Local food ecosystems were a top priority at the 2025 2nd UN Tourism Regional Forum, making the need to strengthen gastronomy tourism a clear goal for Africa (UNTourism 2025) and SA. As part of the South African government's National Development Plan, the South African Department of Tourism has recognised tourism as a pillar of the country's economy, providing 1.3 million jobs and contributing 6.8% of GDP in 2023 (GCIS 2024). With domestic travel contributing an estimated 38 million domestic trips worth ZAR 121 billion (GCIS 2024), its potential to stimulate economic growth and transformation is evident. The Department of Tourism has identified several upcoming niche markets, namely Wine-, Heritage Culture-, Township-, and Domestic Tourism. Specifically, the "Sho't Left" campaign, launched in 2007, focuses on locals travelling to towns and provinces in their own country (GCIS 2024). The South African Yearbook 2023/24 Tourism (GCIS 2024) provides a comprehensive summary of attractions by province and town; however, the document does not refer to dining spaces, food, or ingredients as the main attractions. Herein lies the missed opportunity identified by the Tourism Forum.

Strengthening local food ecosystems is another top priority (UNTourism 2025), through safeguarding culinary heritage, by promoting the use of native crops, documenting products, processes, and traditional recipes, and promoting more sustainable food systems. LED has also demonstrated that using local food can drive a destination's competitiveness (Ndlovu 2023) by adding value to the local economy. Furthermore, tourism loyalty can be achieved through high satisfaction with gastronomic offerings (Berbel-Pineda et al. 2019). SA's Gastronomy Tourism Framework (Department.of.Tourism 2023) has been in a development/implementation phase for the past six years (Capazorio 2023). Hospitality and tourism stakeholders have called for urgency to

move from strategy to implementation, facilitating the enhancement of travel offerings in the domestic tourism market, stimulating job creation, and unlocking the untapped potential of food tourism in SA.

Mzansi, a conversational term for SA (derived from the Xhosa noun uMzantzi, meaning "South"), has a considerable and varied but largely unexplored national cuisine, often referred to as the Rainbow Cuisine (Fisher and Du Rand 2024, Snyman 2004), that is on offer to local and international tourists.

The Experience Economy (EE), first introduced in the 1990s by Pine and Gilmore (1999), has developed into a well-known model for creating value in tourism. In a previous study (Fisher et al. 2025), the effect of tourists' experiences in food tourism in SA was quantified, and it was found that none of the 276 respondents achieved the "sweet spot" effect as prescribed by the EE Model, missing this window of opportunity.

The aim of this research was to present the tendencies and importance of local cuisine to local South African tourists in order to make recommendations to local food entrepreneurs. The current research, therefore, explored how tourism businesses can leverage the EE for economic gain by utilising storytelling and creating experiences that become synonymous with tourists' identities, enabling them to become active and intentional actors in their own travel stories.

2. Literature Review

2.1 Local Tourism

Domestic tourism is defined as tourism by residents within the country's economic territory (Hall and Lew 2009). Like most other forms of tourism, it involves the development and promotion of local tourism activities, such as cultural, historical, and natural attractions, as well as specialisations like culinary or gastro tourism. It offers substantial opportunities for community empowerment and economic growth (Ramukumba 2019), strengthening cultural preservation and community identity. Consequently, it plays a vital role in promoting local economic development and supporting employment opportunities.

Culinary or gastrotourism can be leveraged by rural areas to achieve economic growth and foster local identity by offering local tourists opportunities to experience local cuisine and engage in food-related activities, events, and experiences. Such initiatives not only generate revenue for local businesses (Bain 2024) and support the foodservice industry in both cities and small towns through providing a unique 'place-based' food experience, but they can also preserve culinary heritage. Culinary tourism contributes to job creation, increases the demand for local ingredients, creates sustainable income for local economies, and enhances community identity and cultural pride (Bain 2024).

2.2 South African Gastro Tourism Attractions

Culinary tourism in SA exhibits a growing sector with domestic food/beverage spend at ZAR 5.5 billion (2022), and an income of ZAR 99 billion (2022) in the food and beverage industry, with an increased income of 8.2% annually (Stattsa 2025). Fine dining is also a contributing factor, with three restaurants on the 2025 World's 100 Best list (Anderson 2025).

Successful examples of gastro tourism attractions in SA include:

- Cape Malay food and cooking classes in the Bo-Kaap of Cape Town, in terms of which researcher Allyson Ang (2015) quotes Maggie Mouton in Bo-Kaap Kitchen (Fraser and Webb 2013) saying that "The Cape Muslims, strongly bound by their religion, and blessed with an affinity for and a love of cooking, have created and managed to retain a strong identity". This is an excellent example of how the story of Cape Malay slavery and oppression became integral in the construction of Cape Malay identity and food, strengthened by author Cariema Isaacs (2016), who says, "…what I learned from my father was even more valuable – he taught me *why* we cook";
- Seafood Beach Braais are mostly all-you-can-eat fresh seafood feasts, cooked over open fires right on the beach in places such as Paternoster on the West Coast. Food journalist Tony Jackman (2021) writes, "Potjies brimful of seafood; kreef braaing on a grid somewhere, whole fish on another, piles of pertly pink prawns" about his experience at Muisbosskerm at Lamberts Bay;
- Other examples include The Oyster Cooking and Shucking competition (7 July 2026) (De Bruin 2025), the Groot Marico Mampoer Festival, trout fly-fishing in Dullstroom, the Durban "Bunny Chow" hunt, Macadamia nut farm tours in Hazyview, and a Zulu Cuisine Cooking Experience presented by 'Kasi Taste'

chef Phumlani Mthembu at WOWZULU Marketplace in Ballito, which includes steamed bread and amadumbi.

Even though the examples above detail successful gastro tourism attractions, they are but a fraction of the many unexplored cultural foods to be explored in SA:

- The craze for ostrich feathers in late 1800s fashion led to the establishment of Oudtshoorn's feather industry, creating ostrich barons famous for their over-the-top ostrich palaces. As the demand for ostrich feathers declined, ostrich farming transitioned from producing feathers to the current ostrich meat industry, which could include ostrich biltong-making lessons, ostrich egg frying competitions, or ostrich-egg-and-spoon races (see Figure 1 for the size of an ostrich egg). Even though interest in geotourism (Rogerson and Rogerson 2024) may be limited, the economic value of including food from the Klein Karoo region has yet to be explored;



Figure 1: Size relation of an ostrich egg (author's own)

- Some township gastro tourism experiences exist, such as authentic Shisa Nyama (a local braai or BBQ) and other eateries along Vilakazi Street in Soweto; there is scope for expansion. The seven women from the Imizamo Yethu neighbourhood in Cape Town's Hout Bay, who contributed to *Molokoane Street: Cooking is heaven when living is hard* (Elliott 2024), could enjoy similar benefits by marketing gastro tourism experiences in their suburb, telling their stories of looking out for each other and sharing their personal stories and recipes;
- Other unexplored gastrotourism experiences include sultana drying in the Orange River Delta, Kalahari truffle (*Kalaharituber pfeilii*) hunting with San people, or utilisation of the more than 850 edible seaweed flora.

2.3 Storytelling

Unique experiences are a key driver in the tourism industry, which is entering an 'experiences-as-identity' era (Gilbert-Jones 2024). Many culinary tourism experiences are worth travelling for, as they create or reinforce an identity (Haris 2025) beyond merely providing a service to tourists.

Storytelling plays a significant role in enhancing the experience economy in culinary tourism by creating immersive, memorable experiences that connect tourists to a destination's cultural and culinary heritage (Nurwitasari et al. 2024). Baker (2025) argues that the future of tourism lies in storytelling. Storytelling involves

sharing narratives about a place, its people, history, and culture, and can be expressed in various ways, including visually, digitally, and verbally (Garcês 2024). Successful storytelling often leads to an emotional connection between the tourist and the event, character, or place, transforming a consumption activity into a meaningful experiential encounter (Pine & Gilmore, 1999; Mossberg, 2007).

This integration of storytelling into culinary tourism not only enriches the tourist experience but also supports local economies and cultural preservation. The EE framework, which emphasises the creation of memorable and engaging experiences, is particularly relevant in culinary tourism, where storytelling can transform a simple meal into a cultural journey. The value of storytelling lies in its ability to provide tourists with a deeper, more memorable understanding of the local gastronomy, thereby enhancing their knowledge of the food culture of the specific destination and its community (Rahayuningsih et al. 2025). Moreira et al. (2025) distinguish between destination-based storytelling and tourist-based storytelling, in which the latter enables tourists to share their stories and contribute to the creation of identity within the EE, thereby making the tourist experience a reflection of the destination's identity.

2.4 Experience Economy

The Pine and Gilmore (1999) Experience Economy (EE) model has been widely applied and validated across diverse sectors of the tourism industry, including sporting events (Coetzee et al. 2019), wine tourism (Quadri-Felitti and Fiore 2012), and various festivals (Mehmetoglu and Engen 2011, Park et al. 2010, Chirakranont and Sunanta 2021). In South Africa, the EE scale (Oh et al. 2007) has been applied to retail, guesthouses, museums, and food tourism (Cassel et al. 2021, Coetzee 2015, Radder and Han 2015, Fisher et al. 2025). Recent food-related research includes studies on Vietnamese culinary experiences (Hoang 2023) and P2P dining (Mhlanga 2024), with future trends shifting toward transformative experiences (Flores-Gómez et al. 2025).

This study utilises the four EE dimensions to explore culinary storytelling and the "sweet spot" of optimal experience (Leung et al. 2023):

1. **Education**: Involves active skill acquisition or passive knowledge gain (Oh et al. 2007). Stories about historical methods or a chef's heritage create emotional connections to the techniques being taught.
2. **Entertainment**: Passive enjoyment as an audience member (Oh et al. 2007). Narratives regarding generational history or local traditions—conveyed verbally or through galleries—enhance the observation of local activities (Kusumah and Andrianto 2023).
3. **Escapism**: Active immersion where tourists temporarily leave their daily routines or identities (Leung et al. 2023). Storytelling facilitates this by encouraging self-identification with local characters (Kusumah and Andrianto 2023).
4. **Aesthetics**: Passive immersion in the physical environment, including décor, sounds and smells (Oh et al. 2007). Storytellers highlight these sensory attributes to forge realistic, emotional links to the destination (Kusumah and Andrianto 2023).

3. Methodology

The original EE model has been extensively tested and adapted for various settings (Oh et al. 2007, Quadri-Felitti and Fiore 2012, Pine and Gilmore 2011, Coetzee 2015). Most recently, Fisher et al. (2025) successfully used it to describe the local tourists' experiences with local food. This section was guided by dissonance theory (Festinger 1962) to examine the value of local food for local travellers. The EE was selected as a suitable methodology because it aligns with the concept of Storytelling and has been applied to various tourism experiences. The same adapted scale was applied using a Qualtrics online questionnaire, focusing on the travel tendencies and experiences of local travellers travelling within the nine provinces of SA. A quantitative, cross-sectional survey design was employed and piloted (n = 10) in November 2024 to minimise errors. In December 2024, 276 complete and valid responses were collected through convenience and snowball sampling. The survey link was initially sent to colleagues' mailing lists, who were asked to share it. The survey included demographic questions, 27 Likert-scale statements (a 5-point agreement scale) on their personal travel tendencies, and several open-ended questions about the details of a recent culinary experience. Respondents rated their local food experience using 24 adapted Likert-scale items based on four EE dimensions. The Statistical Package for the Social Sciences (SPSS) and thematic coding were used for qualitative data analysis. The adapted EE scale was validated using Confirmatory Factor Analysis (CFA), and descriptive analyses were employed to explore the travel tendencies of local tourists in the South. A T-test was used to compare the effect of storytelling on the tourist experience, using the EE model.

4. Results

The sample consisted of 199 females and 75 males, mostly from the Millennials and GenX cohorts (see Table 1). Approximately sixty-one per cent (60.9%) reported holding an undergraduate qualification, while 39.1% held a postgraduate qualification.

Additionally, 87.7% of participants had travelled locally for recreational purposes within the past three years; 11.2% travelled locally annually or less, 18.8% travelled once a year, 25.7% travelled twice a year, 19.6% travelled three times a year, and 24.9% travelled four or more times a year, confirming that the sample comprised more *regular* travellers than not. This is consistent with the Consumer insights agency KLA's finding that 79%% of South Africans are passionate about travelling (KLA 2025) and 81% agree that "you can only truly get to know a country by experiencing its culture", including "local cuisine (and) community interaction".

Furthermore, 6.5% of respondents stated they travelled locally solely for business purposes, 56.9% for pleasure, and 36.6% for both. When asked about local food preferences during their travels, 51.8% indicated that they always seek out local foods, 45.7% said they sometimes do, while 2.5% reported that they never do.

Table 1: Demographic Profile

Demographic Profile (n= 276)		Frequency	Percent
Age	Gen Z 1997-2012	35	12.7
	Millennials/Gen Y 1981-1996	90	32.6
	Gen X 1965-1980	94	34.1
	Boomers 1946-1964	56	20.3
	Silent Gen 1928-1945	1	0.4
Gender	Male	75	27.2
	Female	199	72.1
	Prefer not to say	2	0.7
Level of Education	Grade 10	3	1.1
	Grade 12	30	10.9
	Diploma/ Certificate	69	25.0
	Bachelor's degree	66	23.9
	Honour's degree	50	18.1
	Master's degree	35	12.7
	Doctoral degree	23	8.3
Ethnic Group	Black	60	21.7
	Coloured	10	3.6
	Indian	3	1.1
	White	201	72.8
	African Swati	1	0.4
	Afrikaans	1	0.4
	Other	2	0.7
Have you travelled for recreational purposes within the borders of South Africa within the last 3 years?	Yes	242	87.7
	No	34	12.3
How often do you travel locally within South Africa per year?	Less than once a year	31	11.2
	Once a year	52	18.8
	Twice a year	71	25.7
	Three times a year	54	19.6

Demographic Profile (n= 276)		Frequency	Percent
	Four or more times a year	68	24.6
When you travel locally, do you seek out local foods?	Yes, always	143	51.8
	Sometimes	126	45.7
	Never	7	2.5
Purpose of Travel	Business	18	6.5
	Leisure	157	56.9
	Both Business and Leisure	101	36.6

To determine local tourists' preferences and tendencies, respondents had to select responses from a 5-point Likert Scale (5 = Strongly Agree) for 27 unique statements. One reverse-coded item (9) was removed to improve the scale's reliability, resulting in an α value greater than 0.800. Overall, the scale indicated that respondents place above-average importance on food experiences during a trip (m = 3.579). Almost all respondents (m = 4.17) *read about recommended, famous, and popular places to eat.* While most respondents *planned their activities prior to the trip* (m = 3.759)*, fewer planned their actual dining experiences* (m = 3.45). This agrees with the KLA's report that 76% of South Africans enjoy planning and researching their holidays (KLA 2025).

Respondents indicated that they are *willing to try* (m = 4.37) and *enjoy* (m = 4.27*) new foods*, are *likely to purchase food* items to take home (m = 4.29) and can specifically *remember the food they ate* (m = 4.29). Regarding the various cuisines offered in SA, many are curious about the food of *other South African cultures* (m = 4.16) and want to *eat where locals eat* (m = 4.16).

Most respondents self-identified as *foodies* and *tend to have positive experiences with food as indicated by their engagement with food experiences* (m = 4.004)*,* and the statements below, *'I am always willing to try new foods'* (m = 4.37)*; 'I am curious about food from other cultures'* (m = 4.16). '*I consider myself a foodie'* (m = 3.87), I like '*trying out foods that are local'* (m = 3.88), and I follow *foodies* (m = 3.62) *or celebrity chefs* (m = 3.38) on social media. Additional details about the sample's personal travel tendencies are presented in Table 2.

Table 2: Personal Tendencies when travelling

ITEMS (n=276)	Item Mean (x̄)	Std. Deviation (SD)	Cronbach Alpha (α)	Scale Label/ Scale Mean
(7) I am likely to purchase locally produced food or beverages to take home	4.29	0.92	0.850	Importance of food during trip m=3.579
(21) I can remember the food I ate during my travels	4.29	0.91		
(27) When I travel, I want to eat where the locals eat	4.16	1.04		
(24) I follow foodies on social media	3.62	1.39		
(26) I have purchased or own old recipe books to find local and cultural recipes	3.58	1.38		
(20) When I travel, I intentionally ask the waitron/shopkeeper/guide about local foods	3.51	1.21		
(23) I follow celebrity chefs who introduce and discuss ingredients or meals that have cultural importance	3.38	1.35		
(2) The availability of local foods is generally more important to me than non-local foods when choosing a local travel destination	3.32	1.22		
(18) The accessibility of local foods is a factor when I decide to travel	3.07	1.20		
(9) I seldom worry about local foods when choosing a local travel destination	3.06	1.22		
(19) I have locally imported/ordered food/couriered food items to me of places that I have visited in the past	2.75	1.46		

ITEMS (n=276)	Item Mean (x̄)	Std. Deviation (SD)	Cronbach Alpha (α)	Scale Label/ Scale Mean
(4) Before I travel, I read about recommended, famous, and popular places to eat.	4.17	1.08	0.808	Planning prior to trip m=3.759
(10) Before I travel, I read up on adventure attractions	3.97	1.09		
(5) Before I travel, I read up about family attractions to visit	3.86	1.13		
(3) Before I travel, I read up on festivals/events happening	3.79	1.15		
(12) Before I travel, I have an idea of foods I want to taste	3.70	1.08		
(22) I like to read articles about food history and cultural foods	3.58	1.34		
(1) Before I travel, I read up about the historical places in the area	3.56	1.20		
(11) Before I travel, I already plan where I will dine	3.45	1.17		
(13) I am always willing to try new foods	4.37	0.87	0.879	Engagement with food m=4.004
(8) I enjoy eating foods that are new to me	4.27	0.93		
(15) I am curious about food from other local cultures	4.16	1.02		
(17) When I travel, I am intentional about trying out foods that are local	3.88	1.04		
(14) I consider myself a foodie	3.87	1.11		
(6) I intend to return to a destination I visited previously to experience the local food	3.83	1.05		
(16) When I travel, I choose to eat local dishes rather than something familiar	3.83	1.10		
(25) I have tried to prepare cultural dishes at home	3.80	1.28		
(9) I seldom worry about local foods when choosing a local travel destination	Item removed			

The 276 experiences reported were qualitatively analysed for elements of storytelling that enriched the traveller's experience. 152 respondents described experiences with one or more elements of storytelling (a narrative about people, places, culture, or an event) in which the tour guide, host, or presenter used a narrative to build a rich story around the food tourism activity. To combat selective recall among respondents, the researchers avoided directly asking about storytelling and instead asked, *In which other food-related activity or experience did you partake?* There was a clear distinction between activities that included storytelling and those in which respondents did not report any elements. One respondent described her experience as "*Attended the honey and mead festival*", which seems quite unimpressive and does not provide evidence of storytelling against another respondent who stated "*The Boma mock marriage ceremony, with food & dances were fascinating*". Other examples include the host sharing stories of their grandmothers in the kitchen, or wine farm tour guides telling stories about the families who have lived on the farm for decades.

One respondent reported their experience in the Western Cape town of Kommetjie, where they joined a guided township tour to see murals, which concluded with a traditional meal at a local home. These tours are known to include the oldest township in SA, and tour guides share the stories and history of the community's art, music, and food. Another respondent reported eating "*skaapstertjies, Goat stew, Kerrievis, Kabeljou, Roosterkoekies, (and) Babotie*" during their trip to Springbok in the Northern Cape. They wrote, *"I had the privilege of spending time with Ouma Lalie, who was a Koi San, in her 90s and could still speak the original language. She told me a great deal about many of the traditional local foods which she grew up with."* One respondent travelled to Kwa-Zulu Natal, the homeland of the Zulus, and experienced a "*mock marriage ceremony*" and ate "*Lots of venison (new tastes, marinated) at a boma braai, pap, (and) interesting condiments*".

To examine the effect of storytelling on the EE dimensions, an independent-sample T-test was conducted to determine whether participants who experienced storytelling differed significantly from those who did not when rating the four EE dimensions. Levene's test indicated that the assumption of homogeneity of variances was met for **entertainment** (p = .073) and **escapism** (p = .371), but not for **education** (p = .009) or **aesthetics** (p = .001). For the latter two variables, the results from the unequal-variance estimates are reported in Table 3.

Table 3: Effect of Storytelling

Dimension	Entertainment	Education	Escapism	Aesthetics
Storytelling				
N	152	152	151	152
Mean	3.9561	4.0044	3.7252	4.3526
SD	.82651	.80468	.79190	.63943
No Storytelling				
N	123	123	124	124
Mean	3.6165	3.4661	3.2876	3.8435
SD	.96735	1.00067	.89370	.85295
T	–3.139	–4.834	–4.302	–5.503
Df	273	232*	273	223*
P	0.002	<.001	<.001	<.001
Mean Diff.	-.33961	-.53826	-.43753	-.50908
95% CI of Diff.	[–0.55, –0.13]	[–0.76, –0.32]	[–0.64, –0.24]	[–0.69, –0.33]

Participants who had not experienced storytelling (M = 3.62, SD = 0.97) rated entertainment significantly lower than those who had experienced storytelling (M = 3.96, SD = 0.83), $t(273) = –3.14$, $p = .002$. The mean difference was –0.34 (95% CI [–0.55, –0.13]).

For Education, there was a significant difference in perceived educational value between participants with and without storytelling exposure. Those without storytelling reported lower scores (M = 3.47, SD = 1.00) compared to those with storytelling (M = 4.00, SD = 0.80), $t(\approx 232) = –4.83$, $p < .001$. The mean difference was –0.54 (95% CI [–0.76, –0.32]).

In the Escapism dimension, a significant difference was found: participants who had not experienced storytelling reported lower levels (M = 3.29, SD = 0.89) than those who had (M = 3.73, SD = 0.79), $t(273) = –4.30$, $p < .001$. The mean difference was –0.44 (95% CI [–0.64, –0.24]).

Participants without storytelling exposure rated Aesthetics significantly lower (M = 3.84, SD = 0.85) than those with storytelling (M = 4.35, SD = 0.64). Due to heterogeneity of variances, corrected values were used, $t(\approx 223) = –5.50$, $p < .001$. The mean difference was –0.51 (95% CI [–0.69, –0.33]).

Only 5 respondents (1.8%) reported the maximum score for all EE dimensions.

5. Discussion

South Africans are shown to be curious and intentional about wine and culinary tourism. They often travel locally more than twice a year and take care to research and plan their culinary experiences. More than half of the sample reported storytelling as part of the culinary activity, which significantly improved travellers' experience across all EE dimensions, yet only five in the sample reportedly achieved the sweet spot effect (Pine and Gilmore 1999, Fisher et al. 2025). Storytelling is therefore an effective way to create experiences that enhance the EE's dimensions.

Business storytelling also helps improve engagement and credibility when done correctly (Gitonga 2022). It is therefore recommended that culinary tourism businesses utilise stories about heritage, history, cultural significance, or societal importance to establish the context for their culinary offerings. In all types of food-related tourism activities, the hosts, servers and tour guides seemed to play an important role in creating a curated experience and should be trained to become effective storytellers.

6. Conclusion and Further Research

The results indicated that most South African travellers travelling locally place significant importance on food and dining experiences, although this may not be the main purpose of the trip.

All respondents successfully remembered food and culinary tourism experiences, which appear to have had a significant effect on the overall success of the trip.

Most travellers did not achieve the highest levels in each experience dimension, indicating opportunities for improvement.

Storytelling enhanced the experience and provided tourists with a deeper, more memorable understanding of local gastronomy, facilitating tourist-based storytelling that moves beyond destination-based storytelling.

From this research, the economic value to anyone involved in the food value chain operating within the Local Tourism realm is evident. It is, however, important to note that currently, few local tourism players fully capture the economic value of Mzansi's local cuisine in tourism, and that much more economic and socio-economic benefits may be harnessed from improving local food offerings, particularly through incorporating storytelling.

Further research is necessary to establish the value of storytelling in culinary tourism and to determine local businesses' ability to implement it to improve culinary tourism experiences. Future research should focus on objectively investigating the presence and impact of storytelling on both tourists and businesses.

6.1 Limitations

This sample consists mainly of white females and is not representative of the general population of domestic tourists in SA. Furthermore, the results of the study are limited to recalled experiences, which are subject to memory bias, or the Rosy Retrospection Phenomena, where people often tend to reflect on the past as more positive than at the time of the event, with this cognitive bias increasing as time goes on (Adler and Pansky 2020). The authors also acknowledge the subjective classification of storytelling as a limitation to this study.

Ethics Declaration

Ethical clearance was obtained from the Ethics Committee of the Faculty of Natural and Agricultural Sciences, University of Pretoria, number NAS134/2019.

AI Declaration

During the preparation of this work, the authors utilised Grammarly to enhance readability and verify grammar. After using Grammarly, the authors reviewed and edited the content as needed, taking full responsibility for the publication's content and the validity of the information presented.

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Entertainment Tourism Model: International Mega-Events as a Driver of Tourism

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Abstract: Tourism is an integral driver of economic productivity. Using international arrivals as a link to national income, this study examines whether mega-events defined as large-scale cultural, music, sports, and trade shows can serve as predictors of foreign tourist arrivals. While previous literature has emphasized the importance of events in shaping destination image and competitiveness, few studies have examined their predictive value across multiple countries and years. This research addresses that gap by compiling a new dataset from 82 countries. Event counts were collected for the years 2017, 2018, 2019, and 2023, while UNWTO validated 2024 international arrivals were used as the dependent variable. The pandemic years were deliberately excluded to avoid distortions and irregularities in both tourism flows and event programming. The study applied a quantitative, ex-post-facto research design, relying on secondary data drawn from international databases and validated institutional reports. The sample size of 82 was consistent with accepted regression requirements under Green's formula, ensuring reliability of results. Multiple regression analysis was conducted in SPSS to test the predictive strength of each event category. Results show that the model explains 28.1% of the variance in international arrivals (Adjusted $R^2 = 0.243$). Among the predictors, only music events produced a statistically significant effect, indicating that each additional large music concert or festival is associated with roughly 1.7 million more arrivals. Sports events showed a positive but non-significant effect, while cultural festivals and trade shows contributed little within the model. Moreover, the findings underscore the significance of event-led tourism strategies and the necessity for governments to view events as measurable policy instruments, rather than isolated cultural activities. By presenting a mathematical model grounded in cross-country data, this study provides policymakers with an evidence-based framework to guide investment, prioritize event categories with the strongest outcomes, and support long-term tourism planning and national development goals.

Keywords: Entertainment Tourism Model, Ex-Post-Facto Research Design, Mega-events, Tourism Driver

1. Introduction

Tourism forms a big part of the service sector in a country's economy. Enhancing its main indicators can bring about a significant increase to a nation's produce. Significant indicator defined foreign tourist arrivals as a factor of Gross Domestic Product (GDP). In a data from World Bank in 2022, using the recorded international tourists' arrivals and receipts, it can be estimated that 1 foreign tourist spends an average of 775 dollars per the country of destination. That's dividing the total recorded international tourist spending by the total number of tourist arrivals. Aligning to this, the increase of foreign tourist arrivals can trigger economic productivity. This research analyzed specific mega-events that are hypothesized to be a significant factor in putting a country as an exciting destination in the international community, thus, marketing its tourism probability, and eventually increase foreign tourist arrivals.

Several nations already adopted this approach. In recent years, governments identified the importance of entertainment mega-events as drivers of tourism. It acted as a marketing initiative. Through this, they have capitalized on the virality, popularity and contagious effect in awareness.

In Singapore, its leaders pursued entertainment-led tourism by securing recurring Formula 1 night races and high-profile concerts such as Taylor Swift's 2024 exclusive regional shows. The Singapore Tourism Board credits such events with record-breaking receipts and international spillovers, while the academic literature supports the role of mega-sport and music events as drivers of inbound travel (Singapore Tourism Board, 2024; Fourie & Santana-Gallego, 2022).

Meanwhile, in the Kingdom of Saudi Arabia, its government envisions that in 2030, sports and entertainment events shall be a tool of diversification. The General Entertainment Authority reported 72 million event attendees in 2023, while total visits surpassed 100 million in 2023 and reached 116 million in 2024. These events include boxing matches, Formula E races, and concerts, underscoring the country's rapid ascent in global entertainment tourism (Saudi Tourism Authority, 2023; General Entertainment Authority, 2023; Ministry of Tourism, 2025).

Historically, in the Philippines, it leveraged global mega-events to place itself on the international tourism map. The Miss Universe Pageant in 1974 and the Thrilla in Manila boxing match in 1975 generated substantial international media exposure and resulted with increased tourist arrivals. Recent historiography highlights the lack of quantified causal studies for the 1970s, but Department of Tourism historical data show noticeable spikes. These events are widely discussed as landmark cases in the Philippines' tourism narrative (Dacanay, 2012; Department of Tourism, 2023). However, not all international spectacles produced tourism dividends. The Beatles' concert in Manila in 1966, though culturally iconic, was marred by political controversy and organizational missteps. As a result, international arrivals in the late 1960s showed no measurable tourism impact attributable to the event (Dacanay, 2012).

By contrast, the Miss Universe pageant in 1974 and the "Thrilla in Manila" heavyweight championship between Muhammad Ali and Joe Frazier in 1975 marked a decisive turning point. Both events were broadcast globally and cast Manila as a capable host of world-class events. Tourism data confirm that arrivals climbed from 779,000 in 1973 to 955,000 in 1974, coinciding with Miss Universe, and then surged to 1.26 million by 1975, the year of the Thrilla in Manila (Sayson, 2016). These figures demonstrate how certain mega-events, particularly those with global resonance, generated sustained visibility and growth for the Philippines.

2. Tourism Mega-Events in the Philippines from 1960s 1980

The Beatles in Manila, 1966. The Beatles arrived in Manila in July 1966 for two concerts at Rizal Memorial Stadium. The event became infamous after the band inadvertently snubbed First Lady Imelda Marcos, leading to chaos and public outrage. Cultural historians note this diplomatic blunder did not contribute to tourism growth (see academic analyses and DOT retrospectives).

Miss Universe, 1974 – Manila's Beauty and Diplomacy Pageant. In July 1974, the Philippines hosted the Miss Universe pageant at the newly constructed Folk Arts Theater. This globally televised event positioned Manila as a glamorous Asian hub, producing a modest bump in tourist arrivals (Dacanay, 2012; UNWTO data).

The Thrilla in Manila, 1975. The third fight between Muhammad Ali and Joe Frazier, held in October 1975 at the Araneta Coliseum, was marketed as proof that the Philippines could host world-class sporting spectacles. Hotels filled, infrastructure was showcased, and short-term tourism rose (Dacanay, 2012). However, the effect was temporary.

1975–1980 Tourism Aftermath**.** After Miss Universe and the Thrilla, the Marcos administration sought to leverage momentum by staging the IMF-World Bank meetings (1976), ASEAN summits, and state-led cultural festivals. Tourism arrivals increased through the late 1970s (DOT; UNWTO), but structural economic and political issues eroded long-term gains.

To further illustrate the narratives on the Philippine tourism historical outlook, data from the Philippine, Department of Tourism (DOT), National Statistics Coordination Board, and World Bank (2013) is presented to show that arrivals rose sharply after the Miss Universe pageant in 1974 and the *Thrilla in Manila* in 1975. Thus, for the first time, putting Manila into the international map. *(see graph figure 1.)*

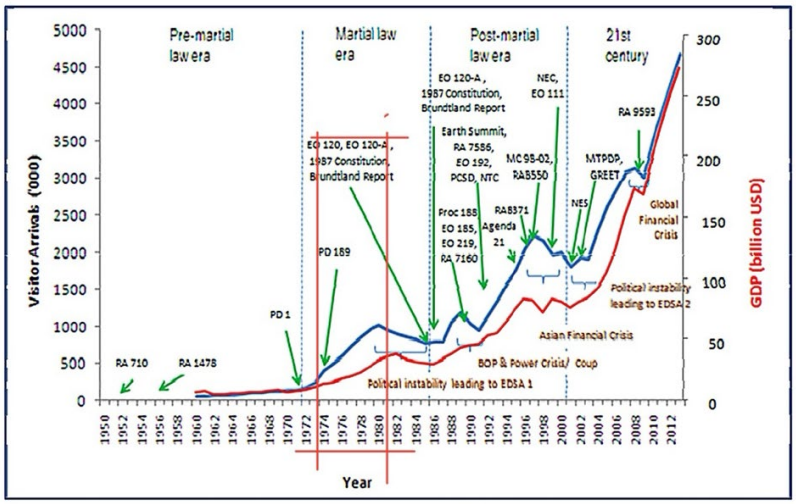


Figure 1: Foreign Visitor Arrival in the Philippines, the Initiatives and Events that Affected the Tourism Industry and the Gross National Product, 1960-2013.

(Source: Actual figure. DOT, National Statistics Coordination Board, World Bank, as cited by Dela Santa 2015)

Relative to figure 1, it appears to support the theoretical framework that by producing mega-events, there is a probability that a nation can increase tourism indicators such as international arrivals. This is evident in the figure showing a positive spike after the 2 mega-events in the early 1970s in the Philippines. Relative to figure 1, mega-events theoretically increase tourism indicators. Aligning to this, the study aims to answer, what specific mega-events are predictors of increase in international tourist arrivals in the Philippines?

This study proposes that the frequency of mega-events hosted in the Philippines during 2017, 2018, 2019, and 2023 exert a positive influence on 2024 international tourist arrivals. Specifically, it is hypothesized that (1) concerts and music festivals, (2) cultural and tradition festivals, (3) sports events, and (4) exhibitions and trade shows serve as significant predictors of increased inbound tourism. Guided by the event-led tourism literature, the hypothesis assumes that these event categories enhance destination visibility, stimulate traveler interest, and generate post-event momentum that contributes to measurable gains in international visitor volume in the year following the observed event cycle.

Relatively, this is theoretically expressed with the following proposed mathematical model:

The "Entertainment Tourism Model" (ETM);

$$Arrivals\ (2024) = \beta_o + \beta_1(Music) + \beta_2(Culture) + \beta_3(Sports) + \beta_4(Tradeshows) + \varepsilon$$

where:

Arrivals (2024) = International tourist arrivals in 2024 (in millions)

β_o = Intercept representing the baseline level of arrivals when all event counts are zero

Culture = Number of cultural and traditional festivals (2017–2023)

Music = Number of concerts and music festivals (2017–2023)

Sports = Number of sports events (2017–2023)

Tradeshows = Number of exhibitions and trade shows (2017–2023)

ε = Error term accounting for unexplained variation in arrivals

The coefficients β_1 to β_4 represent the expected change in 2024 international tourist arrivals associated with a one-unit increase in each respective event category.

In view of the proposed math model, the concept is best illustrated in the research paradigm. (see figure 2.)

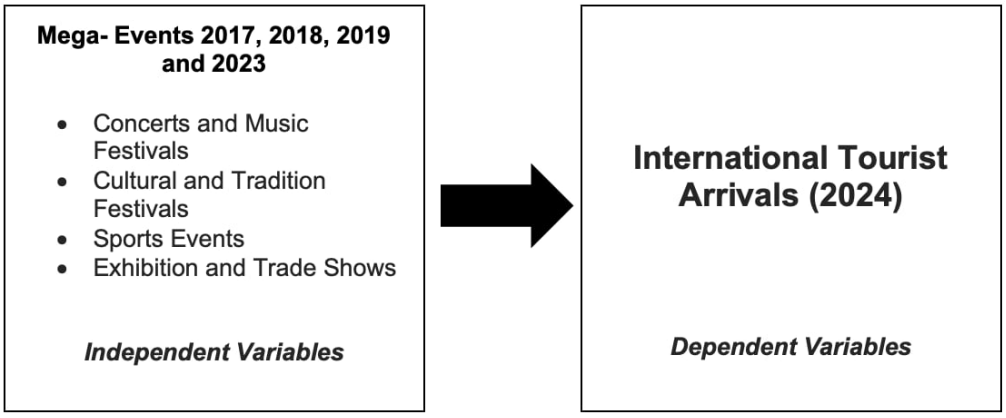


Figure 2: Research Paradigm

Figure 2 describes how the conceptual framework, mega-events such as, *concerts and music festivals, cultural and tradition festivals, sports, and exhibition and trade shows* from 2017, 2018, 2019, and 2023, affect 2024 international tourist arrivals. Events serve as independent variables, while arrivals serve as the dependent variable.

Moreover, this study investigates how mega-events predict international tourist arrivals across 82 countries. It shall also support Sustainable Development Goal 8 (Decent Work and Economic Growth) by linking event-driven tourism to inclusive and sustainable economic performance.

3. Literature Review

Entertainment events are widely recognized in the event-tourism literature as catalysts for destination visibility, short-term visitor influx, and potential long-term tourism growth when supported by strategic legacy planning. Reviews of event tourism emphasize that events operate through multiple channels such as direct visitor spending, global media exposure, and destination image enhancement, which can together increase international arrivals if the host leverages post-event marketing and infrastructure improvements (Getz, 2008). Empirical cross-country analyses find that the tourism uplift from entertainment events varies by event type, host capacity, seasonality, and the geographic origin of visitors, with some high-profile sports events producing measurable increases in inbound tourism in the event year and occasionally in subsequent years (Fourie & Santana-Gallego, 2011; Kasimati, 2003). Critical literature also cautions that positive tourism impacts are not automatic. Benefits depend on pre-event planning, integration with broader tourism strategies, and the management of displacement effects and short-lived hype (Roche, 2000; Grix, 2014).

Relative to the hypothesis on mega-events, a growing body of literatures differentiated effects by category. Music and cultural festivals often stimulate niche and repeat visitation through authentic cultural offerings and word-of-mouth, while large sporting events and international expos generate broader media attention and can attract first-time international visitors, provided the host converts exposure into tourism products and repeat itineraries (Getz, 2008; Fourie & Santana-Gallego, 2011). Country and city-level case studies within Southeast Asia, including research on major Philippine festivals such as Sinulog and Ati-Atihan, report clear local tourism and economic benefits such as, increased hotel occupancy, food and transport revenues. These studies also highlight methodological limits namely, single-case designs, short time windows and the need for comparative, multi-year analyses to assess sustained effects on national arrivals (Calopez, 2011; Ortiz, [thesis]; Philippines Tourism Promotions Board). These findings indicates that the independent variables merit empirical testing as distinct predictors of 2024 international arrivals for the Philippines, using multi-year secondary data to distinguish immediate spikes from longer-term tourism growth.

For this study, a mega-event is defined as any planned, time-bound gathering with a fixed venue and published dates, open to the public via ticketing or formal registration, with large-scale attendance that distinguishes it from ordinary local events. This operational threshold is adapted from event-scale taxonomies in contemporary event studies (Getz & Page, 2020), and from recent scholarship on the exceptional social, infrastructural and destination effects associated with mega-events (Duignan et al., 2023; Weaver, Moyle, & McLennan, 2021). We count editions at the city level and treat multi-day runs as one event; purely virtual editions are excluded. To harvest pure mega-events, this study further qualified events catering to at least 5000 attendees or more. The following definition of specific mega-events is prescribed in this study:

3.1 Concerts and Music Festivals

City-level editions of ticketed live music events and festivals are counted when they are staged in large venues or settings that typically attract crowds beyond local community scale. This includes multi-stage music festivals, large stadium or arena concerts, and city-center open-air shows (Skandalis, Banister, & Byrom, 2024). Club nights, bar gigs, and private showcases are excluded. Music-event mega-gatherings function as temporary cultural districts that shape destination image and visitor flows (Wood, Kinnunen, Moss, & Li, 2024), and recent research highlights their role in place-making and tourism demand (Richards & Leal Londoño, 2022). Glastonbury Music festivals, Coldplay/Taylor Swift concert tours and the likes are included in the compilation.

3.2 Cultural and Traditional Festivals

Public, recurring cultural festivals (e.g., religious, seasonal, heritage, diaspora or community festivals) are included when they are widely accessible and gather audiences beyond local neighborhoods (Rossetti & Quinn, 2021). Eligible festivals feature distinctive cultural content such as rituals, performances, arts, or foodways, and are open to general audiences with published dates and locations. Festival tourism research demonstrates measurable cultural, social, and well-being outcomes at this scale (Gedecho, Kim, & Wondirad, 2024), while authenticity-focused studies further support their operationalization as mega-events (Zhang et al., 2022). Examples of this are the Oktoberfest in Germany, Snow Festivals, and other flagship festivals around the world.

3.3 Sports Events

Spectator-oriented sports competitions, tournaments, and mass-participation events are included when hosted in public venues with notable audience or participant scale (Bazzanella, Belotti, & Franch, 2023). This covers international fixtures, national league games held in large stadia, mass road races, and multi-sport meets. The inclusion captures events of sufficient impact on destination demand and local economies (Raso & Cherubini, 2023), and aligns with comprehensive syntheses on sport-event tourism (Gibson & Fairley, 2021). Saudi's Riyad Season, Olympics, F1 races and others are included in this category.

3.4 Exhibitions and Tradeshows

Business events such as exhibitions, trade fairs, trade shows, or large conventions are counted when they publish dates, venues, and attract significant public or professional audiences (ISO, 2025). These definitions follow current international standards and industry reporting practices, with global industry tracking (UFI, 2024) and meetings statistics (ICCA, 2025) substantiating the scale and characteristics of such events. Virtual-only fairs are excluded, while hybrid events are included if on-site participation is substantial. Comic-Con International, Airshows, Mobile World Congress and others are examples included in compilation.

3.5 2024 International Tourist Arrivals

International tourist arrivals are defined as the count of non-resident overnight visitors entering a country, consistent with UN Tourism (UNWTO) standards (UN Tourism, 2025). This indicator is compiled from border, accommodation, or survey sources; the study uses annual totals as the dependent variable. Current definitional notes and dashboards (UN Tourism, 2024; World Bank, 2024) reflect post-pandemic methodological updates. Included in this study is the verified 2024 UNWTO foreign tourist arrivals expressed in absolute numbers.

4. Materials and Methods

The study employed a quantitative, ex post facto research design, utilizing secondary data analysis. The researchers relied on published statistical records of international tourist arrivals and published counts of mega-events. The event data covered the years 2017, 2018, 2019, and 2023, while the 2024 tourist arrivals were used as the dependent variable. The pandemic years 2020–2022 were excluded to avoid distortions and ensure the dataset reflected both stable pre-pandemic patterns and the first year of recovery. By anchoring the analysis on the most recent full year of validated arrivals (2024), the study aligns past event activity with a reliable outcome measure, enabling robust comparisons across countries under comparable conditions.

The sample size of N = 82 countries was derived in accordance with accepted rules of thumb for multiple regression. Following Green's (1991) guideline of $N = 50 + 8m$, where m is the number of independent variables, the minimum sample required for a model with four predictors is $50 + 8(4) = 82$. This formula ensured that the dataset met the conventional threshold for statistical power and model stability. Accordingly, the study retained 82 validated country cases, each with complete data on the four independent variables namely, Concerts and Music Festivals, Cultural and Traditional Festivals, Sports events, and Exhibitions and Tradeshows, and the dependent variable, 2024 international tourist arrivals.

The researchers conducted a manual compilation process via web searches for mega-events and documented sources in APA style. Researchers then plotted the event counts and arrivals into the dataset. Utmost review and validation was done to ensure proper qualification of mega-events are rated accurately as defined. The absence of any published proof of promotion and attendance resulted to the exclusion of a specific mega-event. The cleaned dataset was then computed with regression analysis using SPSS software.

5. Results and Discussion

The analysis utilized a complete and validated dataset of 82 countries, each containing aggregated manual counts of Concerts and Music Festivals, Cultural and Traditional Festivals, Sports Events, and Exhibitions and Trade Shows held in 2017, 2018, 2019, and 2023. These event totals were paired with the verified 2024 international tourist arrivals reported by UN Tourism, resulting in a five-variable dataset. All event entries were manually validated

and counted to ensure full alignment with the study's operational definition of mega-events. Before statistical processing, the researchers organized and plotted the variables in Excel to review the dataset visually and confirm completeness, after which the finalized file was imported into SPSS for analysis.

After subjecting the secondary data into inferential statistics, using multiple regression analysis, the following table output was derived:

Table 1: Mega-events Regression Table

Model	Unstandardized Coefficient		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(constant)	-8.876	4.210		-2.109	0.038
Culture	0.175	0.652	0.034	0.269	0.789
Music	**1.715**	**0.710**	**0.327**	**2.416**	**0.018**
Sports	1.307	.890	0.198	1.469	0.146
Tradeshows	.386	1.189	0.052	0.325	0.746

R	R Square	Adjusted R Square	Std. Error
0.530	0.281	0.243	13.252

The table shows the regression of the DV 2024 tourist arrivals (in millions) in respect to the IV, four categories of mega-event counts (SPSS coding: Music, Culture, Sports, Tradeshows) aggregated across 2017, 2018, 2019, and 2023. SPSS computation estimated unstandardized B values through ordinary least squares, reflecting the expected change in arrivals for each additional event, controlling for the other categories. This process generated the empirical model: Arrivals = –8.876 + 0.175(Culture) + 1.715(Music) + 1.307(Sports) + 0.386(Tradeshows), along with the model's significance levels and Adjusted R square of 0.243.

Ultimately, it appears that *Concerts and Music Festivals* show a positive and statistically significant effect (B = 1.715, p = 0.018, standardized β = 0.327).

This means that, holding other categories constant, each additional large Concerts and Music Festivals across the four-year period is associated with 1.7 million more tourist arrivals in the succeeding year. This aligns with the theory that global concerts, music festivals, and probably film festivals generate substantial international travel. Culture/Traditions, Sports, and Tradeshows are all positively signed, but none reach statistical significance at .005. The estimated coefficients suggest directional importance, but we cannot claim robust effects given this dataset.

The model explains 28.1% of the variance in arrivals (Adj. $R^2 = 0.243$). This indicates moderate explanatory power. This means that mega-event volumes per country are relevant, but other control factors such as visa, infrastructure, prices, safety and others may account for the majority of the variance.

6. Conclusion and Recommendation

Tourism is now a deliberate policy tool, with nations like Singapore and Saudi Arabia showing how strategic event programming can drive global visibility and economic gains. Singapore invests in high-profile concerts and Formula 1 races, while Saudi Arabia's entertainment authority has used sports and festivals to diversify its economy. These cases demonstrate that government decisions can transform events into measurable drivers of tourism growth. This study reinforces the lesson that tourism policy must be evidence-based.

In view of the results of this study, the recommended mathematical model is supported by the empirical results. This may offer governments a clear tool to identify which event categories most strongly influence arrivals. This could help set priorities and guide resource allocation. Embedding this model into tourism planning allows nations to design event portfolios that are both data-driven and aligned with long-term developmental goals. Using the proposed Mathematical Model, "Entertainment Tourism Model" (ETM), and the estimated parameters derived from the dataset, the regression model is expressed as:

$$Arrivals = –8.876 + 0.175(Culture) + 1.715(Music) + 1.307(Sports) + 0.386\ (Tradeshows)$$

where:

Arrivals = International tourist arrivals (in millions)

Culture = Number of cultural and traditional festivals

Music = Number of concerts and music festivals

Sports = Number of sports events

Tradeshows = Number of exhibitions and trade shows

Based on the regression computation, the model explains 28.1% of the variance in tourist arrivals (Adj. R^2 = 0.243). Among the predictors, Concerts and Music events exert the strongest and statistically significant effect.

Specifically, the coefficient of 1.715 indicates that, for each additional Concerts and Music mega event held during a 4 year period, a country may be expected to attract approximately 1.7 million more international tourists in the succeeding years, holding all other event categories constant.

Overall, the mathematical model provides a formal expression of how validated mega-event categories shape international tourist arrivals, and it highlights the importance of Concerts and Music events in driving cross-national tourism performance.

In line with the results, the model explains only about a quarter of the variance, apparently indicating that many other factors were not included in this research. Key elements such as infrastructure, safety, transport access, pricing, visa policy, and destination image were outside the study's scope. These other factors are seen as critical in tourism growth. Future work should broaden the model by combining event data with these structural indicators. These shall allow policymakers to weigh events against other core drivers of arrivals. Domestic level approach and regional comparisons could also refine the model's applicability.

The proposed mathematical model is recommended as a starting point highlighting the predictive role of events in tourism. Entirely, it is best used when integrated into a wider, multi-factor approach in tourism planning. Ultimately, this study compiles a unique dataset of validated concerts and music festivals, cultural festivals, sports events, and tradeshows from 82 countries in 4 years, linked with the succeeding year's tourist arrivals.

It is observed that no previous work has combined these event categories across the said scope, making the dataset original and allowed measurability testing of how events influence tourism.

Ethics Declaration

This study adheres to established ethical standards for academic research. It does not involve human participants, interviews, surveys, or any form of personal data collection. All information utilized in the analysis consists solely of publicly available secondary data. These were obtained from verified institutional sources, including tourism databases, event archives, and statistical agencies. No confidential or proprietary information was accessed or disclosed. The research complies with data integrity, transparency, and citation requirements.

AI Declaration

During the compilation of country-level mega-event data, the researchers used Google's built-in AI search assistance, specifically the automatic AI-generated summaries and prompts that appear alongside standard Google Search results. Its function was limited to improving search efficiency by suggesting related queries and highlighting possible event pages. All event entries were manually opened, verified, and classified by the researchers according to the criteria. There was no AI system generated texts, data, or analysis used in this manuscript. All dataset entries and interpretations are solely from the researchers.

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Over-Tourism Impacts and Strategies: An Assessment of Current Strategies for Sustainable Tourism

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Abstract: This article explores the effectiveness of public protests and administrative policies in reducing the impacts of overtourism by examining two cases of cities facing overtourism; Barcelona, Spain and Venice, Italy. Total tourist visits are used as the dependent variable and compared across time with specific actions taken by local populations and their governments to reduce or mitigate overtourism. Strategic plans for tourism in both case cities are examined and plans are compared to a recommended set of actions from the United Nations World Tourism Organization (UNWTO). Tourism levels are explored from 2010 to 2024, which includes the pandemic period. Quantitative analysis includes linear regressions showing strong correlations although the data does not allow useful tests of causality in many cases. The article finds that total visitor counts across most of the world had completely recovered from pandemic impacts by 2024, with strong forecast growth for future years. Excessive tourism levels bring threats to regional infrastructure, culture, quality of life, and environmental sustainability, making solutions critical as tourism levels continue to increase. Unfortunately, few of the actions taken within each city studied produced any significant reduction in tourist visits to the city. The economic and social/cultural conflicts between increasing and decreasing tourism are examined, as well as the difference between mitigation strategies aimed at the effects of overtourism and overtourism itself. Conclusions call for new approaches to limiting tourism, as well as specific additional research.

Key Words Overtourism, Global Tourism, Tourism Threats, Barcelona, Venice

1. Introduction

Overtourism is a well-documented threat to many areas popular with tourists. Overtourism is defined as so many tourists in a given area that they overtax physical infrastructure and the natural environment and change the nature of the region's culture, and quality of life. Global tourism levels, according to the United Nations, are expected to grow steadily, increasing the threat of overtourism to affected areas and bringing overtourism conditions to other regions (UNWTO, January 2025).

This article examines two specific cases of overtourism; Barcelona, Spain and Venice, Italy. It explores the patterns of tourism, especially in the post-pandemic years, for each city and examines the various attempts by their local citizens and governments to limit tourism or to mitigate its negative impacts. It uses total tourist visits between 2010 and 2024, as provided by municipal agencies, as a dependent variable. This selected period provides adequate background for tourism growth patterns, while including the period during which tourism in each case was identified as excessive and actions begun to mitigate it. It compares the number of tourist visits to the use of specific actions by citizens and governments, attempting to identify examples of strategies that were effective.

Demand-reduction strategies, including fees and taxes and attempts to educate or influence tourists to change objective behaviours or to disburse themselves to less crowded areas or times appear generally ineffective. One example of a supply-based restriction on cruise ships in Venice appears effective, but not enough to overcome the increases in tourism in the region from other sources.

The challenges of overtourism, its cultural, social, and economic impacts to affected areas and populations, and possible approaches to management/mitigation are well-researched, but relatively little has been written to date on the effectiveness of the proposed and utilized strategies to respond to overtourism. The shortage of existing assessment of overtourism strategies is further hampered by the fact that tourist counts have been affected by the global pandemic, making it challenging to separate impacts of the pandemic or its immediate aftermath from that of specific policy interventions against overtourism in specific areas, in the past five years. For this research, the pandemic years of 2020 and 2021 are treated as statistical outliers. Forecasts of future tourism trends are included with and without these years.

1.1 Overtourism and its Impacts on Housing and Culture

In 2024, international tourism levels had recovered to over 99% of pre-pandemic 2019 levels, with Europe, Africa, and the Middle East all showing growth over 2019 levels (UNWTO, January 2025). In 2024, the world saw 1.4 billion international overnight tourists and generated a record $1.6 trillion in tourism receipts and $1.9 trillion in exports, making 2024 the largest tourism year economically on record (UNWTO, 2025) The World Travel & Tourism Council reports that tourism in 2024 comprised 10% of the global economy, with domestic tourists spending an additional $5.3 trillion in 2024, in addition to the international tourists reported by the United Nations (Travel & Tourism EIR, 2025). Forecasts call for continued significant growth in tourism in 2025 and beyond (UNWTO, 2025)

Data from the UNWTO shows international tourism trips increasing from 543 million trips in 1995 to a peak of 1.76 billion trips in 2019, an average increase of 2.9% annually across the 24-year period. While international tourism saw enormous reductions in the 2020 – 2021 period due to the global pandemic, by 2022 it had already begun to show extremely rapid recovery (Herre & Samborska, 2024).

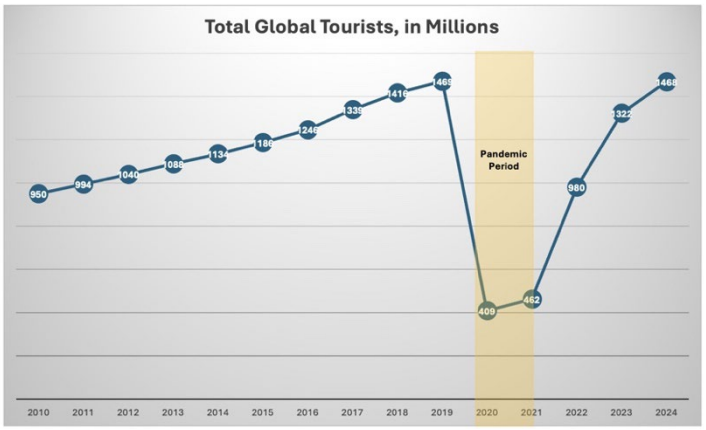


Figure 1: Data from UNWTO, January 2025

One of the most common impacts of overtourism is described as a significant rise in local housing prices and cost of living, driven by short-term rental services like AirBnb. As the short-term market increases, landlords are given a powerful incentive to convert housing stocks to short-term rentals rather than the longer-term rental options needed by residents (Rowe, 2024). Similar challenges can occur when retail spaces in an over-touristed area are converted to meet tourists' needs, such as souvenirs, leaving local residents short of retail supporting needs like hardware or household supplies (Rowe, 2024).

In addition to negative economic impacts on local residents, overtourism can also have destructive effects on a region's cultural heritage, as local Intangible Cultural Heritage (ICH) is adapted to meet the needs of tourists, resulting in a loss of authenticity (Yasar, & Yayla, 2023). This effect can contribute to a corrosive effect on the opinions of local residents regarding tourists and tourism in general. Even when residents are aware of the economic value of tourism, it can be difficult to accept the stress in daily living that comes with being surrounded by crowds of strangers, many of whom appear to have little understanding or interest in local culture and ways of life (Gautam, 2023).

1.2 Responses to Overtourism

While the impacts of overtourism are most often reported in major cities and tourist sites, they can be apparent in much smaller regions as well, exacerbated by the region's lower carrying capacity for visitors, including less-developed infrastructure and smaller ratios of locals to visitors. While smaller regions facing overtourism (as defined by the perceptions of local residents and visitors) may have similar concerns as those in larger areas, their responses may not always be the same (Krajickovaa et al, 2022). Infrastructure is a significant concern in smaller regions, while ecological/space concerns may be less so (Jurincic, 2022).

Literature in the field of overtourism also includes significant coverage of possible solutions or mitigations to the identified negative impacts. The UNWTO, in cooperation with four international universities, released a 2018 study of overtourism in major urban areas that recognized urban overtourism as being exacerbated by global trends of urbanization and the increase in global tourism. The study identified 11 strategies to better manage

urban overtourism, all of which were aimed at mitigation and management, rather than any effort to reduce total tourist headcounts (UNTWO, 2018).

2. Results

2.1 Barcelona, Spain

2.1.1 Barcelona and Overtourism

The city of Barcelona has 1.6 million residents, but experienced 15.6 million overnight visitors in 2024. The entire region of Barcelona, called "Destination Barcelona" by the *Observatori del Turisme a Barcelona* (OTB), the regional tourism research agency, experienced over 26 million visitors in the same period (OTB, 2025). NOTE: The OTB collects demographic and economic data on tourists visiting the region in three increments: Barcelona City, which includes only the primary metropolitan area; Barcelona Region, which includes a much larger area surrounding the city itself; and Barcelona Destination which includes a large portion of the Catalonian region and is the sum of the city and region numbers (Barcelona Tourism Activity Report, 2024). Only data for the City of Barcelona is used for this research.

Barcelona has seen a number of serious protests by local residents against excessive tourism, most organized by an array of social and political groups. While the most serious of these protests began in 2017, their roots can be traced to 2014 protests against short-term holiday apartment rentals (Huges, 2018). By 2024, protests became directed more specifically at tourists themselves, with protestors demanding the tourists leave Barcelona and shooting toy water guns at tourists in outdoor cafes along the famous La Rambla street in Barcelona City (Pitrelli, 2025). The water gun protests were part of a broader set of protests organized at the same time in other parts of Spain, as well as in Venice, Italy, and Lisbon, Portugal (Wilson, 2025).

In 2010 Barcelona began experiencing a significant increase in short-term rental properties, led by AirBnB. in the face of rising concerns over the lack of affordable housing for locals, the Barcelona municipal government began cracking down on illegal rentals and their promotion on sites such as AirBnB, as well as applying a moratorium on the construction of new hotels in 2014 (Mead, 2019). In spite of the restriction on new hotels, the OTB reported a 4.7% increase in the number of tourist residences year on year in 2024. This growth was generated by nearly 500 expansions in currently licensed short-term rentals (OTB Press Release, 2025).

2.1.2 Barcelona's Responses to Overtourism

The administrations of Catalonia and Barcelona have enacted a number of measures to reduce tourism in the city or to better manage it and mitigate its worst impacts. These include the planned doubling of regional and city overnight tourism taxes in 2025 (OTB Press Release, 2025), restrictions on short-term tourist rental offerings and the construction of new hotel space in the city (Mead, 2019), and requirements for appointments and paying fees to visit many of the city's most popular attractions (OTD Press Release, 2025). The additional tax revenues have been used to improve infrastructure to better accommodate both tourists and residents and to address issues of life quality for residents (Goodman, 2025).

Barcelona Impulse 2025-2035, the city's recently-released economic agenda for the next 10 years addresses the need to "Manage Tourism", but focuses on mitigation strategies such as fees, continued and perhaps increased restrictions on accommodations, improved tourist infrastructure, and better planning for tourist mobility, encouraged diversion to less crowded areas in the city, and the use of enhanced tourist tax revenues to fund social programs for residents. The agenda calls for a respectful balancing of the needs of tourists and local residents and seeks a more sustainable tourism model, but also calls for continued recruitment of tourists. These plans appear to conform closely to the recommendations of the UNWTO's strategies for overtourism responses, but carefully avoid anything to reduce the total number of tourists visiting Barcelona City (Barcelona Impulsa, 2025).

2.1.3 The Effectiveness of Proposed and Enacted Responses to Overtourism in Barcelona.

Barcelona, through popular protests, and administrative actions, has been attempting to address problems with overtourism since 2010, but the effectiveness of these responses seems to have had little measurable effect on total tourism levels in the city. Figure 2 shows the annual totals for the number of tourists staying overnight in Barcelona city between 2010 and 2024, using data provided by the ODT in their annual reports on tourism demand (ODT Latest Data, 2025), as well as total visitors arriving on cruise ships (typically daily only, without an

overnight stay off the cruise ship), using data provided by the Port of Barcelona (Cruise Passenger Counts, 2025). These figures are cross-indexed with the years in which various responses, occurred, to allow a visual comparison of any impacts to tourist levels from these responses.

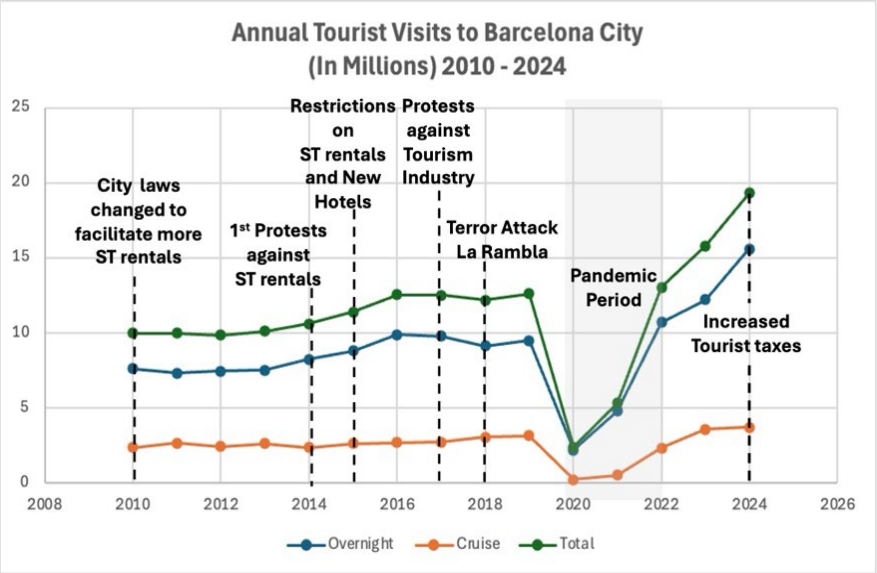


Figure 2: Data from ODT & Port of Barcelona Cruise Passenger Counts

Statistical analysis of tourism numbers is complicated by the presence of huge variations during the pandemic years. If these are assumed to be statistical outliers and excluded from the analysis, however, a simple linear regression shows that the growth of tourism in Barcelona has been steady during much of the period between 2010 and 2024, but that growth post-pandemic is much higher than in the past and has already exceeded the forecasts of the regression trend line in 2023 and 2024. Figure 3 shows this regression for total tourism numbers. An R2 value of .7947 suggests reasonably strong correlation between the tourism values and predicted results. The same analysis for the years 2010 – 2019 only, gives an even higher R2 of .8618. Current tourism growth in Barcelona is now much higher than pre-pandemic predictions



Figure 3: Analysis conducted using Excel Statistical Toolkit, using Total data from Figure 2

There appears to be no significant impact on tourism visitor counts in the city of Barcelona from either public protests or administrative attempts to limit tourism demand. Tourist visits in Barcelona, like that of the global economy, have risen steadily across time, with especially strong increases in the post-pandemic years, in spite of attempts to limit tourism or manage it in various ways.

2.2 Venice, Italy

2.2.1 Venice and Overtourism

The official municipal boundaries of the City of Venice include the entire lagoon area with over 100 islands, as well as the mainland industrial city of Mestre. Overtourism, however is largely concentrated on the main island of historic Venice (Yearbook of Tourism Data, 2024).

According to the City of Venice's *2024 Yearbook of Tourism*, like Barcelona and global tourism in general, tourist visits to Venice have largely recovered from drops associated with the pandemic. In fact, visitor counts for Venice in 2024 were actually 6.4% higher than in 2019, the last reporting year before the pandemic. Figure 4 shows tourism levels in the Veneto region, the City of Venice, and the historic centre between 2010 and 2024, cross-indexed with major actions to limit tourism, reflecting a very rapid post-pandemic recovery (ETIAS, 2025). Like Barcelona, Venice has seen increasing levels of overnight tourist visits but also experiences a large number of day visitors who do not spend a night in the city. Some of these are from cruise ships but many others come from the mainland areas or on group tours. The number of these day visitors is typically estimated as 25 – 30 million per year (ETIAS, 2025). For this research, only the actual visitor counts from data provided by the Italian Systema Statistica or other municipal or European Union sources are used (Yearbooks of Tourism 2011 – 2024, 2025).

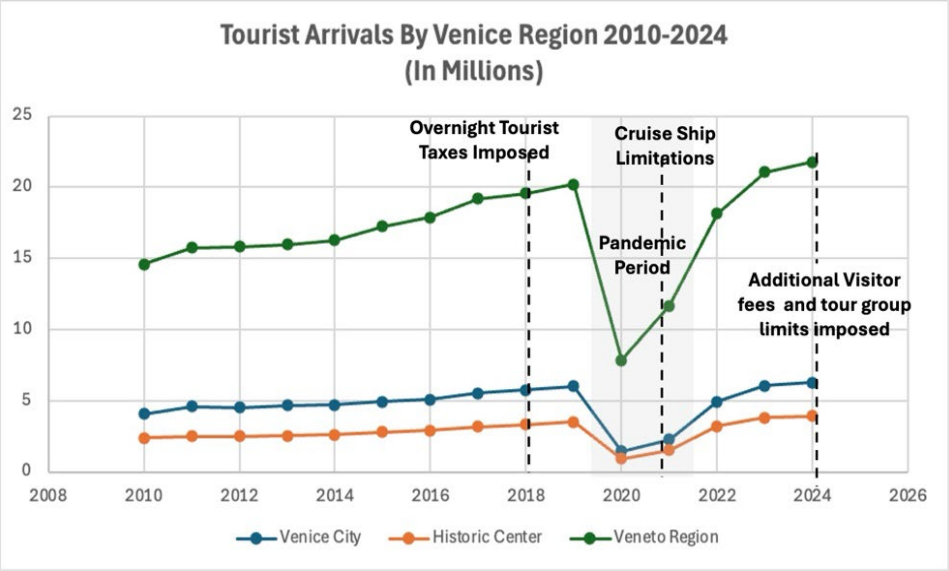


Figure 4: Data from Città di Venezia, Yearbooks of Tourism

Like Barcelona, residents of historic Venice have reported serious degradation of their quality of life from overtourism, including the loss of businesses supporting local residents, the rise in housing prices as many are converted into holiday rentals, the overloading of local infrastructure such as public transportation, and the degradation of local cultural aspects (Choi et al, 2024). A key difference between Venice and Barcelona, however, is that Historic Venice, has much lower resident populations than Barcelona and has seen steady declines in those populations, increasing the domination of tourists as the economic force within Venice (Choi et al, 2024).

2.2.2 Venice's Responses to Overtourism

As overtourism in Venice and especially the historic centre has become more concerning, the Venetians have mounted responses similar to those used in Barcelona. Venice participated in the water-gun protests (Pitrelli, 2025), and have conducted a series of public protests and made appeals to the local government for policies that limit tourism and improve quality of life for residents (Choi et al, 2024). In 2018, the city enacted fees for tourists staying overnight in the historic centre, with a 5 Euro charge for hotel stays and a charge of between 3 and 10 Euros per person staying in other accommodations (rates vary by season). Turnstiles and restricted access were also established for primary cultural and historic sites within the Historic Centre, requiring visitors to pay additional fees and to make reservations in advance to visit these sites (Sistema Statistico Regionale, 2025). In 2024, the city went further, charging daily 5 Euro fees to all visitors (in theory). Rather than being

collected by accommodations or sites, these fees require visitors to use a QR code to demonstrate that they have paid their fees before entry, leaving enforcement up to random checks by police. In 2024, the city also limited guided tour groups in the city to no more than 25 visitors per group, and prohibited the use of loudspeakers in the central areas (Choi et al, 2024) and (Sistema Statistico Regionale, 2024).

In 2021 the city restricted cruise ship arrivals in the primary canal serving the historic centre to only ships of less than 25,000 tons displacement (Choi et al, 2024). This forced the majority of the cruise ships to relocate their docking and trans-ship their passengers wishing to visit the historic centre onto smaller boats from the mainland or elsewhere in the lagoon (Choi et al, 2024). The city has also engaged in tourist education programs designed to encourage visitors to visit areas beyond the crowded historic centre and to explore the culture and lifestyle of the city respectfully, avoiding undesirable behavior (Choi et al, 2024). The city is exploring restrictions on the development and operation of short-term rentals, especially in the historic centre and offering grants and tax breaks to encourage artisans and traditional businesses to open in the city, (Choi et al, 2024).

2.2.3 The Effectiveness of Proposed and Enacted Responses to Overtourism in Venice

As in Barcelona, it is difficult to assess the impacts of many of the actions taken to reduce overtourism in Venice or to mitigate its impacts. The city was affected by the pandemic in a similar fashion to other cities globally, making it difficult to statistically separate the impacts of actions taken near or within the pandemic period. It is still too early to effectively assess the impacts of actions taken in 2024. However, some analysis is possible. Figure 5 shows the total tourist arrivals for the city of Venice from 2010 – 2024 with a trend line for total tourism numbers, with the values for the pandemic years of 2020 and 2021 removed, as statistical outliers. An R^2 value of .7306 suggests reasonably strong correlation between the tourism values and predicted results. It should be noted that, while the Barcelona trend line shows recent increases as much higher than predicted values, the same analysis for Venice shows the city as continuing to grow at a rate similar that of the pre-pandemic period.

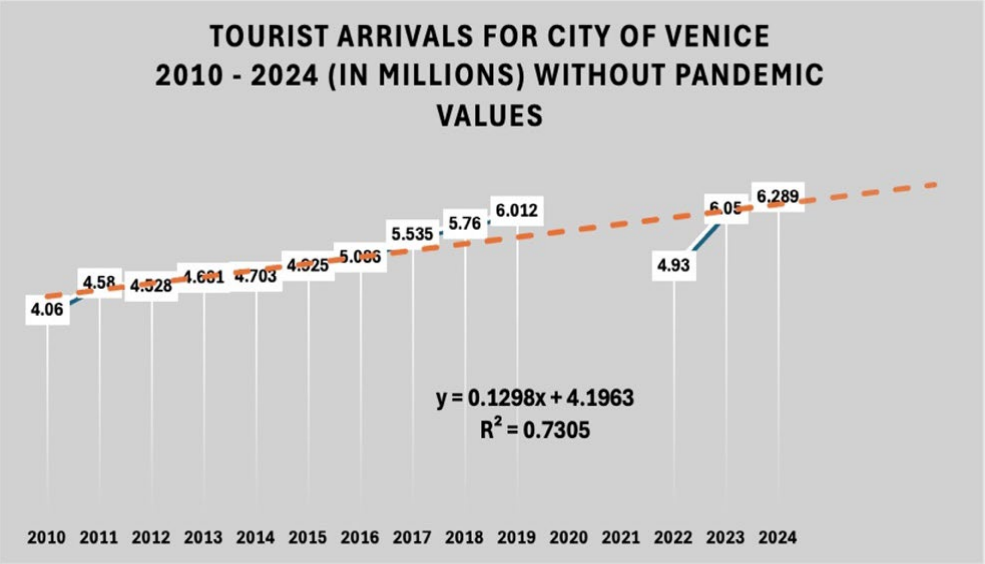


Figure 5: Analysis conducted using Excel Statistical Toolkit, using Total data from Figure 3

The policy restricting large cruise ships from docking at the Historic Centre took place during the pandemic, but total cruise ship visitors remain well below pre-pandemic (and pre-cruise ship restrictions) levels, while other areas of tourism have more than recovered. Figure 6 shows the arrival of cruise ship passengers between 2011 and 2024, illustrating a 70% decrease in cruise ship passengers arriving in the city across this period. While this does not conclusively prove that docking restrictions are the cause of this, it is worth noting that the Cruise Line Industry Association in its 2024 industry report shows that global cruise line activity was 6.8% higher in 2023 than in 2019, the last year prior to the pandemic shutdown, and 6.5% higher in Europe specifically (CLIA, 2024). Venice saw declines during a period when the world saw increases.

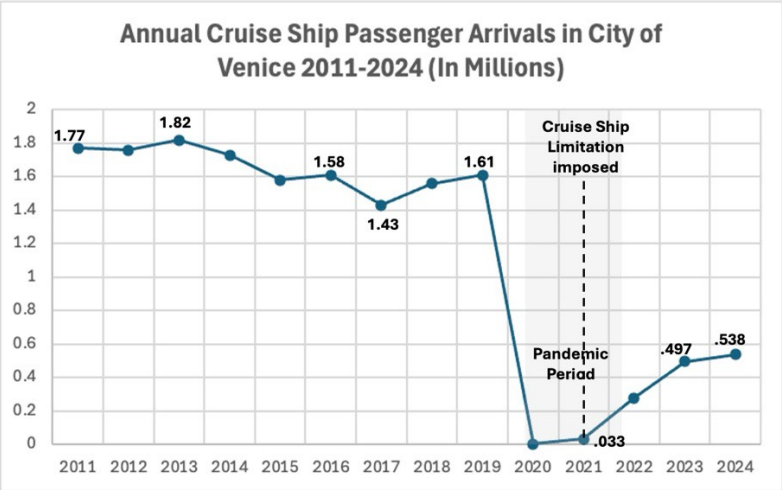


Figure 6

As with Barcelona, there appears to be no significant impact on tourist arrivals in the city of Venice from either public protests or administrative attempts to limit tourism demand. While the restriction on docking large cruise ships does appear to have been effective in limiting the number of cruise ship passengers arriving in the City of Venice, cruise ship passengers were only 8.8% of all arrivals in 2024 (Yearbooks of Tourism 2011 – 2024, 2025). The decline in cruise ship passengers has been more than offset by the rapid post-pandemic increase in overall tourism in the city.

3. Conclusions

Table 1 shows the actual data for global tourism numbers and those from Cities of Barcelona and Venice between 2010 and 2024, along with annual percentage changes from the previous year in each case. Because of the large differences in means of the global and city annual tourism counts, a linear regression analysis was done using the percent changes from year to year, to eliminate differences caused by the scale of each set of data. Analysis was accomplished using the Excel Data Analysis tool. This regression analysis at the .95 level shows Multiple R values of .689 for Barcelona and .764 for Venice, suggesting that 68.9% of all differences year to year for Barcelona and 76.4% for Venice can be accounted for by changes in global tourism levels, rather than local changes in tourism policies or local reactions to tourists. Both strong correlations. Both reasonably strong positive correlations, although not absolutely conclusive.

Table 1

Year	Global Tourists (In millions) [1]	% Change from previous year - Global	City of Barcelona Tourists (In millions) [2]	% Change from previous year - Barcelona	City of Venice Tourists (In millions) [3]	% Change from previous year - Venice
2010	950		9.97		4.06	
2011	994	4.63%	9.96	-0.10%	4.58	12.81%
2012	1040	4.63%	9.85	-1.10%	4.528	-1.14%
2013	1088	4.62%	10.1	2.54%	4.681	3.38%
2014	1134	4.23%	10.6	4.95%	4.703	0.47%
2015	1186	4.59%	11.38	7.36%	4.925	4.72%
2016	1246	5.06%	12.55	10.28%	5.086	3.27%
2017	1339	7.46%	12.5	-0.40%	5.535	8.83%
2018	1416	5.75%	12.16	-2.72%	5.76	4.07%
2019	1469	3.74%	12.61	3.70%	6.012	4.38%
2020	409	-72.16%	2.399	-80.98%	1.453	-75.83%
2021	462	12.96%	5.301	120.97%	2.27	56.23%
2022	980	112.12%	13.03	145.80%	4.93	117.18%

Year	Global Tourists (In millions) [1]	% Change from previous year - Global	City of Barcelona Tourists (In millions) [2]	% Change from previous year - Barcelona	City of Venice Tourists (In millions) [3]	% Change from previous year - Venice
2023	1322	34.90%	15.79	21.18%	6.05	22.72%
2024	1468	11.04%	19.3	22.23%	6.289	3.95%
Multiple R Regression to Global				0.68933457		0.76362019
[1]	Data from United Nations World Tourism Organization (2025) file:///Users/gregorygardner/Desktop/OMT_TEND_Novembre2016.pdf and https://www.untourism.int/tourism-data/un-tourism-tourism-dashboard					
[2]	Data from *Observatori del Turisme a Barcelona (OTB)*, (2025) and Cruise Passenger Counts, *Port of Barcelona Administration*, (2025) https://observatoriturisme.barcelona/en/resources/ and https://www.portdebarcelona.cat/en/business-and-services/cruise-ships/passenger-evolution					
[3]	Data from Yearbooks of Tourism 2011 – 2024, *Città di Venezia* *https://www.comune.venezia.it/it/content/studi*					

Figure 7 provides a visual comparison of change rates in tourist counts from 2010 to 2024, as compared to a trendline for global tourism changes. This visual examination illustrates the very close resemblance of all three change rates. There are minor differences in the period leading up to the pandemic but the collapse for tourism in all three measures was virtually identical. In the recovery of tourism after the pandemic, however, both Barcelona and Venice saw more rapid and complete recoveries than the global tourism markets, in spite of the efforts taken by local governments and populations to limit such growth. While Venice's growth rate in 2024 returned to a very similar rate as that of global markets, Barcelona's rate remained higher.

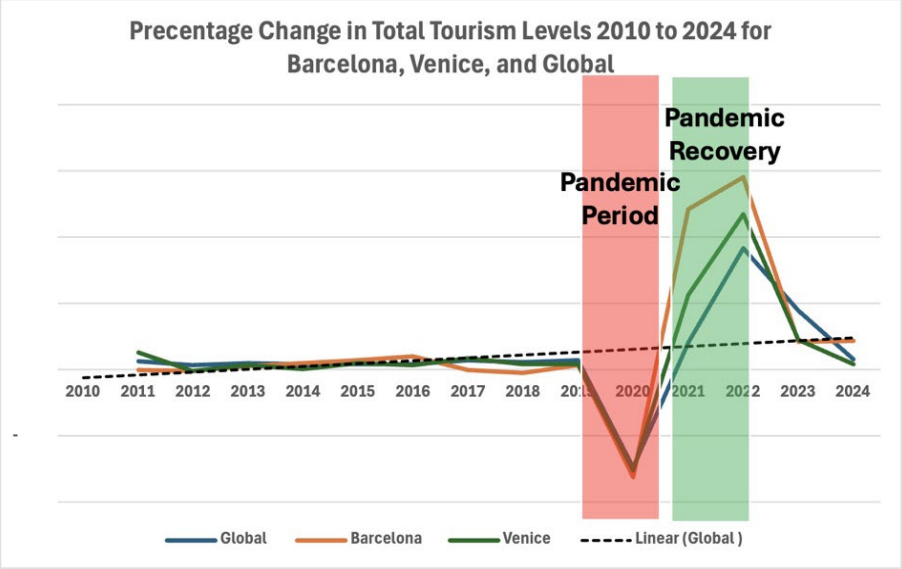


Figure 7

The majority of the responses taken by the citizens and governments of Barcelona and Venice to overtourism are aimed primarily at reducing tourism demand, making a visit to the city more expensive or less convenient. Many of the mitigation efforts seem aimed at changing objectionable tourist behaviour and encouraging tourists to disperse among less famous sites, areas, or seasons. The evidence studied in this research suggests that none of this is effective in countering what seems to be a relentless increase in the number of tourists globally. Both cities, and the global tourism industry in general, show a steady increase in tourism demand promising to eventually overwhelm even the most aggressive attempts to mitigate the impacts of this rising demand.

The only example of a possibly effective strategy identified in this research was the barring by Venice of large cruise ships in the main canal. While not conclusive, the analysis suggests that preventing cruise passengers from arriving in Historic Venice was effective in reducing the number of visitors. That reduction was not, however, enough to offset the increase in other tourist streams in the city. Things might have been worse without that restriction, but they still got worse overall in terms of bottom-line tourist numbers.

Tourism revenues in Barcelona were 14% of the total GDP of the city (Watkins & Dumoulin, 2025). For Venice, tourism accounts for 1 job in every 3 (Tattara, 2024). Tourism is forecast to be 11.5% of global GDP by 2035,

generating an estimated $16 Trillion in revenues (WEF, 2025). That cashflow is vital to support many tourist areas and sustains a set of powerful commercial interests which depend on tourism to survive, as well as local governments who need those revenues to fund services for their citizens.

While tourism interests, including governments in tourist areas, will benefit from and support attempts to boost those revenues through taxes and fees on tourists and their activities or from attempts to disburse the tourists physically or temporally, they will resist attempts to reduce the overall numbers of tourists or to reduce their spending. While supply-side attempts to limit the number of tourists who can enjoy a given region might be effective in reducing the total number of tourists visiting an area, they will be very difficult to implement.

The field of tourism in general and overtourism is well-researched by scholars and explored by the news media as well. No clear solutions are identified, which supports the need for more research, both into the impacts and possible solutions to overtourism, but also into the motivations of tourists. Specific further research should also include the study of cases outside Western Europe, the continued study of total visitor counts by region as time passes, and the study and modelling of tourist responses to mitigation efforts.

No ethical approvals were required for this research.

No AI was used in the research or writing for this article.

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Framing Emirati Womanhood: Heritage, Modernity, and Soft Power in Tourism Discourse

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Abstract: This paper examines how Emirati womanhood is framed within the tourism discourse of the United Arab Emirates, analysing how gendered representation operates as both a cultural and political instrument in nation branding. Drawing on framing theory and informed by feminist perspectives on tourism and media representation, this study explores the visual and textual portrayal of women on official online platforms, including Visit Dubai, Visit Abu Dhabi, Emirates Airlines, and the UAE Ministry of Culture and Youth. These materials constitute a state-sanctioned narrative of national identity that integrates cultural heritage with modernity. Through qualitative framing analysis, four recurrent interpretive frames were identified: *guardian of tradition, empowered professional, cultural ambassador,* and modern national icon. Each frame constructs Emirati women as both rooted in heritage and central to the UAE's vision of progress and global leadership. The analysis demonstrates that these portrayals harmonise heritage and empowerment rather than position them as opposites. Emirati women are represented as mediators between tradition and modernity; figures through whom the state communicates moral legitimacy, cosmopolitanism, and social stability. These findings align with broader research on Emirati women's narratives of economic and professional agency, revealing a consistent cultural mechanism of legitimation across both institutional and personal discourse. The study argues that tourism imagery functions as a communicative tool of soft power, affirming the UAE's global identity as a progressive Arab nation while domestically reinforcing social cohesion and cultural continuity. The 2025 election of an Emirati woman, Shaikha Nasser Al Nowais, as Secretary-General of UN Tourism symbolically extends these representational strategies into global governance, converting visual representation into institutional leadership. The paper concludes that the UAE's tourism discourse serves a dual purpose, showcasing gender equality to international audiences while reaffirming national authenticity at home, thereby contributing to a distinctive, culturally grounded model of gendered modernity. Theoretically, the paper advances the conceptualisation of gendered nation branding as a communicative process of cultural legitimation, wherein representations of women reconcile heritage and modernity through culturally coherent expressions of empowerment. While not engaging in-depth with soft power theory, the study highlights its relevance in understanding how tourism can serve as a site for producing credible and sustainable forms of gendered modernity. Emirati women thus emerge not merely as symbolic figures of authenticity but as central mediators of the nation's image, embodying a model of progress that aligns cultural continuity with global visibility.

Keywords: Cultural Diplomacy, Emirati Women, Framing Theory, Gendered Modernity, Nation Branding, Tourism Discourse

1. Introduction

The United Arab Emirates (UAE) has established itself as a global tourism hub, leveraging its strategic geography, oil wealth, and advanced infrastructure to develop a distinctive destination brand. As part of this nation-branding strategy, cultural heritage has become central to communicating an identity that is both modern and authentic. Supported by developed infrastructure, strong safety indicators, sustainable tourism initiatives, extensive retail and hospitality offerings, and long coastlines with year-round sunshine, the UAE has expanded its tourism capacity. In 2022, the sector contributed nearly AED167 billion (USD45.4bn) to the country's GDP (9%), with international tourist spending reaching AED117.6 billion (USD35.5bn), and 1,189 hotels offering 203,000 rooms.

Within the tourism discourse, Emirati women play a prominent symbolic role. They are depicted simultaneously as custodians of tradition and as representatives of national progress, reflecting official narratives that negotiate the balance between heritage and modernity (Anholt, 2007; Salazar, 2012). Imagery commonly depicts women in *abayas* (lightweight cloaks) and *shaylas* (headscarves) as educated professionals, signalling traditional values, gender-progressive policies, and cultural specificity in a competitive global market (Khatib, 2012; Al-Mutawa, 2020).

The symbolic use of women in nation-building is well established across postcolonial and post-oil Gulf societies (Yuval-Davis, 1997). In the UAE, this dynamic is amplified by the economic and ideological importance of tourism. Representations of Emirati women mediate between state aspirations for modernisation and commitments to heritage preservation. Their global visibility, exemplified by the 2025 election of Shaikha Nasser Al Nowais as Secretary-General of UN Tourism, underscores the need to examine how womanhood is framed within national tourism narratives.

This paper, therefore, analyses how Emirati womanhood is constructed in official tourism materials, using framing theory to explore how these portrayals function within broader discourses of national identity and gendered nation-building.

2. Literature Review

The intersection of gender, heritage, and tourism has attracted sustained attention in critical tourism and cultural studies. Feminist scholarship has demonstrated that tourism is not merely an economic or recreational activity but a powerful cultural arena in which identities are produced, negotiated, and commodified (Aitchison, 2005; Pritchard & Morgan, 2007). Within this framework, gender operates not only as a demographic variable but also as a discursive and symbolic resource. Tourism and heritage sites frequently reflect and reproduce normative gender ideologies, generating carefully curated portrayals that sustain dominant conceptions of femininity and masculinity (Tucker & Akama, 2009). However, the view that patriarchal structures alone determine gendered tourism imagery has been challenged by Wijesinghe, Mura, and Tavakoli (2020), who argue that gender portrayals are not only shaped by patriarchy but also by nationalist and postcolonial hierarchies. Their research demonstrates that tourism imagery operates through multiple intersecting power relations, a dynamic evident in the UAE context, where gendered representation intertwines with nation-building, cultural, and modernisation initiatives.

Heritage, understood as a cultural practice, is inherently selective. It can be "understood as being produced through socio-political processes reflecting society's power structures" (Logan & Wijesuriya, 2015, p. 569). It entails processes of remembering and forgetting, inclusion and exclusion, all of which are embedded in broader power relations (Smith, 2006). In the context of the Gulf states, heritage is often mobilised as a stabilising force amid rapid economic and social transformation. As Graham, Ashworth, and Tunbridge (2000) argue, heritage narratives are frequently less concerned with preserving the past than with legitimising the present. They perform a political function by fostering national cohesion and validating contemporary state ideologies. A similar return to the past to legitimise current changes also features in Emirati women's own narratives of their economic activity, in which they invoke historical models of women's work to reconcile cultural heritage with their expanding economic participation (Goby, 2024). Within such heritage narratives, women are typically positioned as custodians of cultural continuity, with their representation often confined to the domestic or familial sphere, reinforcing patriarchal norms and expectations (Yuval-Davis, 1997). In the UAE, however, these portrayals are limited, and they coexist with images reflecting the state's ambition to present itself as modern, inclusive, and globally competitive. Emirati women are more frequently depicted in professional settings, wearing traditional attire and participating in education, leadership, and science, that is, imagery that signals progress and gender equality (Al-Mutawa, 2020). This dual construction of women as both traditional and modern exemplifies what Kraidy (2010) describes as the "hybridity of Arab identity" within mediated nation-building. Such strategic oscillation between conservatism and progressivism reflects the UAE's broader imperative to appeal simultaneously to domestic and international audiences.

These representations intersect with the concept of **tourism imaginaries,** which refers to collectively held discourses about places and people that shape tourists' expectations and experiences. As Salazar (2012) explains, tourism imaginaries are socially constructed narratives that circulate through media, institutions, and everyday discourse, shaping how destinations and identities are imagined and consumed. Tourism imaginaries are not neutral; they are generated through media, policy, and institutional narratives that serve commercial and ideological purposes. In the UAE, imaginaries of Emirati womanhood draw on recurring motifs of professional empowerment, traditional dress, and family embeddedness, elements which construct a culturally recognisable yet politically uncontentious image that aligns with state priorities (Khatib, 2012; Pritchard & Morgan, 2007).

Taken together, these diverse literature streams highlight a gap in the critical examination of how Emirati women are constructed within the tourism sphere. Building on the concept of tourism imaginaries (Salazar, 2012), which elucidates how representational frameworks shape perceptions of places and people, this study draws on insights from framing theory, cultural representation, and nation-building in the Gulf to interrogate how visual and textual portrayals of women function not merely as depictions but as ideological performances.

3. Methodology

3.1 Theoretical Framework

This study is grounded in framing theory, which offers a robust approach to examining how meaning is constructed, legitimised, and circulated through communicative texts. Building on Entman's (1993) conceptualisation, framing is understood as the process of selecting certain aspects of perceived reality and making them more salient in a communicative text to promote particular definitions, causal interpretations, moral evaluations, or policy recommendations. Frames, therefore, function as organising principles that shape how audiences interpret social phenomena by guiding attention and structuring perception (Goffman, 1974).

Within tourism communication, framing theory provides a valuable tool for analysing how visual and textual narratives shape understandings of culture, identity, and gender. Frames not only foreground specific themes but also suppress alternative perspectives, determining what becomes visible, desirable, or legitimate within the tourism imaginary. They operate through repetition, symbolic association, and cultural resonance, mechanisms that together reinforce specific interpretations of social reality (Hughes et al, 2017). This theoretical orientation is particularly relevant to the representation of Emirati women, whose visibility in tourism materials functions as both a marker of national authenticity and an instrument of image management. Applying framing analysis enables the identification of how gender, modernity, and heritage are combined to construct an ideologically coherent version of womanhood that advances the UAE's broader nation-branding objectives.

3.2 Data Collection and Analysis

The research adopted a digital ethnographic approach, focusing exclusively on official websites that promote tourism and cultural heritage in the UAE. Data were collected from publicly accessible online materials produced or endorsed by state or quasi-state institutions between 2020 and 2025. The corpus comprised content from major national tourism and cultural portals, including Visit Dubai, Visit Abu Dhabi, Emirates Airlines, Expo 2020 Dubai, the UAE Pavilion, the Dubai Department of Economy and Tourism, the Department of Culture and Tourism, Abu Dhabi (DCT Abu Dhabi), and the UAE Ministry of Culture and Youth. These platforms were selected because they serve as the primary digital interfaces through which the UAE projects its national image and articulates its cultural identity to domestic and international audiences. Purposive sampling was used to identify webpages and campaigns that explicitly or implicitly referenced gendered themes or depicted Emirati women. Only materials that were publicly available and officially sanctioned were included, ensuring that the analysis reflected institutional perspectives on gender representation within the tourism sector. Both textual and visual materials were examined, including website narratives, promotional copy, images, and embedded videos. In total, the corpus comprised materials drawn from eight official tourism and cultural platforms. Across these sites, approximately 42 webpages and 17 promotional campaigns were analysed, yielding around 138 visual items (images and video stills) and 93 textual segments. These items were selected based on their explicit or implicit portrayal of Emirati women or their relevance to heritage and national identity.

The analysis applied framing theory as both a conceptual and methodological framework to uncover how Emirati womanhood is constructed in digital tourism discourse. Textual and visual materials were examined through an iterative, multi-cycle coding process aimed at identifying dominant interpretive frames, including themes such as tradition, modernity, cultural authenticity, professionalism, and national pride. In the first cycle, open descriptive codes were generated to capture recurring motifs, settings, attire, gestures, narrative emphases, and references to heritage. Subsequent coding cycles involved constant comparison across websites, during which codes were refined, merged, or differentiated as patterns of meaning became clearer. Repetition and prominence were treated as indicators of salience, following Entman's (1993) understanding of framing as the selective amplification of certain aspects of reality. Visual and textual data were analysed in parallel so that multimodal meaning could be assessed cohesively, recognising that the representation of national heritage and gendered identity in tourism communication emerges through the interplay of both modes. Through repeated recoding and aggregation, clusters of related codes were organised into higher-order interpretive categories. The iteration continued until no new insights were generated and thematic saturation was achieved. The four frames presented in the Findings section represent the final synthesis of this process and illustrate how gendered meanings are produced, normalised, and aligned with broader strategies of cultural heritage representation, cultural diplomacy, and nation branding.

4. Findings

The analysis identified four dominant frames through which Emirati women are represented in official UAE tourism websites. These frames were derived through iterative coding of visual and textual content, focusing on recurrent motifs, settings, attire, posture, and language used to describe or depict women. Each webpage was examined for how these elements interacted to construct meaning. Through repeated comparison and aggregation, four primary frames emerged: *guardian of tradition, empowered professional, cultural ambassador*, and modern national icon. While each frame carries distinct visual and linguistic features, they collectively contribute to a coherent national narrative that positions Emirati women as central to the reconciliation of heritage and modernity within the UAE's tourism branding.

Table 1: Framing of Emirati Women in UAE Tourism Websites

Frame	Type of Image or Cue	Interpretive Notes	Sample Source (Website)
Guardian of Tradition	Women in abayas and shaylas engaged in traditional crafts such as weaving or preparing Emirati coffee; warm desert or heritage village settings; muted, earth-tone colour palettes	Emphasises continuity, authenticity, and cultural rootedness. Women appear as custodians of intangible heritage, anchoring modern development within moral and cultural legitimacy.	Visit Abu Dhabi "Culture and Traditions" section; DCT Abu Dhabi "Qasr Al Hosn" and "House of Artisans" pages
Empowered Professional	Women in formal attire within office, educational, or aviation environments; confident posture; contemporary architecture or modern interiors in background	Highlights state-led narratives of gender equality and empowerment. Positions Emirati women as contributors to national progress and the knowledge economy while retaining modest cultural presentation.	Emirates Airlines "Women in Aviation" press releases; Dubai Department of Economy and Tourism (DET) "Women in Leadership" features
Cultural Ambassador	Emirati women engaging with international visitors, guiding tours, or representing national culture at exhibitions and events; smiles, gestures of welcome	Constructs women as mediators between local and global cultures, reinforcing hospitality and intercultural understanding. Frames femininity as an instrument of soft power.	Expo 2020 Dubai UAE Pavilion website; Visit Dubai "Plan Your Trip" and "Cultural Experiences" pages
Modern National Icon	Stylised portraits or lifestyle imagery of Emirati women in urban spaces; skyline backdrops, high fashion abayas, confident expressions	Portrays women as the living embodiment of the modern UAE; cosmopolitan, visionary, yet distinctly local. Blends heritage markers (*shayla*, *abaya*) with modern design and ambition.	Visit Dubai "Dubai Now" campaigns; Emirates Airlines destination features

4.1 Guardian of Tradition

This frame was particularly evident in heritage-oriented content on *Visit Abu Dhabi* and *DCT Abu Dhabi* websites. Emirati women are frequently portrayed wearing the abaya and shayla, situated in heritage villages, weaving palm fronds, or demonstrating traditional cooking. The visual tone is subdued and nostalgic, with soft lighting and desert palettes that evoke timelessness. Textual descriptions often highlight the "preservation of Emirati heritage" and "passing down of crafts through generations." These cues construct women as stabilising figures who embody authenticity and moral continuity in the face of rapid modernisation. The absence of men in these images further strengthens the gendered association between women and cultural guardianship.

4.1 Empowered Professional

Images on *Emirates Airlines* and *Dubai Department of Economy and Tourism* platforms depict women in leadership and professional roles such as pilots, engineers, entrepreneurs, or managers. Their attire blends modern professionalism with modest cultural codes, reflecting the UAE's discourse of "authentic modernity." The tone is aspirational and confident, often accompanied by captions celebrating ambition, innovation, and excellence. The frame communicates gender empowerment as both a moral and developmental achievement of the state. However, these portrayals remain carefully curated, and empowerment is presented as harmonious with cultural propriety, avoiding overt challenges to patriarchal norms.

4.2 Cultural Ambassador

The *cultural ambassador* frame was prominent across *Expo 2020 Dubai* and *Visit Dubai* sites, where Emirati women are shown interacting with tourists or participating in international cultural events. Visual cues include welcoming gestures, guided tours, and smiling faces framed by traditional attire. The discursive emphasis is on dialogue, positioning women as intermediaries who translate Emirati culture for global audiences. Through this framing, Emirati womanhood is mobilised as a form of soft power that bridges local authenticity and global engagement. Women's presence in such imagery symbolises openness and accessibility while maintaining cultural dignity.

4.3 Modern National Icon

Across lifestyle and destination marketing imagery, particularly on *Visit Dubai*, Emirati women are increasingly depicted as icons of modernity. These visuals feature urban skylines, contemporary architecture, and luxury aesthetics. The women's attire remains traditional, yet their styling, body language, and contexts project cosmopolitanism. The combination of traditional dress with global backdrops symbolises the UAE's hybrid identity, merging heritage and progress. The text accompanying these images often invokes ambition, leadership, and vision, positioning women as representatives of a forward-looking nation. This frame transforms Emirati women into aesthetic symbols of national achievement, reinforcing the UAE's image as a modern yet culturally grounded nation.

4.4 Summary of Framing Tendencies

Taken together, these four frames produce a coherent yet circumscribed vision of Emirati womanhood within the UAE's tourism discourse. Across all websites, Emirati women are represented as vital symbols of national identity, balancing heritage, professionalism, and modernity within a state-sanctioned narrative of progress. The imagery affirms women's visibility but situates their representation within culturally sanctioned roles. The resulting discourse harmonises gender equality with cultural continuity, presenting Emirati womanhood as both evidence of social advancement and a reassuring emblem of authenticity.

5. Discussion

The findings demonstrate that Emirati women are positioned as central figures within the visual and textual architecture of the UAE's tourism communication. Across the four identified frames, women serve as narrative anchors through which the nation negotiates the relationship between heritage and modernity. In this respect, the representations align with what Salazar (2012) describes as the use of tourism as a form of cultural storytelling that mediates local identity for a global audience. Framing theory (Entman, 1993; Goffman, 1974) provides an interpretive lens for understanding how these narratives gain coherence. By selectively amplifying certain aspects of womanhood, principally authenticity, professionalism, and decorum, the frames make visible the values the nation wishes to project, and the imagery reflects a purposeful harmony, emphasising continuity and optimism rather than social disruption. This aligns with Smith's (2006) argument that heritage functions not as a neutral reflection of the past but as a performative and selective practice that legitimises contemporary ideologies.

The guardian of tradition frame, visible in heritage-based imagery on *Visit Abu Dhabi* and *DCT Abu Dhabi* websites, situates women as cultural custodians. Here, the representation resonates with Yuval-Davis (1997), who observes that women in nationalist projects are entrusted with preserving and reproducing the nation's moral and symbolic foundations. The ubiquity of women in traditional dress contributes to a sense of cultural continuity that complements rapid modernisation. Rather than portraying tradition as restrictive, the UAE's tourism discourse presents heritage as a source of strength, linking women's cultural labour to pride and belonging. The empowered professional and modern national icon frames extend this imagery into the realm of modern nation-building. On platforms such as *Emirates Airlines* and the *Dubai Department of Economy and Tourism*, Emirati women appear as leaders, innovators, and skilled professionals. This reinforces what Anholt (2007) identifies as a core function of nation branding, namely, the projection of competence, progress, and ethical leadership on the global stage. It also reflects Pritchard and Morgan's (2007) notion that tourism imagery can serve as a vehicle for gender transformation, providing new visual repertoires of women's agency. In the Emirati case, professionalism and empowerment are expressed in culturally resonant ways, with women's decorum and composure remaining intact, thus enabling empowerment to coexist with tradition. This finding aligns with research demonstrating that Emirati women's leadership is enacted within cultural rather than

oppositional frameworks, with agency exercised through relational and moral authority grounded in Islamic values. This reinforces that empowerment in the UAE derives its legitimacy from cultural coherence rather than resistance to tradition (Alhadhrami et al, 2018). These portrayals align with broader patterns of Emirati women's expanding agency across professional and organisational domains in which women's visibility is not merely symbolic but reflects an ongoing negotiation between cultural expectations and professional aspirations (Goby, 2021). The framing of the Empowered professional in tourism communication resonates with these findings, as both emphasise forms of agency that are exercised within culturally coherent boundaries rather than in opposition to them. In both organisational and tourism contexts, Emirati women are positioned as dynamic agents of national progress harmonising personal ambition with collective identity. The cultural ambassador frame links gender representation to diplomacy and cultural soft power. Women are portrayed as welcoming hosts and mediators between cultures, embodying generosity and warmth. This framing aligns with the UAE's long-standing strategy of using tourism as a form of cultural diplomacy (Khatib, 2012; Salazar, 2012). A recent example is the *Al Burda* exhibition, *As the Sun Appears from Beyond,* at the Aga Khan Museum in Toronto, curated by three Emirati women. Their work extends this diplomacy through art, presenting Islamic aesthetics in a contemporary form that fosters intercultural dialogue and reinforces the UAE's image as a hub of creative and cultural engagement (UAE Ministry of Culture, 2025).

Collectively, these frames illustrate what Kraidy (2010) terms the hybridity of Arab identity. The discourse does not position tradition and modernity as oppositional but rather as mutually reinforcing. The Emirati woman becomes a symbolic bridge linking the nation's historical authenticity to its aspirations for global leadership. This duality echoes Salazar's (2012) observation that tourism imaginaries often operate as spaces of negotiation, translating local values into globally intelligible narratives. The UAE's tourism representation thus performs a subtle balancing act, asserting national distinctiveness while engaging with universal tropes of progress, professionalism, and empowerment. The findings also reaffirm the function of heritage tourism as a communicative instrument of nation branding. As Graham, Ashworth, and Tunbridge (2000) argue, heritage often serves to legitimise the present by invoking the past. In the UAE, women's visibility across tourism platforms does precisely this; it grounds modern achievements in a lineage of cultural authenticity. The inclusion of professional and leadership imagery alongside heritage scenes signals continuity rather than rupture, allowing the nation to portray social transformation as culturally coherent.

While these four frames collectively construct a coherent and aspirational narrative of Emirati womanhood, it is important to acknowledge the selective nature of such portrayals. As with destination branding more broadly, promotional tourism discourse inevitably simplifies social complexity, foregrounding harmony, cultural continuity, and professional accomplishment while omitting dimensions of women's experiences that are less easily reconciled with national image-making. The imagery does not capture the everyday negotiations, constraints, or diversities of women's lives, nor does it reflect the broader structural dynamics that accompany gender roles in rapidly transforming societies. These absences are not unique to the UAE; rather, they are intrinsic to the representational conventions of tourism communication, which prioritise clarity, coherence, and cultural reassurance. Recognising this selective visibility does not diminish the significance of the affirmative frames identified in this study. Instead, it highlights how tourism discourse operates as a curated narrative that advances national aspirations while eliding ambiguity. This suggests scope for future research examining how Emirati audiences interpret such imagery, or how divergences between tourism representation and lived experience may shape understandings of gender and national identity.

Overall, these findings present a positive and forward-looking narrative of Emirati womanhood. The four frames together create what might be termed a harmonised gender narrative, one that celebrates women's visibility and contribution while maintaining cultural integrity. In this way, the UAE's tourism discourse exemplifies an affirmative form of framing, as it recognises the social value of women's participation in national life and situates that participation within a culturally resonant moral order. As Anholt (2007) and Pritchard and Morgan (2007) suggest, such alignment between gender representation and national identity is central to building a sustainable and credible destination brand. Rather than being purely instrumental, these portrayals can be read as aspirational, signalling both policy ambition and social change. By framing women as guardians, professionals, ambassadors, and icons, the UAE's tourism communication articulates a model of modernity that is inclusive, dignified, and locally grounded. This synthesis of heritage and progress demonstrates the capacity of tourism discourse to contribute positively to national image formation and to broader understandings of gender in the Arab world.

6. Conclusion

This study examined how Emirati women are represented within the heritage tourism narratives of the UAE, focusing on how gendered imagery contributes to national identity and destination branding. A framing analysis of official tourism websites identified four dominant interpretive frames: guardian of tradition, empowered professional, cultural ambassador, and modern national icon. These frames collectively create a cohesive yet multifaceted portrayal of Emirati womanhood, integrating cultural continuity with national ambition. Emirati women are positioned as central figures in nation branding, embodying the state's commitment to balancing heritage and progress, decorum and empowerment, and local values and global engagement. This model of modernity is distinctly Emirati, presenting tradition as a foundation for inclusion and development. The tourism narrative depicts women as symbols of authenticity and participants in national transformation, mediating between heritage and global aspiration. This convergence between women's self-legitimation and state tourism imagery aligns with findings that Emirati women draw on the past as a moral anchor to reconcile economic participation with cultural authenticity (Goby, 2024).

The study contributes to critical tourism and gender scholarship by demonstrating how framing theory illuminates the ideological mechanisms through which gender and nationhood intersect in tourism representation. It also demonstrates how tourism discourse aligns with social and policy objectives, reinforcing national cohesion while promoting the visibility of women. Within the UAE's cultural and political framework, women's representation performs an integrative role, contributing to the country's soft power strategy and its image as a progressive Arab state. Recent developments underscore this trajectory: the 2025 election of Shaikha Nasser Al Nowais as Secretary-General of UN Tourism marks both a personal achievement and a symbolic extension of national narratives, translating representational visibility into institutional authority. Her leadership reinforces the credibility of the UAE's gender narrative and suggests a continued convergence between domestic imagery, policy aspirations, and international recognition. Future research could investigate how Emirati audiences perceive these representations, as well as the impact of global recognition of women's leadership on tourism campaigns and national branding. Comparative studies across Gulf states could also identify whether similar framing patterns appear regionally.

In conclusion, the representation of Emirati women in UAE tourism materials illustrates how gender, culture, and nationhood intertwine within a dynamic framework of heritage and modernity. By framing women as both symbols and agents of progress, the tourism discourse conveys a culturally grounded national identity and contributes to broader narratives of women's expanding leadership in global tourism.

Ethics Declaration

As this research is based exclusively on publicly available materials and does not involve human participants or private data, ethical approval was not required.

AI Declaration

AI tools were not used in the development of this paper.

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Generation Z's Approach to Sustainable Tourism: Factors in Green Accommodation Choice

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Abstract: This paper presents a conceptual complexity theory-based framework that reveals the choice of green accommodation of Generation Z individuals as a complex phenomenon of interacting actors and relationships among them. This paper also describes a portrait of Generation Z through the complex concept of smartness, which includes the traits of knowledgeability, digitality, sustainability, intelligence, innovativeness, agility, network based and learning. It is also emphasised that the changes to influence the positive behaviour regarding sustainable choices should be directed to these traits, using them as leverage points.

Keywords: Green Tourism, Generation Z, Green Accommodation, Accommodation Choice, Sustainability

1. Introduction

Scientific literature emphasises that the hotel industry produces various detrimental consequences, including toxic waste, extensive water and unsustainable energy consumption, carbon dioxide emissions and food waste (Leverenz et al., 2021). On the other hand, the hotel industry has the potential to act as a powerful change agent to comply with the UN's Sustainable Development Goals (SDGs) and to promote green consumerism (Wang, Wong and Narayanan, 2020). In this context, we discuss green hotels, which are also referred to as "eco-friendly", "environmentally responsible", "environmentally friendly", "sustainable" and "environmentally oriented" (Wolfe and Shanklin, 2001). In the hotel industry, the concept of "green" denotes reducing environmental impact by engaging in eco-friendly practices in hotel operations (Chua & Han, 2022), such as saving energy and water, reducing waste, adopting sustainable products, all employed using specific tools and techniques (Qu et al., 2022). The criteria and indicators for green or sustainable approach are presented in globally accepted green hotel certifications, such as Green Key and Green Globe.

Accordingly, the implementation of a sustainable approach in the hotel and tourism industry is experiencing an upward trend, which influences the habits of the individuals who opt for such services. However, the factors that determine the choice of sustainable or green accommodation remain relatively under-researched (Kamboj et al., 2022). One could state that the intention to choose a green accommodation is one of the research branches regarding green hotel research (Chua and Han, 2022). Furthermore, there is scarcity of scientific research regarding green accommodation choices among young individuals, particularly Generation Z (Gen Z), although the latter accounts for a substantial part of the global population (approximately 25%). Despite the significant differences in comparison to the behaviour of Gen X and Millennials, Gen Z's green and sustainable consumer behaviour is understudied mainly because previous research gave more emphasis on the latter groups, treating them as full range adult consumers.

Being born between 1997 and 2012, Gen Zers are characterised by social awareness, environmental consciousness, digital literacy, and openness to innovation. However, although the representatives of Gen Z declare their support for the ideas of sustainability, their actual consumption habits often depend not only on value preferences, but also on practical aspects, such as price, convenience or availability of services. Thus, this paper **aims** to uncover the key factors that encourage or limit the behaviour of Gen Z in choosing green accommodation, whose providers actively implement environmental policies, supporting community development and the preservation of cultural heritage (Szczepańska-Woszczyna, Thirakulwanich and Kot, 2024).

This paper is structured as follows: the first section introduces the concept of Gen Z and is portrayed through the lenses of smartness. The second section presents the theoretical framework, based on complexity theory. The third section examines the actions, which influence the positive behaviour regarding their green accommodation choices.

2. The Portrait of Generation Z: Smartness and Intention-behaviour Gap

Gen Z describes individuals who are born between mid-1990 and early 2010 – it is widely accepted that they are born between 1997 and 2012 (Slepian et al., 2024). One should state that consumer behaviour of Gen Z differs from other generations, especially in the area of digitalization and sustainability (Prayag et al., 2022). This paper emphasises that the individuals of Gen Z could be described through the concept of smartness, which says that a smart individual "is perceptive, quickly reacting to the environment, clever, inventive, and able to adjust to it by adequate decisions" (Jucevičienė and Jucevičius, 2014). Even more, smart dimensions, which could be applied not only to individuals but also to entire social systems, are as follows: knowledgeability, digitality, sustainability, intelligence, innovativeness, agility, network based and learning (Jucevicius and Liugailaite-Radzvickiene, 2013). Although an individual of any generation may possess beforehand mentioned features, scientific literature allows to connect the features of Gen Z to the features of smartness (see also Grumadaitė and Jose, 2024) as follows:

- **Intelligence** means an ability to understand and manage signals that come from the environment. Gen Z is very questionable and easily understands the inconsistencies, including *greenwashing* or vague /false statements regarding sustainability practices (Di Pillo, Palombi and Strazzullo, 2025).
- **Innovativeness** – an ability to create new commercially adaptable products but also seeking to consume innovative products. According to Gordon (2024), Gen Z is a driving force to redefine the patterns of business and other areas, while entering the AI-driven era, by employing the skills of creativity, imagination, and rapid problem solving.
- **Network based (networked)** – seeking to get connected to various networks. In the case of Gen Z, these networks are mostly digital, especially social media (Instagram, TikTok) (Nuttall, 2025). Thus, it creates opportunities to increase the scope of influence making.
- **Digitality** – an ability to use Information-communication technologies. It is obvious that the representatives of Gen Z are very well familiar with digital technologies.
- **Sustainability** – Robichaud and Yu (2021) state that Gen Z's individuals grew up in the era of an intense growth of economy, population, digital solutions, waste production and energy consumption, and thus strive for more sustainable products. Gen Zers are more concerned about environmental issues than previous generations (Prayag et al., 2022).
- **Agility** – an ability not only to survive but also thrive in an ever-changing environment. Since Gen Zers are growing up in a very turbulent environment economically, politically, digitally, and expect the agility qualities from business organisations in return.
- **Knowledgeability** – striving for new knowledge and managing it. Gen Zers tend to acquire new knowledge and skills constantly, especially by employing digital technologies (Wandhe, 2024).
- **Learning** – an ability to acquire knowledge continuously. Gen Z individuals are technologically dependent learners (Lopez and Abadiano, 2023).

The choices of Gen Z with previously presented traits to choose green accommodation may be restricted because of various barriers, which create a green *intention-behaviour gap (GIBG)*. The theory of planned behaviour, developed by the psychologist I. Ajzen (Ajzen, 1991) emphasises that intention influences a behaviour, while the intention is determined by attitudes, subjective norms and perceived behaviour control. However, in various situations, including green choices, the intention doesn't always lead to a particular behaviour. The gap between intention and behaviour could be seen as an inconsistency between what individuals claim about their concern for sustainability issues and what they do in terms of their sustainable consumption behaviours (ElHaffar, Durif and Dubé, 2020). What the "green gap" suggests is that most consumers continue to make purchasing decisions based on price, quality, convenience, and brand recognition, instead of making a sustainable purchase – Elhaffar et al. (2020) state that intrapsychic factors, contextual factors, methodological factors, prioritising the self and coping mechanisms could be defined as reasons for such a gap. Elhaffar et al. (2023) defined the following risks, such as switching costs (evaluation, search and learning costs, performance loss costs, uncertainty costs, brand relationship loss costs) and purchase costs. However, one should note that although young individuals are more eager to use sustainable services (Holmes, Dodds and Frochot, 2021), they still very often meet a challenge to recognise the authenticity and transparency of sustainability claims in the hotel services. For example, the research performed on Gen Z individuals revealed the scepticism about the portraying of sustainability in the services ("not everything that looks sustainable, is really sustainable") (Grumadaitė, Babu & Jose, 2025). Yet, price is the main perceived barrier and biggest influence hindering Gen Z to make a sustainable consumption decision (Djafarova and Foots, 2022). One should state that hotels sometimes follow the approach of *greenwashing* (Furlow, 2010), and it may intensify the

scepticism regarding sustainable services. While adapting the traits of smartness, presented in this paper before, Gen Zers easily recognise all the inconsistencies.

One should state that Gen Z emphasises *the quality* and *having fun* while choosing services. Scientific literature emphasises hedonistic (entertainment, pleasure) and utilitarian (monetary, convenience, timing, etc.) values regarding sustainability and sustainable consumption (Kamboj et al., 2022). The authors also emphasise biospheric values, when the customers "evaluate phenomena in terms of their benefits and costs to ecosystems or the biosphere" (Stern and Dietz, 1994, p. 70). Scientific literature also reveals that hotel consumers are self-interest motivated, in other words, they expect benefits from participating in green activities while staying in green hotels, including cost reductions (Chua and Han, 2022). Thus, if potential consumers expect some risks, reduced hedonic-seeking, some inconvenience, the decision making will be negative regarding green choice (Chua and Han, 2022).

It may be that macro-context itself hinders sustainable behaviour, thus, the conceptual framework on the complexity of the phenomenon of Gen Z to choose green accommodation is presented in the next part of the paper.

3. The Conceptual Framework on the Factors of Gen Z to Choose Green Accommodation

Accommodation system (hotels) takes an important part in the overall tourism system (Gruchmann, Topp and Seeler, 2022), which could be seen, following the perspective of complexity theory, as a complex network of many interacting agents, following a set of rules to increase the adaptability (Cilliers, 1998; Johnson, 1999). Thus, the tourism system as a complex adaptive system is characterised by nondeterminism, presence of feedback cycles (positive or negative), distributed nature, emergence and self-organisation (Baggio, 2008). Considering that the comprehensiveness of the phenomena in tourism and hospitality could be best portrayed using the system's approach (Moscardo, 2021), the factors of the choice of green accommodation are also presented through the lenses of a complex adaptive system (see Figure 1).

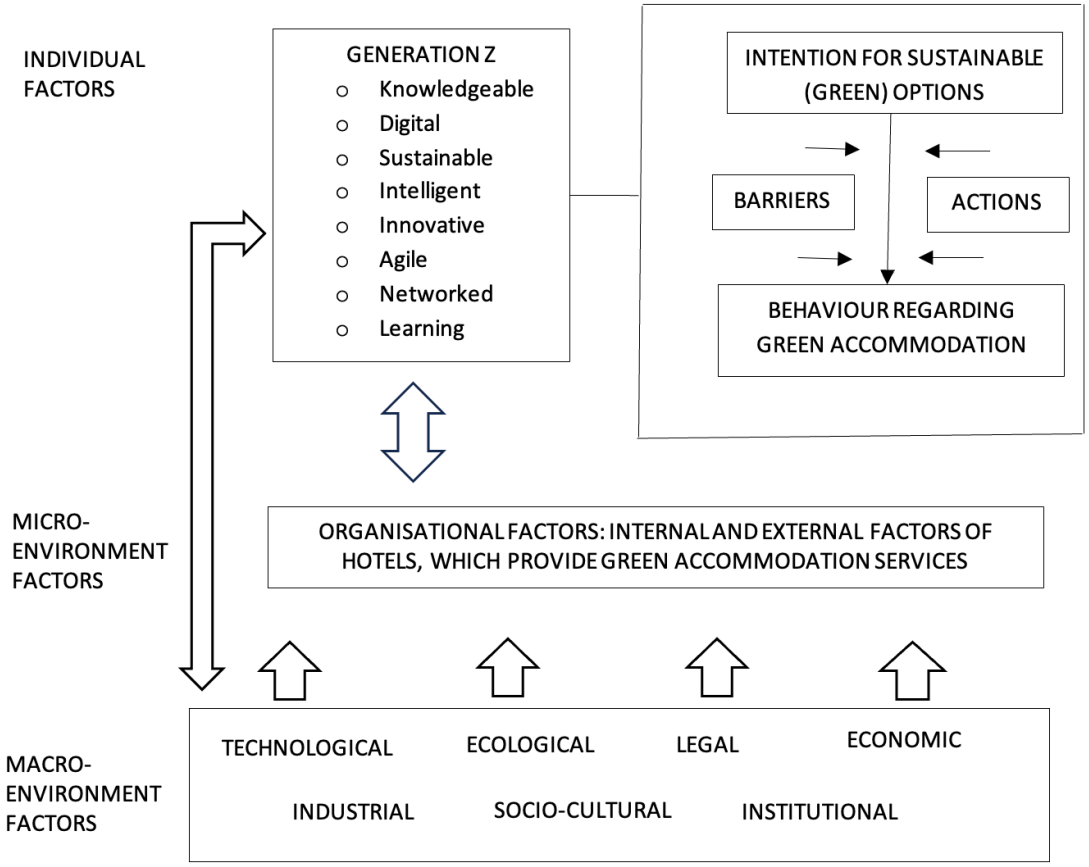


Figure 1: The conceptual framework on the factors of Gen Z to choose green accommodation (created by authors)

The conceptual framework presents the individual of Gen Z as a central actor in the system, which influences but also gets influenced by the processes, which occur in the hotel sector and beyond. It could be stated that Gen Z plays a significant role as a change **initiator** to initiate the changes in particular organisation (*micro-context*) and / or *macro-context*. On the other hand, micro and macro environments also influence the choices of Gen Z to choose green accommodation, and it may cause *intention-behaviour gaps* through various barriers. The authors of this paper emphasise that the actions to erase the barriers should reflect the traits of Gen Z's individual, which are presented in this framework.

The macro-context factors in Figure 1 are named as industrial, ecological, legal, economic, socio-cultural, institutional and technological factors. Thus, the choice of a green accommodation is the result of various interacting factors at national and / or international context. The factors are presented below.

Economic factors. Economic conditions are often explained through *Gross Domestic Product (GDP)*, which is the total monetary value of all finished goods and services produced within a country's borders over a specific period, typically a year, and *the Consumer confidence index*, which measures the degree of optimism that consumers have regarding the economy in general (Matias et al., 2024). The research, which was performed by Matias et al. (2024) revealed that GDP and consumer confidence index has a positive impact on the success of the hotel industry. It means that under good economic conditions hotels may attract many customers and create more opportunities to develop innovative services and invest more into sustainable practices. On the other hand, Gen Z is able to explore a bigger variety of hotels, especially those who provide green accommodation, starting from the individuals who are already capable of entering job markets.

Socio-cultural factors. However, since Gen Z covers the age groups from 13 to 28 years old, it is obvious that a part of Gen Z is dependent on the adults and not only in the matter of economic situation of households but also *shared values, beliefs, behaviour norms, family and other reference groups*, and other social factors. The differences in green choices depend on different generations, while Baby Boomers are the least eager, for example, to pay for sustainable services and the individuals of Gen Z – the most (Nichols and Holt, 2023). However, following the results of various research studies on the sustainable behaviour among different generations, one could state that the choices for green accommodation or other sustainable services supposed be more based on individual characteristics than to a belonging to a different generation – the individuals of different generations still demonstrate various intention- behaviour gaps, such as feeling concerned about the environment but paying less attention about water resources (Millennials in the research of Zuo et al. (2015)) or valuing environmental preservation but disagreeing to pay more for sustainable products (Gen Z in the research of Gomes, Lopes, & Nogueira (2023)). In the case of individual context, the choice for green accommodation may be affected by a number of key socio-demographic and behavioural characteristics, such as religiosity, age, personality traits, and even the length of stay (Chua and Han, 2022).

Technological factors. The development of innovative technologies increases the probability and scope of green /sustainable approach's adaptation in the hotel industry. According to Bekele et al. (2024), the adaptation of innovative technologies includes digital transformation, sustainable business model innovations, environmental sustainability technologies (water conservation, energy conservation, waste management and carbon emission reduction. Such innovations are influenced not only by consumer's preferences and enterprises' initiatives but also by **legal factors** regarding **ecological context** in the regional, national and international context.

An individual, representing Generation Z, in this Figure, expressing the traits of knowledgeability, digitality, sustainability, intelligence, innovativeness, agility, network based and learning, may have an intention for sustainable (green) options, but they may be restricted by various barriers, which inhibit the actual behaviour regarding green accommodation, and these barriers may occur from various external factors or their combinations. On the other hand, Generation Z with its strong positive approach regarding environmental protection, is also becoming a driving force to change the external context in order to initiate the changes to remove the barriers.

Institutional factors. North (1990) argued that institutions are "human-made constraints that provide structure for political, economic, and social interaction" and distinguished two types of institutions, or "rules of the game in society," that interact with each other and co-evolve—formal institutions, associated with constitutional, legal, and organizational templates, and informal institutions, associated with culturally transmitted codes of conduct, values, and norms. In addition, it is important to state that Institutional environment strongly affects legislative, political, economic, socio-cultural and ethical contexts (Sukhostavets, 2017). Accordingly, it positively impacts the hotel industry, and in return gets more power to influence consumer behaviour. While analysing institutional context, it is necessary to explore the concept of *social capital*, which is defined through bonding

and bridging relationships that extend beyond personal acquaintances (Putnam, 2000). Trust is one of the most important dimensions of social capital and a key factor influencing entrepreneurial behaviour and societal functioning. Social capital in a particular context leads to various cooperation forms, including industrial clusters and other cooperation forms, which allow sharing the responsibilities to create sustainable offers to consumers.

Industrial factors. According to the Green Lodging Trends Report 2018, of 4,544 hotels from 61 countries, 99.4% utilized energy tracking system, 75.6% practiced recycling in common areas of property, 98.1% tracked water consumption regularly, 98.3% checked heating, ventilation, and air conditioning (HVAC) filter regularly, 91.5% adopted line/towel reuse program, 77.2% had written environmental policies in place, and 90.0% conducted annual staff training on green practices (Greenview, 2019). Green hotels typically involve saving energy (e.g., automatic LED room and lobby lights) and water (e.g., greywater recycling, low-flow toilets), reducing waste (e.g., promoting reuse), and using environmentally friendly products (Qu et al., 2022; Verma, Chandra and Kumar, 2019). Industrial factors may define particular patterns for the sector enterprises (**organisational factors**), however, any enterprise can also become a leader and role model to other enterprises in the industry and to the consumers.

4. Actions to be Made to Reduce/Eliminate Minimise or Erase the Barriers of Intention-Behaviour Gap in Gen Z' Individuals

The authors of this paper emphasise that interventions to bridge the intention-behaviour in Gen Z's individuals should be anchored in their generational traits that function as effective leverage points.

Knowledgeability. Since Gen Z are very curious and open to ask questions, the hotels should include designing green and sustainability messages in their communication strategies. Communicating information about green hotel initiatives is a resource for consumers to get green-related knowledge, which eventually promotes their pro-environmental behaviour or participation in green hotel activities (Teng et al., 2012). Additionally, environmental certifications, such as eco-labels, are used by green hotels to show guests that they are committed to being green (Martínez García de Leaniz et al., 2018).

Digitality. In green hotel management, communication appears to be an important means of activating hotel consumers to participate in the hotel's green initiatives (Chua and Han, 2022). Current literature has shown that promotional messages, which get shared via the internet or social media, have supported Gen Z to make purchase decisions. Promotional advertisements that get displayed on various social network sites like Facebook, YouTube or Instagram provide fundamental input about services and products (Vasan, 2021).

Sustainability. Consumers that participate in green activities are more likely to adopt green hotels. Green hotels can benefit by encouraging consumers to engage in green activities (Kumar et al., 2021). In particular, the literature reveals that environmental value, knowledge, awareness, consciousness, concerns and expectations significantly explained moral norms, and consumers who are driven by moral norms as guiding principles in life think they should do something to protect the environment; thus, they are likely to engage in green buying behaviour, including making a hotel selection decision (Chua and Han, 2022).

Intelligence. From a consumer perspective, key factors including environmental knowledge, awareness, consciousness, concerns, and hotel-triggered motivations are often associated with hotel employees and managers' green behaviour in workplaces (Chua and Han, 2022).

Innovativeness. *The diffusion of innovation theory* stipulates that the decision by a consumer to make full use of innovation can be stated as the decision to utilize the innovation to its fullest extent (Rogers, 2003, 1995). Thus, consumers should get involved in green practices in the hotel (such as waste recycling, conserving energy and water). In addition, one should state that innovativeness has a stronger effect on consumer adoption of green hotels than the innovation characteristics of green hotels. Thus, green hotels must target innovative consumers who actively participate in the testing of new high-tech products (Kamboj et al., 2022). Designing green-related interventions to induce different pro-environmental behaviours in consumers in an either deliberate or undeliberate way should be optimized. Finally, the application of co-creation concept in the development of hotel guest experience is recommended (Chua and Han, 2022).

Agility. Employing Artificial Intelligence tools in order to increase the speed of analysis in green decisions.

Networked. Consumers' belief about the benefits of going green, belief about other people's acceptance of a pro-environment behaviour also play an important role in choosing green services.

Learning. Green hotels can curate loyalty by keeping their consumers and followers up to date about the latest green products in the market and trending issues in the environment to retain high levels of green involvement (D'Souza and Taghian, 2005).

On the other hand, considering the traits of Gen Z, one should state that Gen Z itself becomes a leading power to change the rules in the hotel (accommodation) sector to request sustainability (ecologically, socially, financially) patterns in hotels as a prerequisite to provide high quality services even without emphasising sustainability as an additional bonus to ask for a higher hotel price.

5. Concluding Remarks

This paper presents a complex adaptive system's approach, which explains a choice of green accommodation as a result of various factors at individual, organisational (micro) and macro level factors, such as industrial, socio-cultural, institutional, ecological, technological, economic, legal factors. One should state that a complex adaptive system approach sees any phenomenon not as a sum of its parts but as a synergy of interacting actors and relationships between them. Thus, the decision of the representative of Gen Z to not use the green accommodation despite the positive values regarding sustainability and intentions to behave sustainably may be caused by various external factors that restrict such a behaviour. The solutions to overcome these barriers should be directed to the traits of smartness (knowledgeability, digitality, sustainability, intelligence, innovativeness, agility, network based and learning), thus these factors could act as leverage points to move a system to a different level.

Although our framework used in this study is theoretically grounded, it gets enhanced when validated empirically. A mixed – qualitative and quantitative – research methodology could be applied in order to evaluate a multilayer phenomenon of complex actors and relationships among them. Empirical research would test the correlations among different micro and macro factors, intentions and choices regarding green accommodation of Gen Z; to reveal the manifestations of smart traits in the behaviour of Gen Zers as consumers in the case of green accommodation; to define the smart solutions regarding positively affecting green accommodation choices.

The theoretical framework, which is presented in this paper, creates a further basis for empirical research that concentrates on the attitudes and factors in choosing green accommodation among the individuals of Gen Z in different international contexts as well.

Ethics Declaration

Ethical clearance was not required for the research.

AI Declaration

AI tools were not used for the creation of this paper.

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An Empirical Study of Validating Cultural Event Experience in Determining Jordan's Destination Competitiveness

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Abstract: A country's ability to attract the largest number of tourists depends on its capacity to enhance competitiveness in the tourism sector. While Jordan's tourism competitiveness focuses on tourist destinations and basic resources, including infrastructure and administration, cultural interaction remains marginalised and weak. This study aims to validate the experience of cultural events in terms of (Cognitive engagement, Affective engagement, Physical engagement, and Novelty) and to examine their role in determining Jordan's destination competitiveness from the perspective of tourists. The study adopted a questionnaire to collect primary data from 90 individuals in Jordan. SPSS was used to screen and analyse the collected primary data. Results indicated a robust connection between the independent and dependent variables. The independent variables accounted for 63.9% of the variance in the dependent variable. The F value was statistically significant at the 0.05 level, indicating acceptance of the main hypothesis and that cultural event experience can determine Jordan's destination competitiveness. The information and knowledge individuals gain from such events might facilitate word-of-mouth and the intention to recreate the experience, driven by the feelings associated with the event. The study recommended reevaluating cultural event prices to align with those of neighbouring countries that rely more on technology and artificial intelligence. Furthermore, increasing the level of competitive analysis from a single tourism project to the sector level, then to the national level, and finally to the regional level.

Keywords: Cognitive Engagement, Affective Engagement, Physical Engagement, Jordan, Heritage and Novelty

1. Introduction

There is an urgent need at several levels—individual, governmental, and international—to raise tourism competitiveness in order to transform it into a source of income capable of creating job opportunities, in addition to achieving growth and sustaining sustainable development. This would improve performance across various sectors nationwide and project a positive image of the nation.

Yousef (2024) argues that raising competitiveness in the Jordanian tourism sector is not based solely on pricing or services, but rather on a comprehensive set of indicators that reflect the nature of the relationships among different tourism stakeholders. Harb et al. (2025) emphasised that raising tourism competitiveness in Jordan, specifically in the tourism and travel sector, stems from indicators and regulatory and legal frameworks related to the tourism sector. Bader et al. (2024) agreed with this idea, adding that these indicators also include service and technological infrastructure, as well as business, human resources, and natural resources within the tourism sector.

Jordan's heritage is characterized by its rich cultural and traditional traditions, boasting archaeological and historical sites, cultural festivals, experiences of Bedouin life, religious celebrations reflecting its religious diversity, and various attractive tourist experiences (Abu Hamdan and Mason, 2025; Hashem et al., 2024). However, a significant gap exists in understanding how tourists' experiences contribute to these events and celebrations, thereby enhancing Jordan's tourism competitiveness. While Jordan's tourism competitiveness focuses on tourist destinations and basic resources, including infrastructure and administration, cultural interaction remains somewhat marginalized and weak. This study aims to validate the experience of cultural events in terms of (Cognitive engagement, Affective engagement, Physical engagement, and Novelty) and its role in determining Jordan's destination competitiveness from the perspective of tourists.

From the argument presented and the main aim of the study, we have developed a conceptual framework that highlights the relationship between variables, from which study hypotheses were extracted:

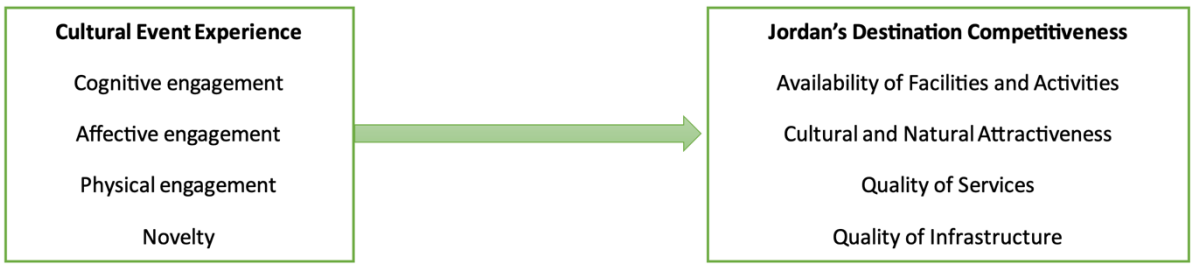


Figure 1: Conceptual Framework (Tran-Pham et al., 2024; Nguyen and Pham, 2024; Oham and Ejike, 2024; Pratminingsih et al., 2025)

Launching from the above conceptual framework, the study was based on the following hypotheses:

H: Cultural events experience has the ability to determine Jordan's destination competitiveness

H1: Cognitive engagement has the ability to determine Jordan's destination competitiveness

H2: Affective engagement has the ability to determine Jordan's destination competitiveness

H3: Physical engagement has the ability to determine Jordan's destination competitiveness

H4: Novelty has the ability to determine Jordan's destination competitiveness

2. Literature Review

2.1 Competitiveness in Touristic Destinations

Competitive destination is the ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences, and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations (Brent Ritchie & Crouch, n.d.) . Nguyen et al. (2024) argued that the economic, social, and environmental benefits that are applied sustainably, and the capacity to attract, satisfy, and retain visitors to the destination, constitute competitiveness in tourist locations. It is more than just the extraordinary aesthetic or the sightseeing. It includes a complete system; a combination of resources, infrastructure, systems, and experiences that allows locations to surpass the competition in the global tourism market (Kusumah, 2024). By 2025, the World Economic Forum's TTDI will include as primary factors and benchmarks. The shift is to robust, inclusive and technology-driven tourism, through and post the pandemic (Jangjoo et al., 2025). Wahpiyudin et al. (2025); Dolasinski et al., (2025); Turjani et al. (2024) and Kadyrbekova et al. (2024) indicated that there are aspects that are considered as drivers for destination competitiveness, such as drivers include:

2.1.1 Resource Attractors

These attractors are seen to be the main assets of a destination. Such attractors include beaches, mountains, natural landscapes, cultural heritage, festivals, and unique experiences.

2.1.2 Accessibility and Infrastructure

This driver is considered important because it facilitates tourists' interaction with the destination. Such aspects include well-built airports, robust transportation, IT readiness, and the destination's reputation for human safety and security. Prices are also seen as highly important, as the affordability of a place plays a huge role in making the touristic experience more enjoyable.

2.1.3 Policies and Management

Having a government that takes good care of its tourist destination is an added value for the destination itself. This includes the governmental policies regarding tourists, planning, sustainability practices, marketing, and the infrastructure on which the destination is based.

2.1.4 Environmental Efforts

With the current orientation towards the environment and eco-friendly practices, the degree of sustainability a destination has is considered a driver of a better cultural experience. People are normally attracted to places which care more for the environment, which may include recycling, green housing, and energy-saving options.

2.2 Cultural Event Experience

According to Viola et al. (2024), cultural events such as festivals, meetings, and occasions offer priceless experiences and enable tourists to engage with the place, its people, and their culture, though festivals can be so much more than a sightseeing experience. While the significant roles of cultural events or festivals in destinations' marketing plans are varied, including tourist attractions, image developers, destination branding creators, and maintainers of local heritage (Laing, 2018; Li et al., 2021) Kajdanek (2024) observed that cultural events enable tourists to identify with a destination's identity, story and people through participation, thereby enabling the traveller to have a more authentic, emotional and memorable experience. Besides the cultural activities that enhance tourists' satisfaction and perceived value during their visits, they also offer participants highly emotional experiences, a factor that fosters a sense of belonging rather than viewing. Besides involving their emotions, tourists are more likely to visit the area again when they are actively involved in cultural activities (such as dancing in the Carnival in Rio de Janeiro, Diwali in India, or flamenco shows in Spain), which will help them create memories and refer others to the place. Ngan and Lei (2025) have observed that surveys consistently indicate that tourists are more satisfied with their overall travel experience than those who visit only landmarks or go shopping, due to a stronger level of involvement in cultural events. Cultural Events (Festivals) Assist in the Development of Destination Choice and Loyalty - The need for transformative experiences has become a growing trend in the travel scene. An example of these festivals is the Oktoberfest in Munich, which attracts millions each year and generates millions of dollars for local economies through spending on hotels, food, transportation, and souvenirs. One of the significant contributors to helping destinations establish their own identity in a highly competitive marketplace is cultural events, which encourage travellers to visit destinations to experience them (Tran-Pham et al., 2024). As (Jaković et al., 2017) concluded that the socio-cultural component can create a valuable and attractive tourist product unique reflect the culture and local community identity.

2.2.1 Cognitive Engagement

This variable refers to the level of intellectual stimulation and knowledge gained through cultural activities, in which tourists actively engage with information about traditions, folklore, history, and associated symbols. The simplest examples of this are the events in Petra and the accompanying information about Nabataean architecture and the stories told. This variable enhances perceived authenticity and improves visitors' ability to retain the information presented to them, thereby fostering a cognitive connection and positive assessments of knowledge (Tran-Pham et al., 2024).

2.2.2 Affective Engagement

The emotional engagement dimension is of paramount importance, encompassing emotional responses to cultural events such as joy, excitement, enthusiasm, and awe. This dimension stimulates emotional bonds and intense feelings, which, in turn, enhance individual satisfaction. From this, one can develop a word of recommendation or a desire to return to the destination, ultimately leading to long-term loyalty (Nguyen and Pham, 2024)

2.2.3 Physical Engagement

Active physical participation is crucial for boosting individual satisfaction with a tourist destination. This includes dancing, immersing oneself in the experience, and transforming it into an interactive one. Physical participation enhances perceived value by stimulating the retention of kinetic memories, thus making the experience more appealing to the individual (Oham and Ejike, 2024)

2.2.4 Novelty

The experience's uniqueness is paramount. This includes the rarity or novelty of the event compared to others. Furthermore, the uniqueness of the experience encompasses the excitement of Bedouin hospitality, exceptional service, and the stimulation of curiosity, thus enhancing tourism competitiveness by challenging the standardisation of tourism services (Pratminingsih et al., 2025).

2.3 Jordan's Destination Competitiveness

Yousef (2024) stated that Jordan is an exemplary destination among Middle Eastern countries in cultural tourism, leveraging its historical and living heritage to enhance its destination competitiveness. The country's cultural events, both ancient and religious festivals and contemporary heritage celebrations, can be viewed as effective attractors that set Jordan apart from competitors in the region, including Egypt, Turkey, and the UAE (Mellor, 2024). Reed (2025), Hashem et al. (2024), and Jackson et al. (2025) noted that Jordan hosts a number of Key cultural events that significantly frame its tourism destination. Among these events is the Jerash Festival of Culture and Arts (July-August), one of the oldest and largest festivals in the region, held in the spectacular Roman ruins of Jerash. It consists of international and local performances, music, theatre, folk dances, and handicraft exhibitions, where tens of thousands of people come every year. There is also Petra by Night, an unforgettable experience featuring Bedouin music and narration in the ancient Nabatean city under a moonlit sky. The religious and seasonal events are also celebrated by Christians, such as Madaba and Mount Nebo. Muslims enjoy festivals such as Eid, and Bedouins (e.g., camel racing, storytelling evenings) have their own unique traditions.

As noted by Arabeyyat and Aldweik (2024), such events made Jordan's destination more competitive by developing core attractors that create experiential value on world-class sites (Petra, Jerash, Wadi Rum) and by making an otherwise static heritage site dynamic and participatory. Also, such events increased visitors' satisfaction and loyalty through cognitive (learning), affective (emotional connection), physical (active participation), and novelty (surprising visiting) participation, which also leads to higher levels of satisfaction, revisit intention, and positive word-of-mouth. The economic impact was also apparent, as economic events generate significant revenue through tourism, local artisans, hospitality, and job creation, which aid in the sustainable development of communities. From another perspective, Hashem (2024) notes that there is a place for positioning and differentiation: Jordan boasts a unique, non-commercialised cultural experience, and thus its positioning provides a robust, distinctive brand image in the crowded Middle Eastern market. Hashem et al. (2025) agreed with this idea, adding that recent reports on tourism indicate that cultural and heritage tourism has accounted for an increasing share of visitors in Jordan, contributing to the country's recovery after the pandemic and making it a competitive destination worldwide. Jordan can also enhance its status as a best cultural destination by investing in quality event management, digital promotion, and sustainable practices.

3. Methods and Materials

The current study adopted a quantitative methodology to collect primary data from a large sample. The study population consisted of all tourists worldwide. A convenient sample of (135) individuals was chosen to represent the population of the study. After the application process, we were able to retrieve (90) properly filled questionnaires, which indicated a response rate (66.6%) as a statistically accepted ratio.

A questionnaire was developed to be the main tool of study. The questionnaire was built on Likert 5-point scale and with the aid pf previous studies including (Tran-Pham et al., 2024; Nguyen and Pham, 2024; Oham and Ejike, 2024; Pratminingsih et al., 2025). The questionnaire was uploaded online, with a cover page containing a checkbox for consent to continue. If the box wasn't checked the browser won't load the main page of the questionnaire and the individual won't be able to respond to the questionnaire. We have validated the questionnaire content through the arbitration from scholars and academics in the field. Regarding reliability, we have run Cronbach's Alpha test (α) which indicated an alpha of higher than 0.70. this meant the questionnaire was reliable. See table 1.

Table 1: Alpha Value

Variable	α
Cognitive engagement	0.79
Affective engagement	0.882
Physical engagement	0.862
Novelty	0.806
Destination competitiveness	0.932

The Statistical Package for the Social Sciences (SPSS) was chosen to screen and analyse the collected primary data. Mean (μ) and standard deviation (σ) were calculated in addition to frequencies and percentages regarding demographic variables. Hypotheses were tested using multiple linear regression.

4. Analysis and Discussion

4.1 Demographics

Results of the demographic analysis confirmed that the majority of respondents were males (53.3% of the total sample), followed by those aged 18 - 25 years (22.8%) and those aged 26 - 35 years (21.7%). In addition, most respondents held a Bachelor's Degree, accounting for 44.4% of the total sample, and 60% of the total sample were employed full-time. Results also indicated that the majority of respondents had an income of less than $2000, accounting for 35.6% of the total sample, suggesting that respondents come from diverse origins, including Arab countries, the USA, Europe, and the Far East. The majority of them were in Jordan for tourism, education and business travel.

4.2 Questionnaire Analysis

We have used mean (μ) and standard deviation (σ) in Table 2 to analyse the questionnaire. It was observed that all questionnaire variables had ratings above the mean of 3.00, indicating a positive attitude among respondents. The data in the table above reflects the mean and standard deviation of the questionnaire's variables.

Table 2: Questionnaire Analysis

Statement	μ	σ
I was thinking of visiting Jordan	3.553	1.094
I used my intellect to visit Jordan	3.527	1.013
I learned something about Jordan	3.630	.922
I acquired new knowledge about Jordan	4.114	.792
I was active	3.974	.860
Cognitive Engagement	**3.760**	**.695**
I was excited to visit Jordan	3.895	.823
I got emotionally recharged to visit Jordan	4.057	.902
I experienced intimacy to visit Jordan	3.795	.909
I felt a sense of adventure to visit Jordan	3.487	1.000
I was aware of my own values	3.849	.840
I wanted to relive this later (talk about it/show pictures)	3.812	.799
Affective Engagement	**3.816**	**.699**
I actively participated.	3.997	.830
I had been creative.	3.456	.961
I had fun	3.524	.900
All my senses were stimulated (taste, scent, hearing, smell, tactile)	3.621	.954
Physical Engagement	**3.650**	**.768**
I had the impression that the events in Jordan were different from others.	3.533	.961
I experienced things unknown to me were / I was outside my "normal life."	3.855	.953
I thought that was unique.	3.635	.967
I felt a sense of adventure.	3.647	.997
Novelty	**3.667**	**.771**
Jordan has available of special events, activities and facilities	3.000	.000
Jordan has effective promotion and publicity.	3.544	.927
Suitability of nightlife and entertainment	3.917	.902
Jordan has availability of shopping facilities	3.818	1.012
Jordan has the standard of accommodation facilities	3.769	1.169

Jordan's distance to my home country.	3.946	.920
Jordan has the attractiveness of historical sources	3.937	.863
Jordan has the attractiveness of cultural sources.	3.869	.910
Jordan has the attractiveness of a natural environment.	3.761	.916
Jordan has the Diversity of tourism products.	3.564	1.053
Jordan has the quality of sea and beaches	3.704	1.054
Jordan has the quality of services	3.419	1.136
Jordan has a standard of hygiene and sanitation.	4.134	.951
Jordan has a Level of hospitality and friendliness.	4.054	.916
Jordan has the quality of local food and beverage	3.538	.952
Jordan has the overall value for money	3.553	.889
Jordan has the quality of banking services.	3.795	.976
Jordan has the Quality of telecommunication network.	3.772	.894
Jordan has the Quality of health services.	3.892	.759
Jordan has the Quality of the destination airport.	3.670	.988
Jordan has a quality local transport network and services.	3.875	1.067
Destination Competitiveness	**3.740**	**.615**

4.3 Multicollinearity Test

VIF and Tolerance calculations were conducted on the independent variables to assess multicollinearity. The subsequent findings are identified. All VIF values in the referenced table are below 10, and all Tolerance values exceed 0.10, indicating that the data are free of multicollinearity. See Table 3.

Table 3: Multicollinearity

Variable	Tolerance	VIF
Cognitive engagement	.256	3.909
Affective engagement	.329	3.041
Physical engagement	.277	3.612
Novelty	.292	3.425

4.4 Hypotheses Testing

The researchers used multiple linear regression to test the study's hypotheses, as shown in Table 4 below. Results indicated an R-value of 0.799, signifying a robust connection between the independent and dependent variables. The independent variables accounted for 63.9% of the variance in the dependent variable. The F value was statistically significant at the 0.05 level, indicating acceptance of the main hypothesis and that cultural event experience can determine Jordan's destination competitiveness. In addition, the t-values for each variable were significant at the 0.05 level. That meant:

- Cognitive engagement has the ability to determine Jordan's destination competitiveness
- Affective engagement has the ability to determine Jordan's destination competitiveness
- Physical engagement has the ability to determine Jordan's destination competitiveness
- Novelty has the ability to determine Jordan's destination competitiveness

Table 4: Testing Hypotheses Results

H: Cultural Events Experience has the Ability to Determine Jordan's Destination Competitiveness								
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**R**	**R^2**
		B	Std. Error	Beta				
1	(Constant)	.964	.116		8.295	.000	.799a	.639
	Cognitive engagement	.262	.057	.296	4.630	.000		
	Affective engagement	.193	.050	.219	3.893	.000		
	Physical engagement	.121	.049	.151	2.453	.015		
	Novelty	.167	.048	.209	3.497	.001		

4.5 Discussion

The current study shed light on the validation of cultural event experience in terms of (Cognitive engagement, Affective engagement, Physical engagement, and Novelty) and its role in determining Jordan's destination competitiveness from the perspective of tourists. The study adopted a questionnaire to collect primary data from 90 individuals. SPSS was used to screen and analyse the collected data. The analysis indicated that cultural event experience can determine Jordan's destination competitiveness, with an R value of 0.799, suggesting a robust relationship. The independent variable (cultural events experience) explained 63.9% of the variance in the dependent variable (Jordan's destination competitiveness).

Regarding the adopted sub-variables (Cognitive engagement, Affective engagement, Physical engagement, and Novelty), they all influenced Jordan's destination competitiveness, with cognitive engagement scoring highest at B = .262. Cognitive engagement (interaction) involves tourists actively learning and understanding the cultural events. Visitors to the Jerash Festival are informed about the Roman past through guided performances, archaeological lectures, and interactive exhibitions. Such intellectual appeal enhances knowledge of Jordan's rich background (Nabatean, Roman, Islamic) and perceived genuineness and learning experience. Tran-Pham et al. (2024) agreed with these results, adding that visitors who walk away with a better understanding of the country will promote Jordan as a cultural destination, likely enhancing its competitiveness relative to neighbouring countries such as Egypt or Turkey.

In the second rank came affective engagement, with b = 0.193. Affective engagement shares this same attribute but involves emotional reactions, joy, awe, wonder, or spiritual interaction, which are the responses of a person to events. Emotional ties are created when seeing Petra by Night, as the Treasury is lit up by thousands of candles and Bedouin music fills the air. Nguyen and Pham (2024) agreed and added that such positive attitudes are associated with greater satisfaction, stronger emotional attachment to the destination, increased revisit, and a greater likelihood of positive word of mouth. The emotional experiences will make Jordan a more soulful, less strictly historical tourist destination, and will attract the growing number of experiential and transformational travellers.

The third rank was novelty, with B = 0.167. Novelty means the sense of originality and astonishment as one of the primary driving forces in the competitive tourism world today. Activities such as the floating lantern festival at the Dead Sea or the integration of ancient ruins with modern art at the Jerash Festival are new and surprising stimuli. Novelty fulfils the need for originality of the modern tourist and hopes to make Jordan unique compared to other cultural offerings, which are more predictable in the region, as according to results by Pratminingsih et al. (2025)

The least influential variable was physical engagement, with B = 0.121. Physical interaction focuses on active involvement, turning passive observation into active participation. Visitors who attend traditional Dabke dances at festivals, study Bedouin coffee-making, or explore camel treks in Wadi Rum experience a sense of embodiment and immersion. This interaction within the body generates intense, memorable experiences that stand out in a saturated global market, enhancing satisfaction and loyalty. Such results were reported in rhyme (Oham and Ejike, 2024).

5. Conclusion and Recommendations

Based on the findings, it is impossible to discuss the global competitiveness of the tourism sector without addressing it locally. These experiential benefits in the competitive Middle Eastern tourism market will be further enhanced by investing in quality management, events, promotion, and sustainability. There is a critical need for those responsible for the Jordanian tourism sector to conduct a thorough audit of its competitiveness to assess its level locally, regionally, and internationally. Furthermore, this audit should not be limited to metrics such as market share, profits, revenues, and income, but must also encompass other elements that shape the Jordanian tourism product. Jordan's events will not only increase tourists' satisfaction and loyalty but also support the destination's global positioning as a genuine, immersive, and emotionally evocative cultural tourism experience. A simple example is that, in terms of tourism service pricing, Jordan has yet to reduce service costs without compromising quality. Additionally, there is a noticeable gap in perceptions that tourism programs are not competitive and that their prices exceed those in neighbouring countries. Accordingly, the current study offers the following recommendations:

- Working to employ technology and artificial intelligence in tourism services to take advantage of their role in reducing the cost of these services without harming their quality.
- Employing high-quality human skills in order to provide high-quality and competitive services.

Ethics Declaration

In this study, the ethical principles set out in the Declaration of Helsinki and the UNESCO Recommendation on the Ethics of Artificial Intelligence (2021) were followed. All the data were retrieved from published, peer-reviewed literature published not later than 2019-2025. No primary data was collected, and no human subjects were used. The study adhered to intellectual property standards, provided a good representation of sources, and was transparent about methodology and limitations. There is no conflict of interest.

AI Declaration

There was no employment of AI tools in this current document. All the content was critically vetted, edited, and checked by the author to ensure accuracy, originality, and scholarly integrity. Verbatim text (generated by AI) was not used without significant human revision of the text. The author accepts the final copy to his full responsibility.

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Sustainable Zero-Waste Kitchen Operations in Hotels: Leveraging Robotics, Artificial Intelligence, and Service Automation (RAISA)

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Abstract: Hotel kitchens, often the heart of food operations, generate significant amounts of waste and consume considerable resources, posing critical challenges to sustainability. This theoretical paper explores how Robotics, Artificial Intelligence, and Service Automation (RAISA) technologies can enable sustainable, zero-waste kitchen operations in the hotel industry. Through a narrative literature review, the paper identifies innovative RAISA tools such as AI-powered inventory systems, smart appliances, and robotic chefs that reduce food waste, energy use, and operational inefficiencies. Despite the potential of RAISA in hotel kitchens, not many hotels adopt RAISA. Key barriers to RAISA adoption, such as high costs, lack of training, resistance to change, and technological integration challenges, are critically analysed. This paper proposes two conceptual models: one positioning RAISA as an enabler of the triple bottom line: people, planet, and profit, and another advocating internal and external stakeholder collaboration for successful RAISA adoption. The paper concludes by highlighting the need for future research to empirically validate the environmental and financial impact of RAISA, develop new metrics, and create accessible business models. This work contributes to both theory and practice by linking RAISA adoption to the UN Sustainable Development Goals and offering practical roadmaps for hotel managers and policy-makers.

Keywords: Artificial Intelligence, Robotics, Service Automation, Sustainability, Zero-Waste Kitchen

1. Introduction

The tourism industry needs to embrace sound environmental management practices, and sustainability must be the primary driver of tourism growth (Hall et al., 2013; Simão and Partidário, 2012). The hotel sector is one of the most important sectors of the tourism industry; however, it is also a major energy, water, and waste-intensive sector in its day-to-day operations (Han et al., 2018). Within this context, hotel kitchens represent a vital focal point for sustainability challenges, contributing disproportionately to food waste, inefficient energy and water usage, and unsustainable procurement practices (Jones et al., 2016). Achieving zero-waste kitchen operations requires a holistic approach that minimises food waste, maximises resource efficiency, and optimises operational processes (Tatlısu and Torusdağ, 2025).

Technology and technological innovation are often viewed as vitally important in enhancing efficiency across the sustainability spectrum and in facilitating sustainable growth (Jones et al., 2017). Robotics, Artificial Intelligence, and Service Automation (RAISA) offer transformative solutions for driving zero-waste kitchen operations. Robotics can automate repetitive tasks such as chopping and cleaning with precision (Ivanov and Webster, 2017). AI-powered systems enable advanced inventory management, demand forecasting, and menu optimisation, minimising food waste and ensuring efficient resource use (Gössling, 2020). Additionally, service automation technologies, such as the Internet of Things (IoT) enabled smart appliances, facilitate real-time monitoring and control of energy and water usage, driving greater efficiency in kitchen operations (Milton, 2024). So, Industry 4.0 technologies can enable a shift toward more sustainable and streamlined operations, supporting the sustainability agenda (Ben Youssef and Zeqiri, 2022). However, the adoption of RAISA in hotel kitchens is not without challenges. Financial concerns frequently emerge as a common obstacle in implementing technological changes (Sandberg and Aarikka-Stenroos, 2014). Moreover, integrating RAISA into existing operations requires skilled personnel capable of managing advanced systems, posing a challenge to workforce development and training (Ivanov and Webster, 2018). Additionally, resistance to change, stemming from concerns about job displacement and the complexity of technological integration, further impedes adoption (Raina, 2023).

Drawing on academic literature, newspaper articles, and industry reports, this theoretical paper explores the potential of RAISA technologies to revolutionise hotel kitchen operations and drive zero-waste kitchens. In addition, the paper examines the barriers to adopting RAISA. This is followed by a discussion of the findings to propose a model that may serve as a motivation to leverage RAISA in hotel kitchen operations. To mitigate the barriers to the adoption of RAISA, we then present another model which proposes a synergy among the key

stakeholders to leverage RAISA adoption for driving zero-waste kitchens. The paper concludes by outlining the contribution of this paper and the scope for future research on this topic.

2. Methodology

We decided to opt for a non-systematic or narrative review because the topic of RAISA for zero-waste kitchens is under-researched. A narrative review was chosen over a systematic literature review (SLR) because, though an SLR follow a concrete, replicable methodology, it may often discard many more studies than narrative reviews (Pautasso, 2019). Several combinations of keywords relevant to our topic, including zero waste, hotels, kitchens, operations, technology, robotics, artificial intelligence, service automation, and sustainability, were used to search various databases, such as Web of Science and Scopus. Backwards and forward snowballing were used on the initially selected papers. Backwards snowballing involved uncovering more sources by examining the references of the initially found articles, while forward snowballing helped explore newer articles that have cited the initially found articles. This helped to expand the pool of references for this paper. Furthermore, newspaper articles, industry reports on the topic and information on the websites of various RAISA solution providers were utilised to write this paper. The two review questions were:

RQ1: What are the different RAISA-driven technologies used in hotel kitchens to drive zero waste and attain sustainable operations?

RQ2: What factors may act as barriers or deter hoteliers from adopting RAISA technologies for kitchen operations?

3. Findings

This section is divided into two parts. The first part focuses on the different types of RAISA-driven technologies being used in hotel kitchens, and the second part synthesises the barriers to adopting RAISA in hotel kitchens.

3.1 RAISA for Sustainable Kitchen Operations

There are many technological devices in kitchen areas (Rodgers, 2009). To minimise spoilage by effectively monitoring and managing food storage, there are smart refrigerators with temperature control that allow for precise temperature regulation, ensuring optimal storage conditions for various food items (Raheja et al., 2024). Smart refrigerators often come with inventory management features, enabling chefs to track stock levels and plan accordingly (Singh and Jain, 2016). Additionally, AI-powered inventory management systems can analyse historical data, seasonal trends, and real-time demand to optimise stock levels and reduce food waste (Mitta, 2024). These systems utilise AI and IoT (Internet of Things) technologies to monitor stock levels in real-time and automate the ordering process when predefined thresholds are met (Daugherty et al., 1999). Similarly, Automated shelf-life tracking systems utilise advanced technologies like RFID (Radio Frequency Identification) and barcode scanning to monitor the expiration dates of food items, ensuring that only fresh and safe ingredients are used (Uysal et al., 2011). This reduces the risk of foodborne illnesses and food waste (Kärkkäinen, 2003).

Sustainable gastronomy is defined as “cuisine that takes into account where the ingredients are from, how the food is grown, and how it gets to our markets and eventually to our plates” (Cole et al., 2023, p. 11). As sustainability becomes a core focus, AI systems can help identify and track the usage of eco-friendly or locally sourced ingredients, aligning procurement with green practices (Alzoubi and Mishra, 2024). Furthermore, automated food ordering and replenishment systems are transforming how hotels manage their supply chains, promoting a seamless farm-to-fork model, which emphasises traceability, local sourcing, and sustainable practices across the food supply chain from production to plate. This approach not only enhances freshness and quality but also supports environmental goals by reducing transportation emissions and food waste (Mishra, 2023).

AI-powered dynamic menu optimisation systems adapt menus for maximum efficiency and sustainability. For example, they can suggest menu modifications based on fluctuations in ingredient costs or supply chain disruptions, helping hotels maintain profitability without compromising quality. Furthermore, they incorporate personalisation features, allowing chefs to cater to specific dietary requirements or regional preferences, enhancing guest satisfaction (CalcMenu, 2024). So, they predict demand patterns and identify the most popular or profitable dishes, ensuring that menus are tailored to guest preferences while minimising operational costs (Sawert, 2020).

AI-powered food waste recognition systems utilise advanced algorithms to sort and classify waste efficiently, determining its suitability for composting or other sustainable processing methods. For instance, Winnow Solutions, a UK-based company, has developed a digital system for tracking food waste. There are two versions of the system: the original Winnow Classic system and a more recently upgraded Winnow Vision system. The Winnow Classic system comprises a digital scale and a connected digital tablet that are retrofitted on existing trash cans in commercial kitchens. Whenever food is thrown away in a trash can, the weight of the item wasted is automatically recorded. The user is then manually prompted to identify the item via an easy-to-use menu of options available on the tablet and select the reason for the waste. The upgraded Winnow Vision system eliminates the need to manually identify the items wasted. It includes a digital camera that is inconspicuously mounted over the trash can. Using modern AI/image classification algorithms, the system automatically identifies what item is wasted to complement the weight measurement. Food waste is automatically categorised, with little need for manual input. Overall, using Winnow systems, kitchens can easily measure and stratify their food waste down to the level of each disposal transaction, classifying waste as different items at different stages of preparation and processing. The collected data is made available to kitchen managers in daily, weekly, and monthly site reports. Kitchen managers also have access to a portal that allows them to dig deeper into the data and conduct further analytics (Nu et al., 2024).

Mobile apps like 'Too Good To Go' help hotel kitchens and restaurants reduce food waste by allowing them to sell their unsold food at a discounted price through the app. Customers can browse participating businesses, purchase surprise bags of food at a reduced price, and then collect their bags at a specified time. This not only helps businesses avoid throwing away perfectly good food but also provides customers with affordable meals.

3D food printing is a technology that uses a 3D printer to create food in various shapes and designs. In terms of sustainability, 3D printing of food generates less waste and requires fewer materials than traditional methods, making it a more environmentally friendly option (SavorEat, 2023).

Robotic chefs are revolutionising precision and efficiency in food production. Systems, such as Moley Robotics' automated kitchen, employ advanced machine learning and robotic arms capable of replicating the techniques of human chefs, including ingredient chopping, seasoning, and precise cooking (Barakazi, 2022). Miso Robotics' Flippy can cook 19 different food types (Ramirez, 2020).

Automated portion control systems fitted with sensors enhance sustainability by minimising food overproduction and waste through precise measurement, ensuring consistency in portion sizes that align with predetermined recipes and customer expectations.

Despite high levels of technological innovation, significant challenges persist in adopting new technology (Sigala, 2011). Some barriers to the adoption of RAISA found in the extant literature base are presented below.

3.2 Barriers to RAISA Adoption

RAISA technologies are associated with various financial costs (Ivanov and Webster, 2017). These include acquisition costs, installation costs, maintenance costs, software update costs, costs for hiring specialists to operate RAISA, and costs for training and insurance (Zhang et al., 2012). So, technologies that contribute to sustainability and reduce environmental impacts are also associated with the return on investment of these measures (e.g., Novacká et al., 2019; Dief and Font, 2012). In a survey of European hoteliers, Bohdanowicz (2005) found that the managers of chain-affiliated hotels were more likely to invest in environmental technologies than were independent operators. Small-scale service providers often face constraints in affording advanced technologies (Murphy et al., 2017), as the installation of technology typically requires substantial resources and space, along with significant initial setup and enhancement expenses (Zhang et al., 2012). Financial concerns frequently emerge as a common obstacle to implementing technological changes (Sandberg and Aarikka-Stenroos, 2014).

The implementation of automation technologies gives rise to concerns regarding potential job losses, where robots, AI, and other automation tools replace human workers (Dengler and Matthes, 2018; Li et al., 2019). For example, Robotic chefs are starting to replace human chefs in the restaurant industry (Zhu and Chang, 2020), so innovation and technological advancements introduce changes that can lead to the elimination of manual jobs and workforce redundancies, fostering resistance to such changes (Modrák and Šoltysová, 2020). Resistance to change by employees can hinder the advancement towards achieving a more intelligent workplace (Leung, 2019). Furthermore, the rapid expansion of AI-related technologies and their acceptance in the hospitality industry have exacerbated employees' anxiety, affecting employees' attitudes toward their jobs (Li et al., 2019).

The utilisation of RAISA technologies can heighten employees' perceived loss of autonomy (Barrett et al., 2015). This perception arises from the threat they feel as their expertise becomes increasingly overshadowed by the ever-evolving advancements in workplace technology. Consequently, they are prone to experiencing heightened levels of anxiety, sadness, and frustration (Gabriel and Pessl, 2016). Research has indicated that employees are more inclined to leave their jobs when they experience stress in competitive situations (Gim et al., 2015). So, Chui et al. (2015) argued that if companies persist in leveraging AI and robotics in the workplace, it may inevitably result in a potentially significant turnover rate across various occupations and industries. This ethical concern of job losses and churning may deter managers from investing in new technologies.

Another impediment to RAISA adoption listed in the literature is what is called the 'Vendor lock-in effect', which is the dependence of the customer (here, hotels) to a certain extent on a supplier (Sjoerdstra, 2016). When robotics components and software packages are not standardised and cannot be easily interchanged among manufacturers, the expenses associated with a hotel transitioning to a new robot supplier will rise. This could lead the hotel company to become locked into a vendor relationship and become overly reliant on a specific supplier (Simpson, 2019). So, the hotels may face a vendor lock-in situation when they rely on one particular robot supplier/manufacturer and cannot switch to another (Farrell and Klemperer, 2007).

Besides the high cost of installing and maintaining RAISA, the ethical concern of job losses, and the vendor lock-in effect, transitioning to a new data architecture necessitates overhauling legacy IT infrastructure (Shahid et al., 2019) and adhering to security and privacy policies (Tarafdar et al., 2019). Furthermore, obstacles to introducing new practices and technology may often emerge from limited management support and suboptimal organisational structures (Orzes et al., 2020). Many organisations lack a comprehensive AI strategy (Kruhse-Lehtonen and Hofmann, 2020), which is a great barrier to hotels' adoption of RAISA.

A shortage of competencies stands out as a major impediment to technology adoption (Rauch et al., 2020). To ensure data usability by AI applications, it's imperative to maintain a dedicated team of data scientists (Kar et al., 2021). Organisations face challenges in securing relevant talent within their region or struggle with budget constraints in attracting experienced AI specialists (Tarafdar et al., 2019).

Inadequate knowledge management may be another barrier to the adoption of RAISA because companies often encounter difficulties in implementing AI-based solutions due to their limited AI experience and knowledge (Pokorni et al., 2021). Inadequate knowledge may arise due to inadequate trainings to adapt the employees to their new job profile of collaborating, operating, controlling and monitoring automated technologies (Ivanov et al., 2020). Multiple trainings with flexible times are required to provide staff with new knowledge about technology systems (Tavitiyaman et al., 2022).

Hoteliers may also be discouraged by the relatively low level of guest interest in pro-environmental measures in hotel kitchens and restaurants, compared to their interest in sustainability initiatives within accommodation services (Han et al., 2020; Švec et al., 2023). This lack of engagement can act as a significant barrier to adopting RAISA technologies aimed at creating sustainable, zero-waste kitchen operations. Even when hotels invest in robotics, AI, and service automation to reduce food waste, optimise energy use, or implement circular practices, the impact is limited if guests do not participate or support these initiatives. For example, low guest willingness to accept smaller portion sizes, reuse meal packaging, or adapt to digital ordering systems can reduce the effectiveness of RAISA-enabled solutions and make hotels hesitant to fully implement them. Consequently, guest behaviour and expectations emerge as a critical external constraint, influencing both the pace and extent of RAISA adoption for sustainable gastronomy.

All the above and many other unreported barriers to the adoption of RAISA for sustainable kitchen operations may make the zero-waste kitchens look far-fetched, but we believe that an integrated collaborative effort by the various key stakeholders can make RAISA-driven zero-waste kitchens a reality even for small hotel owners. We propose two models for the same, which are being discussed.

4. Discussion

By maximising all three bottom lines (social, environmental, and economic), organisations are more likely to have a positive impact on the world (Elkington, 1994). Sustainability is frequently associated with three interdependent and mutually reinforcing pillars: social development (people), environmental concerns (planet), and economic growth (profits) (Aras and Crowther, 2013), as well as the UN Sustainable Development Goals (SDGs) (Alamoush et al., 2021). The use of RAISA within hotel kitchens can support all three pillars of sustainability: people, the planet, and profits, thereby driving a win-win situation for all stakeholders, including

hotel owners/managers and employees. For instance, Robotics can automate repetitive tasks such as chopping, cooking, and cleaning with precision (Ivanov and Webster, 2018), which can help improve working conditions for kitchen staff, thereby supporting the people or social pillar of sustainability. AI-powered systems enable advanced inventory management, demand forecasting, and menu optimisation, minimising food waste (Gössling, 2020), which can enhance profits and bolster the economic or profit pillar of sustainability. Additionally, efficient resource use through real-time monitoring and control of energy and water usage (Milton, 2024) can contribute to reducing carbon footprints and strengthen the environmental aspect of sustainability or the planet's realm of sustainability. Strengthening the social, environmental, and economic realms of sustainability by adopting RAISA may, in turn, support the United Nations Sustainable Development Goals (UNSDGs). Considering these factors, we propose a model for sustainable zero-waste hotel kitchen operations, which may serve as an enabler/facilitator/motivator to the hotels' adoption of RAISA. This model views RAISA as an enabler of zero-waste kitchens and visualises its strength in contributing towards the three pillars of sustainability and, thus, towards UNSDGs. This conceptual model is presented in Figure 1 below.

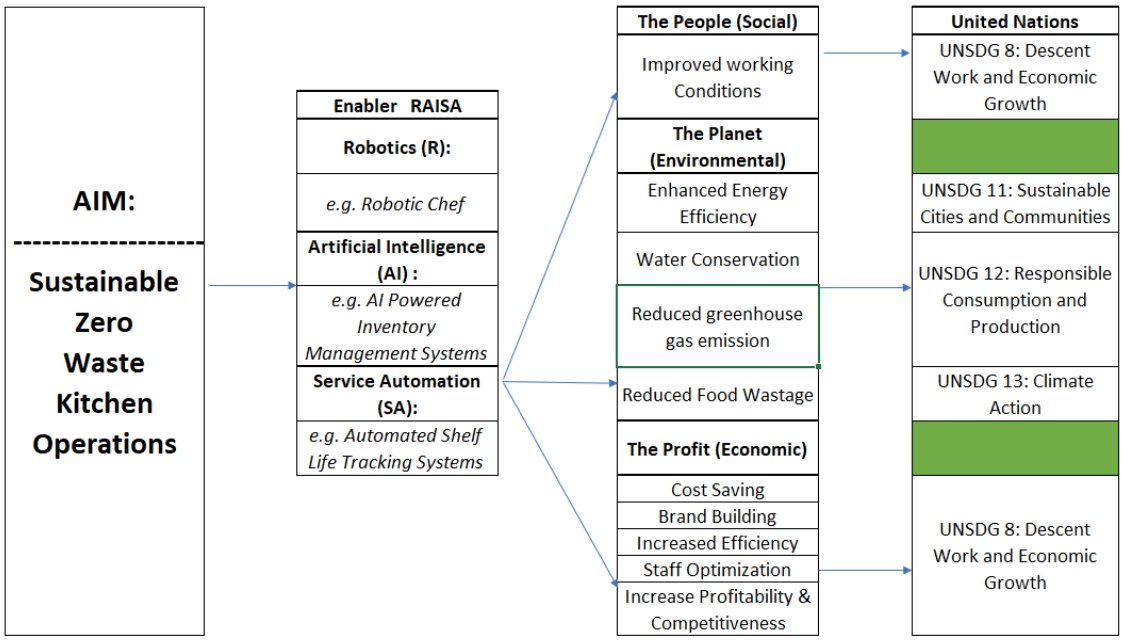


Figure 1: RAISA as an enabler to sustainable zero-waste kitchen operations

To address the barriers hindering the adoption of RAISA in achieving sustainable hotel kitchen operations, we propose fostering a synergistic relationship between internal stakeholders, such as hotel owners, managers, and employees, and external stakeholders, including government bodies, technology providers and the universities. Such collaboration is essential to drive concentrated efforts toward making zero-waste kitchens a reality for all hotels, including smaller hotels with limited resources. For instance, the internal stakeholders, such as hotel employees, should be receptive to changes and the upskilling or downskilling required to work alongside RAISA technologies. Hotel owners and hotel managers must provide all necessary support, including proper, timely training to their employees, to ensure that the introduction of RAISA does not cause any technological stress among employees. External stakeholders, such as Government bodies and policymakers, could play a pivotal role by offering financial incentives, such as grants or low-interest loans, to hotels seeking to implement RAISA technologies for sustainable kitchen transformations. Technology providers can offer free consultation and training programs on using and effectively integrating RAISA into kitchen operations. Lack of training and hardship in finding the right skill set to work with RAISA may be mitigated by efforts from the universities to revamp hospitality management curricula to include hands-on training with RAISA technologies. Figure 2 below illustrates this proposed model. In this figure, the yellow box represents the current level of adoption of RAISA, and the green box at the top represents the future level, which can be attained by synergy between internal and external stakeholders.

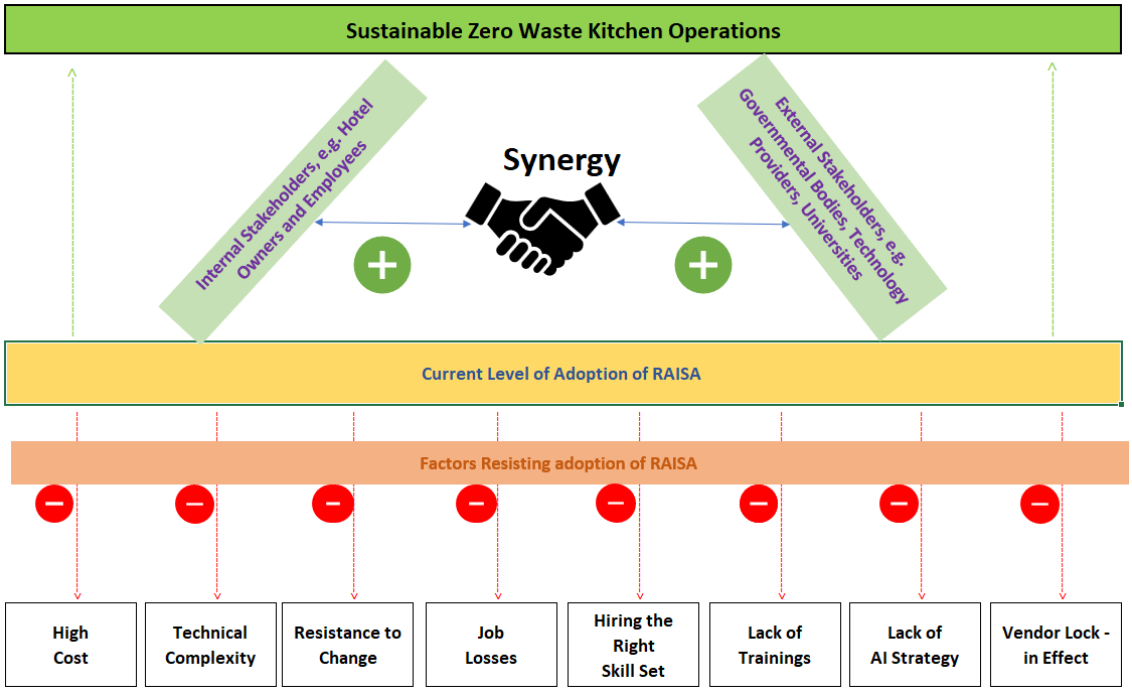


Figure 2: Synergy between internal and external stakeholders can facilitate RAISA adoption

5. Contributions

This paper makes several important contributions. Theoretically, it extends the conversation around sustainable hospitality by integrating the application of RAISA technologies with the principles of the Triple Bottom Line (TBL), as proposed by John Elkington (1994). It demonstrates how RAISA may support all three pillars of sustainability: People through improved working conditions and employee support; Planet via reductions in food waste and resource consumption; Profit by improving operational efficiency and long-term savings. This framing helps clarify how RAISA can align with global sustainability objectives like the UNSDGs and move beyond simple efficiency gains.

Practically, the two conceptual models proposed in this study offer a roadmap for hotel managers, owners, and policymakers. They outline how technology can be applied in resource-constrained environments, while promoting collaboration across key stakeholders such as government bodies, technology vendors, and universities. In addition, these models may provide a foundation for decision-making, skills training, and curriculum development within hospitality education.

6. Limitations and Future Research

There are a few limitations that we acknowledge in this literature review. Firstly, being a narrative review and not a systematic literature review, this review is non-replicable. Secondly, we could have used more search keywords; however, we made a deliberate choice to limit the number of search keywords to prevent overwhelming search results. Publication bias stands as a constraint in this literature review, stemming from the tendency of researchers and journals to favour the publication of 'positive' results, while less noteworthy or 'insignificant' findings are often neglected or withheld (Mlinaric et al., 2017). Research has affirmed that 'significant and positive' research is more prone to publication (Egger et al., 2008, p. 121). Consequently, less significant findings have limited visibility and face challenges in being incorporated into literature reviews. This challenge is commonly referred to as the 'file-drawer' problem (Franco et al., 2014). So, publication bias due to the file drawer problem is a limitation of this paper. As a theoretical paper based on a narrative literature review, this study has inherent limitations of lacking empirical data. While this paper proposes conceptual models, these frameworks require validation through field data and real-world implementations. Despite these limitations, we believe that this paper contributes valuable insights to the field of adoption of RAISA in the hotel sector by synthesising existing knowledge and identifying avenues for future research presented in the next paragraph.

We noticed that existing studies are limited in scope, focusing primarily on the technical capabilities of RAISA rather than on its broader implications for sustainability. For instance, there is a dearth of academic papers which link RAISA to the United Nations Sustainable Development Goals (UNSDGs). Furthermore, there is also a lack of research that links RAISA implementation directly to quantifiable sustainability metrics such as reductions in carbon emissions, water usage, or energy consumption. For instance, very few researchers have measured the actual reduction in the hotel kitchens' carbon footprint due to the use of RAISA. To address these gaps, the paper underscores the need for further research into the development of sustainability metrics tailored to hotel kitchens, lifecycle assessments of RAISA solutions and the exploration of innovative business models that make RAISA technologies more accessible. Few studies explore employee sentiment, skill transitions, or mental health in environments where service automation has been introduced. Future research could address these gaps by conducting case studies across diverse hotel types and geographies, developing standardised indicators to measure sustainability outcomes from RAISA, evaluating the long-term economic impact on return on investment (ROI), and exploring employee perceptions, role redesign, and reskilling initiatives through qualitative and mixed-methods research. By expanding this field with evidence-based assessments, future work can help integrate sustainability and automation in hospitality more effectively and equitably.

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Ethics Declaration

Since no participant-level data is discussed in this paper, we do not need ethical approval for this piece of research.

AI Declaration

No AI tools were used to create the content of this paper. However, AI tools were used to improve the grammar and the English language dialect in the paper, as the first author is not a native speaker of the language.

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Developing Conversational AI to Enhance the Tourist Experience: A Methodological Framework Applied to the Case of Porto

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Abstract: Tourism in Porto has expanded considerably over the last decade, with the number of visitors doubling between 2009 and 2019 and continuing to rise in recent years. This rapid growth creates challenges for the sustainable management of tourist inflows and highlights the need for innovative, data-driven solutions that can both support visitors and relieve pressure on local infrastructures. In response, this study proposes the development of a conversational AI system specifically designed to assist tourists in their daily activities and improve their overall experience of the city. The conversational AI is based on a Retrieval-Augmented Generation (RAG) framework, which combines an information retrieval component with a generative model to deliver accurate, context-aware responses. To ensure reliability, the system draws on more than 7,000 documents from diverse sources, including cultural guides, tourism platforms, and official city websites. Several experiments were conducted to identify the best performing system configuration, testing different retrieval strategies, ranking methods, and model architectures. The final solution demonstrates high retrieval accuracy and generates responses that score strongly on semantic similarity and answer quality metrics. Overall, the study demonstrates the potential of conversational AI systems as valuable tools for urban destinations facing growing tourist demand. Beyond Porto, this work illustrates how data-efficient conversational systems can support sustainable tourism management, improve the visitor experience, and serve as scalable solutions for cities with similar challenges worldwide.

Keywords: Smart Tourism; Tourist Experience; Conversational AI; Chatbot; Large Language Models

1. Introduction

Artificial Intelligence (AI) is reshaping the global tourism sector, driving innovation in visitor experience, management efficiency, and destination competitiveness. Within tourism, AI applications such as predictive analytics, recommendation systems, and conversational systems are increasingly recognized as enablers of smart destinations - urban environments that combine data, technology, and human-centered design to deliver more sustainable and adaptive tourism experiences (Gretzel et al., 2015; Buhalis & Amaranggana, 2015).

Among the most transformative applications of AI in this field is Conversational AI, which allows tourists to access information and services through natural language interactions. Conversational AI encompasses chatbots and virtual assistants capable of understanding, processing, and responding to human language through text or voice (Benaddi et al., 2024). They are increasingly used to answer questions, recommend attractions, manage bookings, and support visitors during their stay. However, many existing solutions remain limited in contextual awareness, often relying on rule-based interactions or pre-defined responses that restrict their capacity to handle complex or nuanced queries (Adamopoulou & Moussiades, 2020; Maryamah et al., 2024).

Recent advances in large language models (LLMs) and information retrieval have enabled more adaptive and context-sensitive conversational systems capable of generating coherent and domain-relevant responses (Benaddi et al., 2024). These developments strengthen the role of Conversational AI in tourism as both a service interface and a strategic tool for destination management, enhancing the quality and inclusivity of visitor experiences while supporting more efficient use of resources.

Building on these advancements, the present study explores how Conversational AI can be applied to support tourists' daily activities in urban destinations. The research focuses on developing a domain-specific chatbot that assists visitors in obtaining reliable, localized, and timely information. Porto was selected as the case study due to its continuous tourism expansion—doubling the number of visitors between 2009 and 2019 (Pavel & Romeiro, 2023) - and its position as one of Europe's leading city destinations. These dynamics intensify the need for digital tools that can improve visitor engagement while contributing to the sustainable management of tourism flows.

Although the city's main tourism platform, Visit Porto[1], offers valuable content, it could benefit from a conversational interface that provides personalized and interactive assistance to tourists.

Beyond its technical implementation, this work contributes to tourism research by illustrating how Retrieval-Augmented Generation systems can support reliable, scalable, and context-aware information provision in urban tourism settings. By grounding conversational responses in destination-specific knowledge, the proposed approach has implications for tourism management, visitor experience, and destination governance within smart tourism ecosystems.

2. Literature Review

2.1 Conversational AI in Tourism

The concept of *smart tourism* has become central to the digital transformation of destinations, combining data infrastructures, intelligent systems, and participatory governance to enhance competitiveness and sustainability (Buhalis & Amaranggana, 2015). More recent research positions Artificial Intelligence (AI) as a key component of this transformation, supporting predictive analytics, visitor flow management, and personalized experience design (Dyduch & Brzozowska, 2025; Kim, So, Shin, & Li, 2024).

AI in tourism has progressively evolved from automation toward human-centered design, integrating data-driven systems with user interfaces that facilitate natural communication and inclusivity (Calvaresi et al., 2021). Within this framework, Conversational AI has emerged as a vital interface between visitors and destination knowledge, allowing travelers to access information through natural, context-aware dialogue. This aligns with the broader goals of smart tourism — efficiency, sustainability, and participatory governance (Gretzel et al., 2015; Samancioglu et al., 2024).

Conversational AI refers to systems capable of interpreting and generating natural language to facilitate interaction between humans and computers (Adamopoulou & Moussiades, 2020). In tourism, these systems have been implemented for trip planning, bookings, on-site recommendations, and destination support (Benaddi et al., 2024). Chatbots and virtual assistants have demonstrated potential to improve service efficiency and visitor satisfaction by offering continuous, personalized communication (Li et al., 2021).

Earlier systems (pre-2022) were predominantly rule-based or retrieval-based, relying on pattern recognition and predefined templates (see the example of Amalia & Suprayogi (2019)'s chatbot). While functional for structured tasks, these systems struggled to handle complex or multi-intent questions (Casillo et al., 2020; Alhumoud et al., 2022). Recent advances in large language models (LLMs) have significantly expanded the scope of Conversational AI in tourism, enabling adaptive, contextually grounded dialogue. LLM-based systems increasingly employ hybrid retrieval architectures to access verified destination knowledge while generating coherent, domain-specific responses. These innovations have opened possibilities for destination-wide assistants that can engage with tourists across multiple information domains.

2.2 Destination-Level Conversational AI Applications

In recent years, the number of empirical studies describing destination-scale conversational systems has begun to increase, although still modestly. Several implementations illustrate the gradual evolution from narrow, rule-based chatbots toward domain-grounded assistants capable of managing diverse information needs across a city or region. Anand et al. (2023) presented a convolutional neural-network-based chatbot that integrates recommendation and retrieval modules for multiple Indian cities, while Sperlí (2021) developed a generative model using a sequence-to-sequence recurrent architecture to support cultural-heritage guidance in Italy. Both studies demonstrated improvements in conversational flexibility compared to static interfaces but remained limited by restricted corpora and the absence of continuous knowledge updates.

More recently, large-language-model (LLM) approaches have been applied to tourism settings. Volchek and Ivanov (2024) examined ChatGPT's capabilities as a travel itinerary planner. They found that while ChatGPT could

[1] https://visitporto.travel/

quickly generate itineraries that were easy to understand and accessible, these AI-generated plans were less accurate and less specific than those created by human tourism experts. The evaluation of 11 quality criteria showed that ChatGPT's itineraries often included only well-known attractions and missed detailed local insights. The authors concluded that ChatGPT is a useful tool for initial travel inspiration and draft itineraries, but it cannot yet serve as an exclusive tool for trip planning without human vetting.

In another study, Kırtıl et al. (2024) focused on fine-tuning a GPT-3.5 model with domain-specific tourism data to create a tailored chatbot for niche travel topics. By training on specialized local content, the fine-tuned chatbot provided more accurate, human-like answers to user queries in that domain, outperforming the base ChatGPT model which often produced misleading or hallucinated responses on those specific topics. The fine-tuned model's responses were observed to be significantly superior to the untrained ChatGPT-3.5/4, especially in handling local heritage and culturally specific questions. This result suggests that customizing large language models with up-to-date, domain-focused data can substantially improve a tourism chatbot's relevance and reliability for particular destinations or themes.

Similarly, Cruz et al. (2025) introduced LISA, a city-wide conversational assistant for Lisbon that combines hybrid retrieval (dense + sparse search) with a generative model (ChatGPT) to provide information and recommendations from thousands of curated tourism documents. The system underwent both automated and expert evaluations. This highlights the effectiveness of LLM-driven chatbots in delivering accurate answers and engaging experiences for tourists.

Overall, research on conversational AI in tourism remains fragmented and lacks methodological consistency. Few peer-reviewed studies detail comprehensive destination-level systems, and available reports often omit crucial information about data, retrieval, and evaluation. This study introduces a RAG-based Conversational AI for a major urban destination, using a transparent, reproducible approach to support sustainable digital transformation and improve visitor experiences.

3. Methodology

This study develops a Conversational AI system designed to support tourists visiting Porto by providing accurate, context-based recommendations and information[2]. The methodological approach is based on Jeong's (2023) six-step framework for the development of Retrieval-Augmented Generation (RAG) applications, adapted here to the tourism context.

3.1 Data Collection and Preparation

The dataset was constructed following Buhalis's (2000) *6 A's Framework*, which defines six fundamental components of a tourism destination: Attractions, Accessibility, Amenities, Available Packages, Activities, and Ancillary Services. This framework ensured that the conversational AI system could address a broad range of tourist inquiries, from accommodations and dining to events and local transportation.

[2] https://github.com/novacidade-org/RAGChatbot_Porto

Data were gathered from seven complementary sources - VisitPorto[3], TimeOu[4]t, Civitalis[5], Booking[6], Tripadvisor[7], Wikipedia[8], and Visitar-Porto[9] - encompassing both experiential and operational content. The final corpus contained 7,382 documents, with Booking and Tripadvisor representing the largest share. In addition, manually curated summaries were developed to capture generic tourist intents (e.g., *"What are the main events in Porto?"*). After collection, all documents were normalized and cleaned to remove duplicates, empty entries, and formatting inconsistencies. Finally,Text chuncking was implemented using LangChain's RecursiveCharacterTextSplitter, testing chunk sizes of 3,000 and 7,000 characters without overlap. The larger chunk configuration preserved semantic coherence in longer narratives such as itineraries.

3.2 Model Architecture

The conversational AI system integrates two core modules — retrieval and generation — connected through the LangChain framework *(*LangChain, 2024). This architecture transforms a user query into an enriched prompt, combining retrieved factual knowledge with natural language generation to produce grounded and contextually relevant responses (Lewis et al., 2020). The overall workflow includes embedding generation, vector storage, retrieval, and answer synthesis (Figure 1).

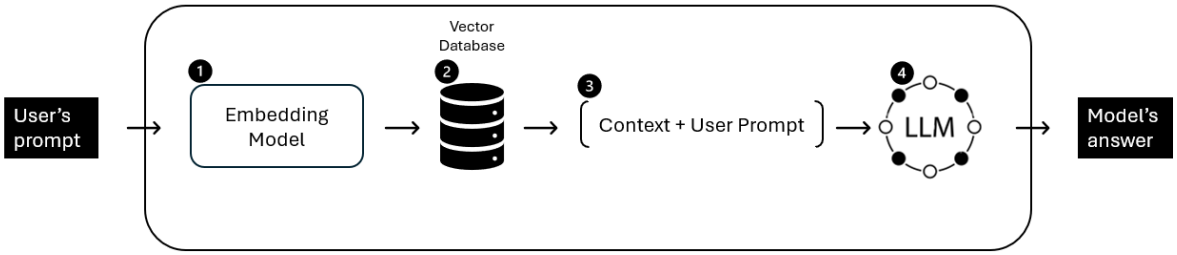


Figure 1: LLM enhanced through the Retrieval Augmented Generation process.

The embedding model selected was gte-large-en-v1.5 (Zhang et al., 2024), chosen for its high semantic retrieval performance on the Massive Text Embedding Benchmark (MTEB) (Muennighoff et al., 2022) and extended input capacity of 8,192 tokens. This configuration allows the model to encode long tourism-related document chunks efficiently while preserving contextual information.

All embeddings were stored in ChromaDB (Chroma, 2024), an open-source vector database optimized for dense retrieval and similarity search. The cosine similarity metric was applied to rank documents by semantic closeness. Four separate databases were generated to test the impact of chunk-size and text normalization (lowercasing and punctuation removal) on retrieval accuracy.

The retrieval stage determines which contextual passages are provided to the generator. Three configurations were tested:Dense Retrieval, relying solely on semantic embeddings; Hybrid Retrieval, combining semantic and lexical searches through the BM25 algorithm (Ma et al., 2021 Karpukhin et al., 2020); Hybrid Retrieval with Re-

[3] www.visitporto.travel/

[4] www.timeout.com/porto

[5] www.civitatis.com/en/

[6] www.booking.com

[7] www.tripadvisor.com

[8] https://www.wikipedia.org/

[9] https://www.visitar-porto.com/en/

ranking, which employed the ms-marco-MiniLM-L-6-v2 cross-encoder to reorder retrieved results by semantic relevance (Akkiraju et al., 2024; Erak et al., 2024).

In the hybrid configurations, Reciprocal Rank Fusion (RRF) (Cormack et al., 2009) was applied to merge ranked results from both retrievers. Text preprocessing ensured alignment between lexical and semantic search — all text was converted to lowercase and punctuation selectively removed to avoid splitting named entities such as "Porto." and "Porto".

For the generation module, two transformer-based models were evaluated: Llama 3.1 – 8B (Dubey et al., 2024) and Llama 3.2 – 3B (Meta, 2024). Both are multilingual decoders capable of processing up to 128,000 tokens. The smaller model, obtained through pruning and distillation of Llama 3.1, was compared to the larger version to assess trade-offs between computational cost and quality.

The temperature parameter was fixed at 0 to ensure factual and deterministic outputs (Maryamah et al., 2024). Prompt engineering followed the role-prompting approach (Chen et al., 2023), explicitly instructing the model to respond only to questions within the Porto tourism domain. The system message defined was the following:

> "This is a Chatbot that only answers to questions related to Porto (Portugal) Tourism. More specifically, to topics related to attractions, accessibility, amenities, activities, available packages, and Ancillary Services. When not specified by the user assume the question is related to Porto. If the question is not about Porto Tourism just write: "I am sorry, but my knowledge only allows me to help you with Porto Tourism topics. Can I help you with something related to Porto Tourism?" Answer to the user's question objectively, using correct syntax and based on context written below:
>
> {context}\n
>
> User: {input}"

This design ensured factual consistency, thematic focus, and reduction of hallucinations during inference, aligning with best practices in grounded conversational AI (Chen et al., 2023). Additionally, the system incorporates chat history to support follow-up questions, implemented using the "create_history_aware_retriever" method from LangChain. This ensures that users can have coherent, multi-turn conversations with the chatbot.

3.3 Evaluation and Experimental Setup

To assess the system's retrieval and generation performance, a benchmark dataset was developed comprising 71 question–answer pairs and 118 context passages, reflecting the diversity of user intents within the tourism domain. The dataset was divided into three categories — generic, specific, and non-related queries — to evaluate not only factual accuracy but also domain adherence and fallback behaviour. "Generic" relates to topics such as "What are the best places to visit in Porto?" and "What to do in Porto in one day?". "Specific" questions refer to questions about a particular fact, like "When is the São João festival?" or "What is the Check in time at Vincci Bonjardim?". Lastly, non-related aspects refer to questions like "Tell me about Algarve history?" or "What are the best attractions in Lisbon?", since the goal in these situations is to specifically answer "I am sorry, but my knowledge only allows me to help you with Porto Tourism topics. Can I help you with something related to Porto Tourism?"

Three complementary metrics were employed to evaluate different aspects of system performance based on previous work: Hit Rate (HR) was used to assess retrieval effectiveness by measuring the proportion of correctly retrieved documents (Gao et al., 2023; Salemi & Zamani, 2024); Semantic Answer Similarity (SAS) quantified the semantic overlap between the generated and reference responses, using a cross-encoder-based scoring approach (Risch et al., 2021); BertScore (Zhang et al., 2019) was applied to measure contextual similarity between the predicted and reference answers using token-level embeddings from BERT.

This combination of retrieval and generation-oriented metrics provided a robust evaluation of the conversational AI's grounding and factual reliability, consistent with recent approaches in retrieval-augmented systems (Es et al., 2024; Doan et al., 2024).

In this phase, two main stages of experimentation were conducted.

1. Retriever Optimization: A grid search tested 56 combinations of parameters, varying chunk-size (3,000 vs. 7,000 characters), retriever type (dense, hybrid, hybrid with re-ranking), and Top-K

retrieval size (3 to 9). Each configuration was evaluated according to Hit Rate, identifying the setup that maximized recall without introducing excessive noise.

2. Model Comparison: Four configurations were tested — baseline Llama 3.1–8B, baseline Llama 3.2–3B, and both models integrated with the best-performing retriever (see Table 3 in section 4). Performance was compared using SAS and BertScore to determine the most effective generator–retriever pairing.

The optimal setup combined a Hybrid Retriever with Re-ranking and Llama 3.1–8B as the generator. This configuration achieved the highest retrieval precision and semantic alignment, establishing it as the final architecture for subsequent testing and discussion.

4. Results and Discussion

This section presents the quantitative and qualitative results of the evaluation, followed by a discussion of their implications for conversational AI in tourism. The analysis focuses on retrieval efficiency, generative accuracy, and the contribution of each model configuration to the overall system performance.

4.1 Retrieval Performance

The retrieval phase tested three configurations — Dense Retrieval, Hybrid Retrieval, and Hybrid Retrieval with Re-ranking — across two chunk sizes (3,000 and 7,000 characters) and several Top-K values. Figure 2 displays the main outcomes.

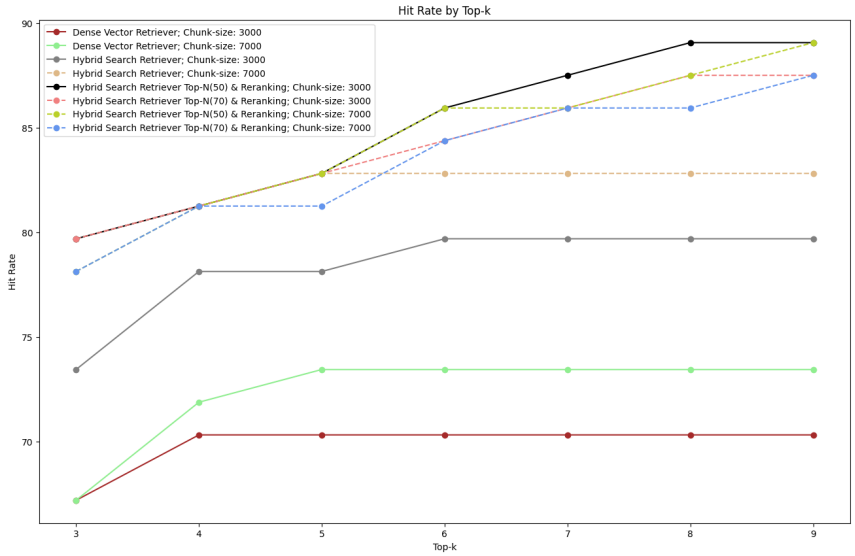


Figure 2: Hit Rate evolution by Retriever configuration.

In the final evaluation phase of our system, two distinct retriever configurations achieved a Hit Rate of 89%, marking the highest level of retrieval accuracy observed throughout the experiments. While this result demonstrates that multiple approaches can reach strong performance, a closer analysis reveals that one configuration stands out for its efficiency and practical value. Specifically, the Hybrid Search Retriever with re-ranking not only matched the top Hit Rate but did so by retrieving fewer context passages, thereby reducing the amount of irrelevant or noisy information presented to the generative model.

The optimal configuration was built using Alibaba's gte-large-en-v1.5 embedding model, which is known for its robust semantic retrieval capabilities. The data was segmented into chunks of up to 3,000 characters, a choice that balanced the need for semantic coherence with computational efficiency. Retrieval parameters were set with a Top-N of 50 and a Top-K of 8, ensuring that the system considered a broad yet manageable set of candidate passages for each query.

Figure 1 further illustrates the superiority of the Hybrid Search Retriever with re-ranking, showing that it consistently outperformed other configurations as the Top-K parameter increased beyond 5. This trend is consistent with the findings of Erak et al. (2024), who also observed that hybrid approaches with re-ranking mechanisms tend to yield better retrieval outcomes in complex information domains. The present study's results

are in line with the conclusions drawn by Ma et al. (2021) and Akkiraju et al. (2024), both of whom highlighted the advantages of hybrid retrieval strategies over purely dense vector-based methods.

In summary, while several retriever setups could achieve high retrieval accuracy, the Hybrid Search Retriever with re-ranking distinguished itself by delivering this performance more efficiently and consistently. These findings reinforce the growing consensus in the literature that hybrid retrieval architectures, particularly those enhanced with re-ranking, represent a best practice for retrieval-augmented generation systems in knowledge-intensive applications.

4.2 Generative Performance

The second experimental stage compared four model configurations. Table 1 presents the comparative results using Semantic Answer Similarity (SAS) and BertScore metrics.

Table 1: Results comparing RAG models with baseline models with Llama3.2-3B and Llama3.1-8B.

Generator Model	BertScore	SAS
Llama3.1-8B - baseline	0,72	0,52
Llama3.1-8B w/ RAG	**0,82**	**0,64**
Llama3.2-3B - baseline	0,72	0,54
Llama3.2-3B w/ RAG	0,80	0,61

The Llama 3.1–8B + Hybrid Retriever with Re-ranking configuration achieved the highest performance across both metrics: SAS = 0.64 and BertScore = 0.82, outperforming all other setups. In contrast, the baseline Llama 3.1–8B without retrieval scored SAS = 0.52 and BertScore = 0.72, demonstrating the substantial impact of retrieval grounding on factual completeness and semantic precision.

The smaller Llama 3.2–3B model achieved a SAS of 0.54 and BertScore of 0.72 when paired with the hybrid retriever. This result is particularly relevant for practical applications, as it suggests that lighter architectures can deliver competitive accuracy with lower computational requirements, making them suitable for deployment in tourism organizations with limited infrastructure.

This improvement is consistent with findings by Lewis et al. (2020) and Akkiraju et al. (2024), who emphasized that retrieval-augmented architectures improve factual reliability in knowledge-intensive tasks.

4.3 Discussion

These findings contribute to addressing a gap in the literature concerning the limited adoption of advanced conversational AI systems in the tourism sector. By adapting approaches previously explored in other economic domains—such as technology (Akkiraju et al., 2024), telecommunications (Erak et al., 2024), medicine (Singh et al., 2024), and education (Alsafari et al., 2024; Maryamah et al., 2024)—this work introduces to tourism a set of techniques related to Retrieval-Augmented Generation (RAG), hybrid retrieval, re-ranking strategies, and evaluation methods. The integration of these techniques enabled the development of a solution tailored to the specific informational needs and contextual constraints of urban tourism in Porto.

At the same time, the application of conversational AI in tourism raises several practical and governance-related challenges that must be considered. The effectiveness of such systems is highly dependent on the quality, coverage, and timeliness of the underlying data sources, which may limit reliability if content becomes outdated or incomplete. In addition, the interpretation of user queries and the generation of responses introduce potential risks related to bias, oversimplification of complex information, and misalignment with official policies or regulations. From a destination management perspective, deploying conversational systems also entails operational constraints, including system maintenance, performance monitoring, and the need to ensure transparency and accountability in automated information provision.

Despite these challenges, the proposed system demonstrates potential to support tourism management by facilitating engagement between Porto and its visitors and by enabling more data-informed decision-making. Destination management organizations may leverage aggregated interaction data to better understand visitor interests and information needs, as suggested by Liberato et al. (2018), while tools such as LangSmith (LangChain, 2024) allow for monitoring system behaviour and usage patterns. To support experimentation and future user-

based evaluations, a front-end interface was developed using Streamlit[10], enabling controlled interaction with the conversational agent (Figure 3).

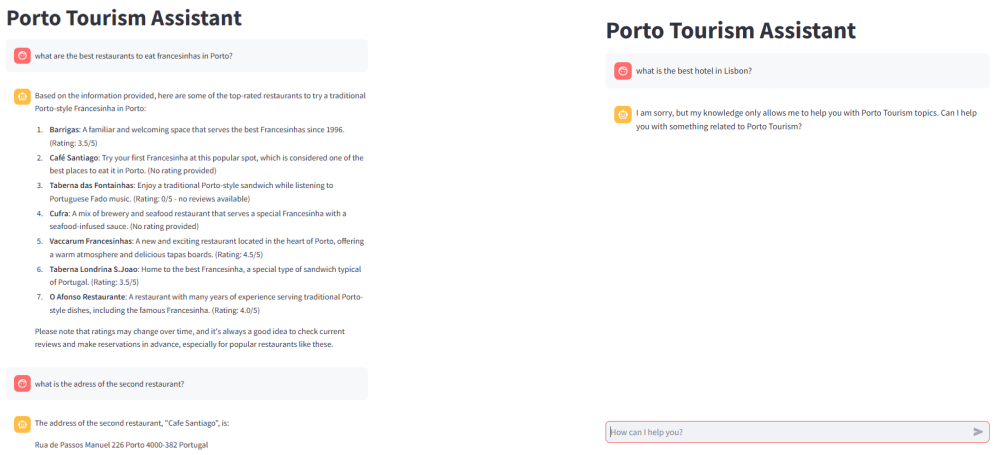


Figure 3: Chatbot conversation with one relevant question and another unrelated to Porto Tourism.

5. Conclusions, Limitations and Future Work

This study designed and assessed a conversational AI system for delivering tourism information in Porto, using a Retrieval-Augmented Generation (RAG) framework enhanced by hybrid retrieval and re-ranking techniques. The integration of these methods with the Llama 3.1–8B model yielded the highest performance, while the more compact Llama 3.2–3B also showed strong results, highlighting the potential of lightweight solutions for practical tourism deployment. The system improved information accuracy and contextual relevance, demonstrating the value of conversational AI for improving visitor experience and supporting destination management.

This study is subject to several limitations. It focuses on a single destination (Porto), relies on static and English-only data sources, and introduces some latency due to the re-ranking process. In addition, the evaluation is limited to automated metrics, as no user-based assessment was conducted. Future work should address these limitations by incorporating real-time and multilingual data, improving retrieval efficiency, enabling adaptive learning mechanisms, and conducting user-centered evaluations to assess usability and real-world impact.

Overall, the findings offer a robust framework for scalable, data-driven conversational AI to support digital innovation in tourism, while laying the groundwork for further research that includes user-based evaluation and system improvements.

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AI Declaration

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[10] https://streamlit.io

generating structure suggestions. All ideas, analyses, and final interpretations presented in the paper are the author's own, and all outputs generated by the AI were reviewed, edited, and validated by the author before inclusion.

Ethics Declaration

This research did not involve human participants, personal data, or any activity requiring formal ethical approval according to institutional or national guidelines. Therefore, ethical clearance was not required for the development of this study.

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Customer Experience in Urban Heritage Tourism: Insights from the Palácio da Bolsa

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Abstract: Urban heritage tourism plays a pivotal role in sustaining cultural identity and enhancing the experiential value of historic cities. Within this context, the Palácio da Bolsa, a 19th-century neoclassical landmark located in the heart of Porto's UNESCO-listed historic centre, exemplifies how cultural heritage sites function simultaneously as civic institutions and major tourist attractions. Despite its architectural splendour and symbolic importance, limited empirical research has explored how visitors perceive service quality and how these perceptions shape satisfaction, loyalty, and recommendation behaviour in monument-based settings. This study investigates the visitor experience at the Palácio da Bolsa through a quantitative approach grounded in an adapted SERVQUAL framework, encompassing five core dimensions of service quality: Tangibles, Reliability, Responsiveness, Assurance, and Empathy. A structured on-site survey was conducted with visitors to assess perceptions of service quality and its influence on visitor behaviour. The analysis identified key dimensions—particularly those related to staff competence, trust, and reliability—as the strongest drivers of satisfaction and recommendation. Overall, the findings confirmed that the adapted SERVQUAL framework provides a valid and reliable approach for evaluating service quality in heritage tourism contexts. Results also highlight the continued relevance of human interaction in shaping the heritage experience, while revealing opportunities to enhance visitor engagement through context-sensitive interpretation and optional digital tools. Balancing technological innovation with authenticity and emotional connection emerges as a central challenge for managing visitor experiences in heritage environments. The study contributes to advancing experience-based place management in urban heritage tourism by integrating service quality assessment with experiential and emotional dimensions. It demonstrates that maintaining consistency, professionalism, and authenticity are crucial for sustaining visitor satisfaction and advocacy. By linking established service models with the unique characteristics of urban heritage sites, this research offers both academic insight and practical guidance for designing meaningful, sustainable visitor experiences in culturally significant destinations. This paper expands the understanding of how service quality shapes visitor experience in urban heritage contexts, highlighting the human and experiential dimensions of heritage tourism. Contributes to advancing theoretical and practical insights for developing authentic, emotionally engaging, and sustainable visitor experiences within culturally significant urban destinations.

Keywords: Urban Heritage Destination; Visitor Experience; Service Quality; Place Management

1. Introduction

Urban heritage tourism is seen as a central pillar of cultural sustainability (Carbone, 2017), contributing to the preservation of local, urban and even national identity. Heritage sites today function as dynamic spaces of cultural production where interpretation, visitor experience, and authenticity intersect with economic viability. In this context, the Palácio da Bolsa situated in the heart of Porto's UNESCO-listed historic centre, embodies the dual role of urban monument and tourism icon, offering a valuable opportunity to study how heritage interpretation and service delivery shape visitor satisfaction.

Commissioned by Queen Maria II and constructed by the Associação Comercial do Porto (ACP) atop the ruins of the former São Francisco Convent (destroyed during the Siege of Porto in 1832), the Palácio da Bolsa was completed in 1909 as a venue for commercial arbitration and civic representation. Today it serves as a multifunctional space for institutional events, state receptions, and, most prominently, multilingual guided tours that attract several hundred thousand visitors each year. Renowned for its richly decorated interiors—particularly the Salão Árabe, Escadaria Nobre, and Pátio das Nações—the Palace offers both architectural splendour and an embodied narrative of Porto's mercantile heritage and cosmopolitan identity. The Palácio da Bolsa is located within the UNESCO World Heritage area, which reinforces its symbolic and experiential significance as both a heritage attraction and a living civic institution.

Despite its prominence, empirical evaluations of the visitor experience at the Palácio da Bolsa remains scarce. Most prior studies in heritage tourism have focused on museums, destinations, or intangible heritage experiences, leaving a gap in understanding visitor perceptions within monument-based contexts. It is becoming increasingly vital to better understand the experiential dimensions of heritage visits and the role they play in determining not only satisfaction but also loyalty and recommendation behaviour. Managing such experiences

requires attention to the service encounter, namely the moment-to-moment interactions through which visitors construct meaning and evaluate authenticity.

This study aims to bridge that gap by employing an adapted SERVQUAL framework (Parasuraman et al., 1988) to assess visitors' perceptions of service quality and its impact on satisfaction and recommendation behaviour. SERVQUAL has been used extensively in hospitality and tourism. Its use in urban heritage settings, particularly those centred on architectural monuments, remains limited. Additionally, place management research has yet to fully integrate service-quality metrics into its analytical models, despite the growing importance of experience-based differentiation in heritage tourism (Carù & Cova, 2007; Chen & Chen, 2010).

This study, by situating quantitative evidence within the theoretical frameworks of service quality and place management, reinforces the value of adapting SERVQUAL to heritage contexts. It advances understanding of how traditional service-quality models can be applied to monument-based cultural settings characterised by symbolic depth and emotional engagement, while offering practical insights for managers seeking to design authentic, emotionally resonant, and sustainable visitor experiences. Our findings highlight that the human interaction is central in shaping heritage experiences, with visitors placing significant value on the clarity, friendliness, and interpretative ability of guides during the tour.

2. Palácio da Bolsa

In the Portuguese context, studies have focused on the challenges that lay at the intersection of heritage tourism, sustainability, and visitor expectations. Tourism-led urban regeneration places growing pressure on heritage assets, requiring them to juggle between conservation imperatives and rising tourist demand (Lak et al., 2020). This dynamic is reflected in the historic centre of Porto, where Lopes et al. (2021) show that heritage sites, including the Palácio da Bolsa, must negotiate this tension on an ongoing basis. Their results highlight the risks of over-tourism in culturally sensitive areas and the opportunities for heritage sites to act as catalysts for urban regeneration.

This is reinforced by Gonçalves and Costa (2019) suggestions of robust governance frameworks and the adoption of visitor-centred management approaches, as essential to balance cultural preservation and commercial tourism growth. Lopes et al. (2021) documented significant shifts in visitors' risk perceptions, motivations, and expectations regarding hygiene, crowding, and authenticity, due to to Covid -19, suggesting that post-pandemic visitors prioritise trust and emotional reassurance alongside cultural engagement.

Service and digital management perspectives expand and complement this point of view. Xu et al. (2021) state that tourists' decision-making and booking behaviour are influenced by online review management, showing that perceived responsiveness outweighs the physical site. Additionally, Daskalaki et al. (2020) along the same lines, highlight the importance of assessing customer satisfaction and loyalty in cultural and heritage contexts, underscoring the importance of quantitative service metrics in managing the quality of visitor experiences.

Collectively, these studies suggest that heritage experiences in Portugal—and particularly in Porto's historic centre—are co-constructed across multiple dimensions: the physical and architectural environment, interpretative depth, emotional resonance, and digital engagement.

The Palácio da Bolsa best depicts this dynamic, which embodies both the material grandeur of the 19th century mercantile culture and the current challenge of providing authentic, professional, and sustainable equality service This research, therefore, positions the Palácio da Bolsa as an ideal case for examining how service quality, in its multidimensional form, contributes to satisfaction and advocacy in urban heritage tourism.

3. Method

A structured questionnaire comprising both closed-ended Likert-scale items and a small number of open-ended questions for qualitative insights was used to collect data. The instrument was designed to measure perceived service quality based on an adapted SERVQUAL model (Parasuraman et al., 1988), supplemented with two heritage-specific dimensions, reflecting the model's continued relevance in the literature (e.g., Ladhari, 2009).

The questionnaire thus included seven composite dimensions. In addition to the five SERVQUAL dimensions, two supplementary dimensions were introduced for exploratory and contextual purposes. The first, Environment and Structure, captures spatial organisation, ease of circulation, and perceived preservation quality of the heritage site. This dimension was added because SERVQUAL's Tangibles dimension focuses primarily on facilities and appearance and does not account for monument-scale spatial experience. Similar distinctions

between physical environment and basic tangibles have been empirically validated in museum and heritage tourism research (Loureiro, 2014; Domínguez-Quintero et al., 2020).

The second added dimension, Technology and Interactivity, assesses visitors' perceptions of optional digital tools such as mobile applications, audio guides, or augmented reality. The original SERVQUAL model predates digital mediation and therefore does not include technology-related constructs. Recent heritage tourism studies have demonstrated that digital interactivity functions as an independent experiential dimension when aligned with authenticity and interpretation (Kim and Hall, 2019; Cunha et al., 2025; Recuero Virto et al., 2024).

Table 1 summarizes the dimensions and items included in each.

Table 1: Dimensions and items included in the questionnaire

Dimension	Core Focus	Illustrative Items / What It Measures
Tangibles	Physical and aesthetic elements of the visit	Are the physical facilities of the Palácio da Bolsa visually appealing? Are the staff well-dressed and professional? Do promotional materials (e.g., brochures, website content) accurately represent the services offered?
Reliability	Ability to perform the promised service dependably and accurately	Are services provided correctly and on time? Are ticketing records and processes error-free? Do staff offer reliable solutions to any problems that arise?
Responsiveness	Willingness to help visitors and provide prompt service	Is information about services and events easily accessible? Do staff respond promptly to questions or requests? Do staff effectively handle unexpected situations?
Assurance	The knowledge, courtesy, and professionalism of staff inspire visitor confidence.	Do the staff demonstrate knowledge and competence in their field? Are they polite? Does the institution inspire confidence in its ability to provide quality cultural experiences? Were the guide's explanations easy to understand?
Empathy	Individualised attention and genuine care for visitor needs	How would you rate the guide's friendliness and availability? Do staff provide individualised attention when needed? Does the institution accommodate the needs of diverse audiences? Are operating hours convenient? Did the guide keep the group engaged throughout the visit?
Environment and Structure	Organisation, spatial quality, and aesthetic value of the heritage site	How would you rate the organisation of the space and ease of circulation within the Palácio da Bolsa? Did the site exceed expectations in terms of beauty and preservation? Do you think any improvements are needed in the Structure or Environment?
Technology and Interactivity	Use of digital tools to enhance interpretation and engagement	Do you think a mobile app or interactive technology (such as augmented reality) could enhance the experience? Would you like access to audio guides in additional languages, or an app that provides supplementary information?

Each dimension was operationalised as a composite variable, calculated as the arithmetic mean of its respective item scores. Respondents were asked to indicate their level of agreement on a five-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree).

Data collection was conducted between March and May 2024 to Palácio da Bolsa vistors. A total of 197 valid responses were obtained. The two most represented age groups were respondents aged 31 to 50 years, who accounted for approximately 27.9% of the sample (55 respondents), and those aged 18 to 30 years, representing about 27.4% (54 respondents).

In terms of nationality, the sample was highly international. French nationals represented the largest group of respondents, accounting for approximately 38% of the sample, making them the most significant nationality group. This was followed by Belgian visitors (9%), Italian visitors (6%), and Portuguese visitors (5%). Respondents from North America, namely American (4%) and Canadian (3%) visitors, together accounted for 7% of the sample. The remaining 32% consisted of respondents from a wide range of other countries, including Greece, Germany, Denmark, Luxembourg, Switzerland, Taiwan, Singapore, the United Kingdom, and Australia, among others. This broad diversity of nationalities highlights the international appeal of the Palácio da Bolsa as a cultural tourism destination and reinforces the relevance of this study within an international tourism and visitor experience context.

The sampling technique used in this study can be described as non-probability convenience sampling. The respondents were visitors who had just completed their visit to the Palácio da Bolsa and voluntarily agreed to complete the questionnaire immediately after the experience.

Descriptive statistics were used to profile respondents and summarise mean scores for each service-quality dimension. Composite variables were tested for internal consistency using Cronbach's alpha, and relationships among dimensions were assessed through correlation analysis.

4. Results and Discussion

The internal reliability of the adapted SERVQUAL instrument registered a Cronbach's alpha of 0.872, indicating strong internal consistency. This value falls within the recommended range of 0.80–0.90 (Nunnally & Bernstein, 1994), confirming that the items coherently measure the underlying constructs of perceived service qualit

The analysis of the Recommendations and Intention to Return dimension shows a very high level of satisfaction. The vast majority of respondents (95%) said they would recommend the services of the Palácio da Bolsa to others, and 83% expressed their intention to return in the future.

The analysis of the responses shows a high level of satisfaction among visitors with the Palácio da Bolsa team. One of the most valued aspects was the professionalism and competence of the staff. The statement "Employees are well dressed and present themselves professionally" obtained an average of 4.96 (out of a maximum of 5), with a very low standard deviation (0.20), indicating consistency in the responses. Similarly, the statement "Employees demonstrate knowledge and competence" scored an average of 4.94, reflecting the perception of high technical preparation and mastery of content.

Customer service responsiveness and dependability were noted as other strengths. Both the statement "Services are provided correctly and on time" and "Employees respond promptly to questions" obtained an average of 4.91, indicating that visitors recognize the efficiency, punctuality, and availability of employees during the visit.

These results suggest that visitors feel welcome, value the service provided, and demonstrate high confidence in the team, which contributes significantly to the overall quality of the tourist experience.

The analysis of the data identified opportunities for improvement, particularly with regard to the use of technology and interactivity in the tourist experience. The statement "Technology (such as apps or augmented reality) could improve the experience" obtained an average of 3.02, while "I would like access to audio guides in other languages or an informative app" recorded the lowest average in the questionnaire, with 2.59. Both questions showed high dispersion in responses (standard deviations greater than 1.5). Nevertheless, the data points to a latent need for technological innovation, which could be explored to enrich the experience and meet the expectations of more demanding segments or those accustomed to digital resources, as suggested by Cunha et al. (2025).

The outcomes are generally favorable regarding the intention to return and to recommend. The statement "I would recommend this visit" obtained a high average of 4.86, reflecting a high degree of satisfaction. On the other hand, "I would like to return to the Palácio da Bolsa" had a slightly lower average (4.33) and a standard deviation of 1.03, indicating some variation in responses. This difference may be related to the unique nature of the visit which, although much appreciated, may not necessarily motivate a repeat visit.

In summary, the data shows an experience that is well evaluated and highly recommended by visitors, but also indicates clear opportunities for innovation, especially in the technological field, to further strengthen the engagement and impact of the visit. In short, the experience at the Palácio da Bolsa is extermely positive, with the professionalism of the team and the reliability of the service standing out. As suggested by Domínguez-Quintero et al. (2020), that the satisfaction of the heritage tourists is driven by the quality of the experience.

The high recommendation rate reflects strong overall satisfaction with the services provided. The main reasons highlighted in the open responses include the historical beauty of the Palace, the friendliness and professionalism of the guides, and the clarity of the explanations. The few negative responses indicate specific opportunities for improvement, such as the length of the visit or the price of tickets. Furthermore, the large number of voluntary comments shows emotional involvement with the experience. Most comments were positive, reinforcing the strengths already analyzed, and others included useful suggestions such as extending the length of the visit, improving the queuing system, and introducing themed visits.

In conclusion, the descriptive statistics showed consistently high visitor evaluations across all SERVQUAL dimensions, with mean values ranging from 4.71 to 4.90 on a five-point scale and low standard deviations (0.30–0.46). Assurance (mean = 4.90) and Empathy (mean = 4.87) received the highest scores, underscoring the significance of staff competence, professionalism, and personalised attention as key determinants of satisfaction and recommendation. Responsiveness (mean = 4.81) and Reliability (mean = 4.79) also achieved very positive ratings, reflecting efficiency and dependability in service delivery. Although Tangibles scored slightly lower (mean = 4.71), it still reflected strong satisfaction with the physical facilities and supporting materials, underscoring the importance of the museum environment in shaping visitor experiences (Loureiro, 2014).

These results highlight that, notwithstanding heritage sites' exploration of technical innovation, human interaction, trust, and emotional connection remain primary influences on visitors' evaluations of quality, consistent with findings in recent heritage tourism research (e.g., Sasongko et al., 2025).

5. Conclusion

The findings of this study provide strong empirical evidence that visitors' satisfaction and intention to recommend in urban heritage settings are primarily shaped by interpersonal and environmental factors rather than technological attributes. The importance of human interaction in heritage tourism is highlighted by the prominence of Assurance and Empathy, which show how trust, professionalism, and personalized communication play a major role in visitors' perceptions of authenticity and the emotional value they derive from the experience.

Palácio da Bolsa consistently provides high levels of perceived service quality, as evidenced by the high mean scores across all SERVQUAL aspects. This is consistent with research suggesting that well-managed heritage sites evoke satisfaction through professionalism and interpretive competence rather than solely through physical aesthetics (Kempiak et al., 2017; Chen & Chen, 2010). The results reinforce the conceptualization of heritage tourism as an experience economy (Pine & Gilmore, 1999), in which authenticity and emotional engagement define perceived value. Beyond the scope of the current analysis, more advanced statistical methods will be applied in subsequent stages of the research to further strengthen the robustness of the findings.

From a theoretical standpoint, the study extends the applicability of the SERVQUAL framework to monument-based heritage contexts by demonstrating its robustness and adaptability when supplemented with contextual dimensions. It also supports an expanded view of experience-based place management, where the visitor experience is co-created through both tangible and emotional interactions. The high reliability and intercorrelation among dimensions confirm that service quality in heritage tourism is multidimensional yet cohesive, anchored in trust, care, and the perceived authenticity of interpretation.

For heritage site managers, these findings emphasise the need for continuous staff training, particularly in interpretive communication, Empathy, and cultural mediation. Heritage managers should prioritise consistency in service delivery and invest in maintaining physical and aesthetic quality as visible signals of institutional reliability. Additionally, technological innovation should be introduced selectively, using digital tools to enhance accessibility, interpretation, and pre-visit engagement without disrupting the immediacy of human connection that defines heritage authenticity.

Overall the discussion highlights an essential paradox for heritage management: while visitors increasingly expect innovation, their satisfaction remains deeply rooted in trust, care, and authenticity. The Palácio da Bolsa demonstrates that heritage sites can sustain relevance and emotional resonance by preserving their human and cultural core, supported but not overshadowed by technology.

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Ethics Declaration

Not applicable.

AI Declaration

During the preparation of this work, the authors used Grammarly and Chat GPT to improve language and readability. The authors then reviewed and edited the content and take full responsibility for the final manuscript.

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Influence of Wellness Value on Tourists' Intention to Revisit a Spa: A Case Study of Health Land Spa & Massage in Bangkok

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Abstract: Wellness tourism plays a significant role in the economic and tourism industry in many countries, especially in Thailand. Considering motivations for well-being and the uniqueness of Thai massage and spa, some tourists include wellness activities as part of their trip. Hence, many international tourists regard spa and massage as a must-try experience when traveling to Thailand. In the same vein, many businesses offer a variety of services, ambiences, and experiences to attract more customers. However, for wellness providers and business competition, customer revisit is both crucial for competitive advantage and challenging to maintain sustainability. This study investigates the relationship between perceived wellness value and tourists' intention to revisit a spa, comparing tourists who receive only a single service type with tourists who use variety of services. It also examines service type satisfaction, spa ambience, and relaxation as predictors for perceived wellness value from international tourists. To collect data from real tourists visiting a wellness venue, this study uses Health Land Spa & Massage, one of the largest spa chains in Bangkok, Thailand, as a case study to examine their intrinsic responses and revisit intentions. An online questionnaire was used to collect data from international spa and massage customers of various nationalities who agreed to participate in the survey. Statistical analyses were conducted to test causal relationships among variables and mean differences between groups. The findings reveal a statistically significant difference between tourists who use a single service and those who use a variety of service types. Moreover, service type satisfaction, ambience, and relaxation contribute to perceived wellness value, fostering an intention to visit a spa and massage venue. Based on these results, both theoretical and practical implications for spa and massage businesses are discussed, along with relevant suggestions. Therefore, spa businesses can adjust their strategies to effectively enhance sales.

Keywords: Wellness Tourism, Service Type Satisfaction, Ambience, Relaxation, Perceived Wellness Value, Revisit Intention

1. Introduction

Wellness tourism has become one of the most contribution to economic growth in many countries (Tripathi and Said, 2023). According to Global Wellness Institute's (GWI), the global wellness market is forecasted to skyrocket and reach 1.4 trillion USD, meaning that it will be 40% increased comparing to the market from 2024 (GWI, 2023). Although international tourism experienced a standstill in 2020, many countries in Asia still grow in wellness tourism continuously (Kunaviktikul, 2022). In the similar vein, In Thailand, wellness tourism had forecasted to increase the market size by 16.7% and will reach 91.4 billion USD in 2030 (Mariam Faizullabhoy, 2025).

Spa contributes to majority of the revenue of the wellness tourism market (Jorge Pelegrín-Borondo, 2020). Each spa has its own uniqueness and features including treatments, equipment, or service procedures (Mendonça and Pedro, 2021), which can be determined when a tourist make a decision. Service components of each spa are varied in many types of treatments (Dini and Pencarelli, 2022). Moreover, many research studies have indicated that service quality has positively affected customers' satisfaction (Ningsih and Kurdi, 2023; Sangpikul, 2023). However, the impact of service type satisfaction or even the variety of services that customers receive on perceived wellness value is still understudied.

Not only types of services and massages in a spa, ambience is also a significant factor in eliciting pleasant feelings of customer loyalty to revisit the spa (Kantorová et al., 2023). The ambience in a spa has attributes as sensory cues, which are multifaceted which combines music, scent, light, and everything in the room to sooth mind and spirit of customers (Cauchi and Falzon, 2023; Valente-Pedro et al., 2025). Moreover, the ambient environment is also a key antecedent to emotional engagement that then increases favorable behavioral outcomes, leading to customers' loyalty (Li, 2021). Although the ambience of the spa can be seen as a pull factor that draws customers to experience wellness tourism (Bočkus et al., 2023), it is unclear that a tourist would perceived wellness value from spa's ambience or not.

Many studies suggest that spas generate relaxation. For example, Sansiriphun et al. (2023) illustrates that a massage can reduce fatigue and enhance muscle flexibility and relaxation. Maccarone et al. (2023) mentioned that relaxation can be triggered by warm water, which is used by a spa warm bath to reduce muscle tension. At the same time, many wellness tourists also seek relaxation and escape form their daily life when they visit a spa

(Pelegrín-Borondo et al., 2020). However, the influence of relaxation itself on perceived wellness is still questionable.

Furthermore, when tourists search for a destination that promotes wellness tourism, they tend to focus on the wellness value of the destinations. This wellness value is reflected in tourist destinations that emphasize wellness-oriented offerings compared to other destinations (Dini and Pencarelli, 2022). When customers use a spa, they experience well-being from the experience including rest, relaxation, and mood lift, resulting in strengthening loyalty intentions and likeliness to repeat patronage (Huang et al., 2019). At the same time, customers also consider the brands of service providers and associate with their perception of wellness value (Ahn and Back, 2019). Therefore, examining the influence of perceived wellness value on revisit intention within spa contexts warrants further investigation.

Given the growing recognition of wellness tourism as a key dimension of contemporary travel behavior, understanding how different spa service experiences shape tourists' perceptions and behavioral intentions have become more critical. Despite growing literature on wellness tourism, few studies have empirically compared how single versus multiple service experiences influence perceived wellness value in Asian spa contexts. To address this gap, the present study aims to examine the relationship between perceived wellness value and tourists' intention of revisiting a spa, comparing tourists who receive a single type of service with those who experience a variety of services. Moreover, the study investigates how service type satisfaction, spa ambience, and relaxation contribute to perceived wellness value among international tourists. The findings are expected to offer both theoretical and managerial insights into designing spa experiences that enhance customer well-being and foster long-term loyalty.

2. Literature Review

Wellness tourism has emerged as a major segment of the global tourism industry, with spas playing a central role in promoting physical, mental, and emotional well-being. Understanding the factors that shape tourists' experiences and behavioral intentions in spa settings is therefore essential. Previous studies have emphasized that tourists' perceptions of wellness value are influenced by multiple experiential dimensions, including service type, ambience, and relaxation. These elements collectively determine perceived wellness value and revisit intention. This literature review synthesizes existing research on these key variables, providing theoretical foundations and identifying gaps that inform the conceptual framework of the present study.

2.1 Service Variety and Satisfaction

Many spas offer a variety of programs and services on their menus (Sangpikul, 2023). For example, different massage techniques, facials, hydrotherapies, and spa packages. Moreover, Gronostajska-Kadecka (2025) map hotel spa zones as service bundles and list services into difference zones such as thermal wet areas (saunas, steam, hammam), hydro circuits and pools, treatment rooms for massage/beauty, movement/fitness spaces, and relaxation lounges. In some locations, spa programs offer mineral-water baths, mud packs, inhalation therapies, and showers. These distinct modalities jointly address complex symptom constellations such as fatigue and pain, showcasing how spas orchestrate varied techniques within one care cycle (Costantino et al., 2024). Among various options of spa treatments to choose from, Buxton and Michopoulou (2021) frame spas as value co-creation settings where enable guests to assemble personally meaningful experiences, implying that more varied options expand co-creation opportunities, translating into higher perceived wellness value. Moreover, types of services in spa and treatment elicit customer loyalty (Kantorová et al., 2023). Namely, when customers are satisfied with services, they tend to visit the same spa again repeatedly. Therefore, these hypotheses are proposed:

H1: Multiple services influence perceived wellness value more than a single service.

H2: Service type satisfaction influences perceived wellness value.

2.2 Ambience

Buxton and Michopoulou (2021) defined ambience within spa contexts as the sensory-symbolic layer such as aroma, music, lighting, decor, ritualized cues and artifacts, that co-creates meaning and authenticity for guests. Ambience is reframed as multisensory stimuli intentionally designed to influence body–mind–spirit outcomes (Valente-Pedro et al., 2025). The spa ambience attributes include scent, tactile materials, symbolic objects, and ritual-design as critical to the spa ambience (Buxton and Michopoulou, 2021). Ambience triggers many positive

emotions, heals the mind, reduces stress, and promotes peace and happiness which relate to well beings (Cauchi and Falzon, 2023). Moreover, Kantorová et al. (2023) reported that spa environment influences customers' loyalty, meaning that a good ambience can result in revisit a spa in the future. Combined with this, different types of tools and elements can be used to create a mindful ambience. For example, aromatherapy combined with essential oils, can emit fragrances that contribute to lowering stress and anxiety(Cauchi and Falzon, 2023). As a result, wellness value will be perceived as a byproduct of a good ambience. Therefore, the hypothesis is proposed:

H3: Ambience influences perceived wellness value.

2.3 Relaxation

One of the main factor that wellness tourists focus on when using a spa is to receive relaxation as a core emotion and to escape from their busy life (Loureiro et al., 2013; Pelegrín-Borondo et al., 2020). Relaxation in a spa can be derived from services and treatments such as sauna, pools, massage, and body care (Bočkus et al., 2023). Particularly, Sen massage can relief stiffness of the muscles and reduce pain and fatigue. At the same time, the massage can promote relaxation of the muscles (Sansiriphun et al., 2023). In numerous spas, elevated temperatures and warm water are commonly integrated into treatments. These conditions can help alleviate muscle pain and promote a sense of well-being among tourists (Maccarone et al., 2023).

H4: Relaxation influences perceived wellness value.

2.4 Wellness Value

Dini and Pencarelli (2022) defined wellness value as an experiential value that tourist can perceive by comparing benefits that they experience to other places. Additionally, wellness value is a combination of physical and mental benefits that customers internally process whether they achieve well-being or not (Ahn and Back, 2019). Likewise, when tourists feel emotional and social value from wellness experiences, satisfaction rises and triggers intention to revisit wellness destinations (Seow et al., 2024). Wellness value propositions can be derived from elements in wellness destinations (Dini and Pencarelli, 2022). Therefore, higher perceived value embedded in the emotional experience boosts satisfaction and translates into intention to revisit a spa (Suban, 2025). As a result, tourists might tend to revisit a spa after perceived wellness value. Therefore, the hypothesis is proposed:

H5: perceived wellness value influences re-visit intention.

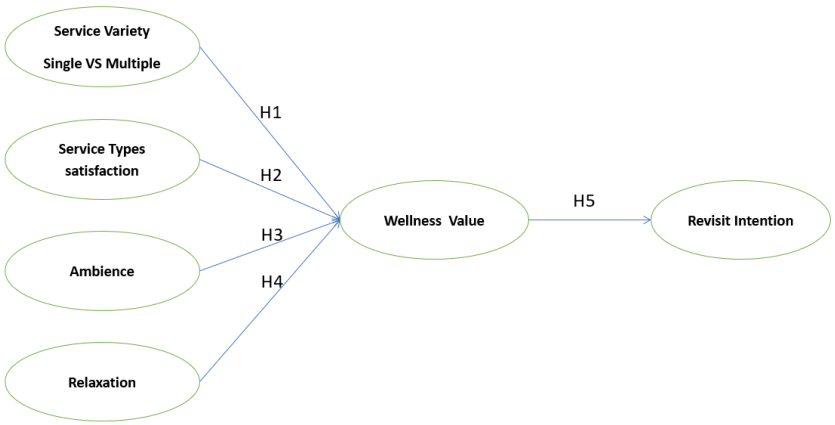


Figure 1: Research Model

3. Methodology

Among many spa places in Bangkok, Thailand, Health Land and Spa was selected as a case study in this research because it is the largest and most well-known spa in Bangkok, for over twenty years. With insight and personal connection to the spa, the researchers gathered information from Health Land and Spa privilege card databases and reached out to consented participants via email. The researchers designed a self-administered questionnaire using established measurement items as the main data collection tool. Namely, service types satisfaction scales were adapted from Dam and Dam (2021), ambience scales were adapted from Jani and Han (2014), relaxation scales were adopted from Gorn et al. (2004), perceived wellness value scales were adapted from Choi et al.

(2015), and lastly, revisit intention scales were adapted from Nguyen Viet et al. (2020). The measurement instruments demonstrated strong reliability, with Cronbach's alpha values ranging from .85 to .96. All items were assessed using a seven-point Likert scale, anchored from "strongly disagree" (1) to "strongly agree" (7), following a seven-point bipolar format. Independent samples t-Test were used to test Hypothesis 1 and Multiple regression test was used to test Hypotheses 2 – 5.

4. Results

From the 150 questionnaires emailed to the sample group, after 2 following up emails, 124 responses were received. Among them, 113 were fully completed (91%), while 11 were incomplete or failed the screening question (9%) and were removed from the analysis. Therefore, only a total of 113 valid responses were analyzed. Regarding gender, slightly more than half of the participants were male (50.4%), followed by females (46.0%), while 3.5% preferred not to identify their gender. In terms of age distribution, most respondents were between 31–40 years (29.2%) and 41–50 years (29.2%). Participants aged 51–60 and those above 60 years each accounted for 17.7% of the sample, whereas only 6.2% were 30 years old or younger. The participants consist of 29 nationalities and the majority of them were Chinese (11.5%), followed by the USA (9.7%), and Hong Kong and British (8.0% each). This demographic profile suggests that the majority of spa customers in this study were mature adults within the 31–50 age range, indicating that midlife consumers constitute a significant segment of the spa market.

Table 1: Sample Characteristics

Gender	n	%
Male	57	50.4
Female	52	46.0
Prefer not to say	4	3.5
Age	**n**	**%**
Equal or less than 30	7	6.2
31 - 40	33	29.2
41 - 50	33	29.2
51 - 60	20	17.7
Above 60	20	17.7
Service Used	**n**	**%**
Single service	43	38.1
Multiple services	70	61.9

Nationalities (top 10)	n	%
Chinese	13	11.5
USA	11	9.7
Hong Kong	9	8.0
British	9	8.0
Japan	7	6.2
Francaise	7	6.2
Australian	6	5.3
Canadian	6	5.3
Myanmar	6	5.3
Cambodian	4	3.5

An independent samples t-test was conducted to compare perceived wellness value between spa customers who received a single service and those who used a variety of services. Prior to analysis, assumptions of normality and homogeneity of variances were assessed. Levene's test for equality of variances indicated a significant difference in variances between groups ($F = 16.309$, $p < .001$), suggesting that equal variances could not be assumed. Therefore, the t-test results for unequal variances were reported. The results revealed a significant difference in perceived wellness value between the two groups, $t(59.86) = –5.02$, $p < .001$. Participants who experienced a variety of spa services ($M = 5.94$, $SD = 0.66$) reported a higher level of perceived wellness value compared to those who received a single service ($M = 4.99$, $SD = 1.13$). The mean difference of –0.95 (95%) indicates a large and meaningful effect, suggesting that customers who enjoy a range of spa services perceive greater overall wellness benefits.

Table 2: Results of the independent samples test.

		Levene's Test		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
Wellness Value	Equal variances assumed	16.309	.000	-5.655	111	.000
	Equal variances not assumed			-5.020	59.858	.000

A multiple regression analysis was conducted to examine the influence of service types satisfaction, ambience, and relaxation on tourists' perceived wellness value. The model was statistically significant, $F(3,109) = 127.68$, $p<.001$ indicating that the independent variables collectively explained a substantial proportion of variance in perceived wellness value. The overall model demonstrated a strong predictive power with an $R=.882$ and $R^2=.778$, suggesting that approximately 77.8% of the variance in perceived wellness value was accounted for by the predictors.

Table 3: Results of the multiple regression analysis.

Model		Beta	t	Sig.
1	(Constant)		-5.002	0
	Service Types Satisfaction	0.144	1.944	0.055
	Ambience	0.278	4.525	0
	Relaxation	0.559	7.81	0

a. Dependent Variable: Wellness value

Model		Beta	t	Sig.
1	(Constant)		-5.51	0
	Wellness Value	0.848	16.883	0

a. Dependent Variable: Revisit intention

As shown in Table 3, relaxation ($\beta=.559$, $t=7.81$, $p<.001$) and ambience ($\beta=.278$, $t=4.53$, $p<.001$) exerted significant positive effects on perceived wellness value. In contrast, service satisfaction ($\beta=.144$, $t=1.94$, $p=.055$) showed a marginal effect, indicating that while it contributes to wellness perception, its influence is weaker compared to relaxation and ambience. Lastly, a simple linear regression was conducted to examine the effect of perceived wellness value on tourists' intention to revisit the spa. The model was statistically significant, $F(1, 111) = 285.04$, $p < .001$, and explained approximately 72.0% of the variance in revisit intention ($R^2 = .72$, Adjusted $R^2 = .717$). The results revealed a strong positive relationship between perceived wellness value and revisit intention ($\beta = .848$, $t = 16.88$, $p < .001$).

5. Discussion

The findings confirm that perceived wellness value significantly predicts tourists' intention to revisit a spa, aligning with prior studies highlighting perceived value as a key driver of loyalty in wellness tourism (Ahn and Back, 2019; Suban, 2025). Tourists who used a variety of services reported higher wellness value than those using a single service, supporting the idea that diverse offerings enhance perceived benefits through greater value co-creation (Buxton and Michopoulou, 2021). Moreover, tourists who used multiple services at a spa can spend longer time at the spa, absorbing the longer holistic ambience regaining vitality, and resulting in perceiving more wellness value of the spa.

Regression results indicate that ambience and relaxation were the strongest predictors of perceived wellness value, while service satisfaction had only a marginal effect. This emphasizes that emotional and sensory experiences, rather than functional quality alone, shape tourists' perceptions of well-being. The results reinforce the view that multisensory ambience—through scent, lighting, and sound—elicits psychological comfort and wellness (Cauchi and Falzon, 2023; Li, 2021). Relaxation, the most influential factor, confirms earlier findings that stress relief and emotional balance are central to spa experiences (Loureiro et al., 2013; Sansiriphun et al., 2023).

Finally, the strong link between perceived wellness value and revisit intention echoes previous studies showing that emotional and sensory fulfillment drive customer loyalty (Huang et al., 2019; Seow et al., 2024). Overall, these results demonstrate that wellness value is a multidimensional construct shaped by ambience, relaxation, and service variety. Spas that design holistic, multisensory experiences can enhance customer well-being and sustain long-term loyalty.

6. Implications

This study advances understanding and offers implications on two fronts. For theoretical Implications, this study enhances the understanding of wellness tourism by confirming that perceived wellness value mediates the link between spa experience attributes and behavioral intention. The results reinforce the holistic perspective of wellness value as a multidimensional construct combining physical, emotional, and sensory dimensions (Dini and Pencarelli, 2022). By identifying ambience and relaxation as dominant predictors, the study supports the servicescape framework emphasizing multisensory environments as determinants of perceived well-being

(Valente-Pedro et al., 2025). Moreover, the significant effect of service variety extends the value co-creation concept (Buxton and Michopoulou, 2021), showing that diverse service options enable guests to build personalized wellness experiences. These findings validate perceived wellness value as a robust predictor of revisit intention in Asian spa contexts, thereby broadening the generalizability of wellness value theory.

For practitioners, the findings highlight that ambience and relaxation are stronger drivers of wellness perception than service satisfaction. Spa managers should prioritize sensory design—lighting, aroma, and music—to evoke calmness and psychological comfort (Cauchi and Falzon, 2023). Offering customizable service packages and varied treatments can enhance perceived value and customer engagement in fact, instead of marketing individual treatments, managers may adopt comprehensive bundle promotions as a core strategy. For example, managers can offer promotions such as "buy one treatment, get one free," or set the price of a single treatment slightly higher to encourage customers to purchase two treatments at a marginally higher—or even the same—cost as one. Since operational quality alone has limited impact, managers should also emphasize emotional differentiation and authentic Thai service rituals (Sangpikul, 2023). Finally, reinforcing post-visit relationships through loyalty programs or wellness memberships can convert perceived wellness value into repeat patronage and positive word-of-mouth.

7. Limitations and Future Research

Although this study provides valuable insights into wellness tourism behavior, several limitations should be acknowledged. First, the data were collected from a single spa chain in Bangkok, which may limit the generalizability of findings to other cultural or service contexts. Future studies should examine diverse spa settings or cross-country samples to validate the model across regions. Second, the study employed a quantitative cross-sectional design, which restricts causal interpretation. Longitudinal or mixed-method approaches could better capture changes in wellness perceptions over time. Third, additional psychological factors such as mindfulness, emotional attachment, or destination image could be explored as mediators or moderators to extend the current model. Future research might also compare pre- and post-experience evaluations to measure shifts in perceived wellness value more precisely.

8. Conclusion

This study confirms that perceived wellness value is a pivotal factor influencing tourists' intention to revisit spas. Among the key predictors, ambience and relaxation exert the strongest effects, while service satisfaction contributes marginally. Tourists who experienced a variety of services perceived greater wellness value than those using a single service, highlighting the importance of diverse and sensory-rich offerings. These findings highlight that wellness experiences are holistic, encompassing emotional, physical, and environmental dimensions. For spa operators, designing immersive ambience and relaxation-focused treatments can enhance perceived value and long-term loyalty. By empirically validating the central role of perceived wellness value in the Thai spa context, this study advances wellness tourism literature and provides a foundation for comparative research across global destinations.

Ethical and AI Clarification

The IRB, approval no. SIU/FOM 098-2025, granted a waiver of written consent for this minimal-risk, anonymous survey; proceeding past the information page constituted informed consent. The authors used ChatGPT to **s**ummarize personal reading notes and filter articles in Google Scholar to study. All text in the submitted manuscript was written and verified by the authors. AI-generated text was not directly inserted without substantial human revision and fact-checking.

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Regenerative Wellbeing in Arctic Tourism: Sense of Place and Community Resilience

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Abstract: As Arctic and sub-Arctic destinations face increasing environmental, climatic, and social pressures, the tourism sector is being reimagined as a regenerative system that restores both human and ecological well-being. Tourism no longer serves just as an economic driver but as a catalyst for community resilience, cultural continuity, and care for the environment. This paper examines how nature-based and community-driven tourism in Iceland and Finnish Lapland cultivates resilience through a shared sense of place and explores how wellbeing can emerge as a collective, place-based achievement. Drawing on comparative qualitative research involving tourism organisations from Iceland and Lapland, the study investigates how tourism organisations embed local values, environmental respect, and care for people and place within their daily operations. The analysis highlights that the natural environment functions not only as the leading tourism attraction but also as a psychological, social, and cultural (re-)source for employees and residents. In both regions, connection with nature strengthens emotional resilience, job satisfaction, and commitment to sustainable practices, while also reinforcing a deeper understanding of Arctic fragility and interdependence. Leaders who integrate empathy, learning, and trust into their management styles promote supportive, value-driven workplaces that mirror the patterns of local settings. Community collaboration, storytelling, and shared outdoor experiences enhance belonging and stability, transforming tourism from seasonal employment into participation in living cultural ecosystems. The research demonstrates that regenerative wellbeing in tourism emerges when organisations align their operations with the ecological and cultural identity of their environment. In Iceland, this manifests through locally rooted entrepreneurship and community stewardship; in Lapland, through multicultural collaboration and a shared Arctic identity constructed through work in extreme environments. Both regions illustrate how tourism can move beyond sustainability toward the active renewal of ecosystems, cultural heritage, and human connection. By situating the sense of place and well-being at the centre of regenerative tourism, the paper contributes a framework linking leadership, culture, and community resilience.

Keywords: Regenerative Tourism; Arctic Wellbeing; Sense of Place; Community Resilience; Nature-based Tourism

1. Introduction

Tourism has become one of the most significant economic and cultural drivers shaping the Arctic and North Atlantic regions over the past two decades. In countries such as Iceland and Finland, particularly in the Lapland area, tourism represents not only a vital source of employment and innovation but also a complex field of social transformation (Saarinen 2013; Helgadóttir et al. 2019). For small rural and coastal communities, the expansion of nature-based and experiential tourism has created new opportunities to diversify income and foster entrepreneurship. However, it has also generated challenges linked to seasonality, workforce instability, housing shortages due to increased workforce, and environmental tensions. In both regions, the North of Iceland and Lapland, these dynamics are particularly evident because of their peripheral location, climatic and weather extremes, and dependency on seasonal flows of visitors. In Iceland, most tourists visit in the summer months; however, in Lapland, winter is the primary peak season for foreign tourists. As studies have shown, the success of tourism in such environments depends not only on infrastructure and marketing but on the social and emotional resilience of the people and organisations that sustain it (Sheppard & Williams 2016).

Against this backdrop, understanding how communities and tourism organisations adapt to changing conditions while maintaining their social and cultural integrity has become a central question in sustainable Arctic and sub-Arctic development. One key concept that helps explain this process is the *sense of place*: the emotional, symbolic, and functional connection between people and their environment (Relph 1976). In tourism contexts, the sense of place goes beyond the physical setting to include values, identities, and traditions that outline how people live, work, and interpret value in specific environments. It is through these place-based connections that residents, employees, and visitors co-create a destination's identity and authenticity (Lew 2014; Stedman 2003). In the Arctic, where jobs and survival have long depended on a profound interrelationship with the environment, a sense of place becomes a foundation of both cultural stability and resilience (Bærenholdt, Haldrup, and Urry 2004).

The notion of sense of place also offers a valuable framework for linking social sustainability with tourism management and leadership. As tourism expands into fragile and remote regions, maintaining the emotional and ethical connection between people and place becomes crucial to ensuring that development aligns with

community values rather than undermining them (Yanan, Ismail, and Aminuddin 2024). Within this study, sense of place is understood as the integration of cultural identity, environmental respect, and social belonging that shapes how tourism organisation's function and adapt. This approach highlights the human factor in sustainability, i.e., how emotional connection, pride, and shared responsibility translate into daily practices that support long-term well-being and, in turn, sustain the natural environment (Wu 2013).

At the same time, resilience has emerged as a key concept in understanding how tourism systems adapt to uncertainty and change. Resilience refers to the capacity of individuals, organisations, and communities to respond to instability and conflicts while maintaining critical functions and identity (Magis 2010; Berkes & Ross 2013). In Arctic tourism, resilience manifests not only in the ability to cope with environmental shocks and market fluctuations but also in the strength of social networks, leadership, and learning cultures that allow organisations to thrive under pressure. This study identified several factors that contribute to resilience in remote tourism work: flexibility in staffing and operations, the use of nature as a source of well-being, strong community ties that respond to isolation, and opportunities for continuous learning and skill development.

The contexts of Iceland and Lapland offer complementary perspectives on how the sense of place and resilience interact in Arctic tourism. Although both Iceland and Lapland have been widely studied in relation to tourism growth and sustainability, less attention has been paid to how a sense of place translates into organisational and leadership practices that foster resilience and employee well-being. Existing research often treats sense of place as a cultural or geographic phenomenon and resilience as an economic or ecological one, scanning their interconnection at the level of daily organisational life (Lundmark & Müller 2010). This article addresses that gap by examining how tourism companies in Iceland and Lapland integrate cultural identity, environmental respect, and social well-being into their human resource and leadership practices.

Three research questions guide the study:

1. How do tourism organisations in Iceland and Lapland embed a sense of place in their operations and leadership practices?
2. How does this integration influence employee well-being and organisational resilience?
3. What lessons can small rural communities draw for value-driven and regenerative tourism development in Arctic and sub-Arctic regions?

By comparing the Icelandic and Lapland cases, this paper seeks to demonstrate that resilience in Arctic tourism is deeply rooted in a sense of place expressed through care for nature, commitment to community, and leadership that emphasizes trust, empathy, and learning. The findings aim to contribute to broader debates on sustainable and regenerative tourism by showing how place-based values can guide the transformation of tourism from a seasonal economic activity into a long-term, community-centred practice that enhances both livelihoods and local pride.

2. Theoretical Framework

2.1 Sense of Place and Cultural Identity

The concept of *sense of place* has its origins in human geography and environmental psychology. It refers to the affective and cognitive ties that connect people to specific environments and fill them with meaning (Relph 1976). These bonds are not entirely emotional; they shape how individuals and groups perceive, inhabit, and act within their surroundings. Scholars such as Stedman (2003) have distinguished between *place attachment*: the emotional connection to a location, and *place meaning*, which captures the symbolic and cultural significance assigned to it. Together, these dimensions form a foundation for place-based identity and belonging.

In the context of tourism, the *sense of place* serves a dual function. On one hand, it contributes to destination authenticity, shaping how visitors experience and value a location (Lew 2014; Raymond, Giusti, and Barthel 2018). On the other hand, it influences how local communities and tourism workers construct and sustain their identities within dynamic, often globalized tourism systems. For Arctic and sub-Arctic regions, where natural landscapes are closely tied to cultural identity and employment, a sense of place carries a deep ethical dimension. As Bærenholdt, Haldrup, and Urry (2014) argue, place is "performed" through everyday practices that sustain community life and connect cultural traditions with care for the environment.

The *sense of place* perspective highlights that sustainable tourism development cannot be separated from the lived experiences of residents and workers. In small, remote communities in Iceland and Lapland, it manifests

through practices of storytelling, hospitality, and respect for nature; values that align closely with Nordic and Arctic traditions of coexistence with the environment (Oslund 2011). These affective connections to place help tourism organisations preserve authenticity while likewise steering pressures of global tourism, labour mobility, and environmental change. Thus, a *sense of place* serves not only as an emotional but also as a managerial and strategic resource in building community and organisational resilience.

2.2 Community Resilience in Peripheral Tourism Regions

The concept of *resilience* originated in ecological systems theory (Folke 2006) and has since been applied to social and community contexts. It refers to the ability of a system, whether ecological, social, or organisational, to absorb upsets and adapt while maintaining its vital structure and function (Magis 2010; Berkes & Ross 2013). In tourism studies, resilience describes how destinations respond to external pressures, such as seasonality, crises (e.g., COVID-19), labour fluctuations, and climate change (Lew 2014). However, recent work emphasizes that resilience is not simply about recovery from interruption, but about learning, transformation, and the creation of new routes for sustainability (Biggs, Hall, and Stoeckl 2012).

For peripheral and rural Arctic and sub-Arctic communities, resilience is deeply connected with *social capital*, the networks of trust, collaboration, and mutual support that facilitate collective action (Magis 2010). Berkes and Ross (2013) describe community resilience as a dynamic process built through *learning to live with change*, *fostering social networks*, and *building a shared sense of identity and purpose*. In Icelandic and Lapland contexts, these principles are evident in how tourism organisations and communities collaborate to sustain year-round employment.

Research in Arctic regions suggests that resilience is enhanced when local actors retain control over tourism development, when knowledge is shared across generations, and when the social composition of communities remains strong (Saarinen 2013). This research study identified similar mechanisms: flexible human resource practices, community-based collaboration, and the integration of nature into well-being strategies. These practices mirror what Berkes and Ross (2013) term *psychological and social resilience*, where belonging, trust, and shared learning help communities adapt without losing their identity.

For tourism companies, resilience therefore extends beyond economic adaptability to include *organisational culture*, *leadership style*, and *employee well-being*. Leaders who foster belonging, purpose, and learning within teams strengthen both individual and collective resilience; an approach especially critical in geographically isolated settings such as the Arctic.

2.3 Regenerative and Value-driven Tourism

Over the past decade, the dialogue on sustainability in tourism has evolved toward regenerative tourism, which emphasizes restoring ecosystems, cultures, and communities rather than just minimizing damage (Dredge 2022). However, central sustainability paradigms in tourism have also been criticised for remaining largely incremental; often emphasising harm reduction, compliance, and managerial control, while leaving growth reasoning and other socio-ecological relations largely undiscussed (Cave 2022). Within current scholarly debates, regenerative tourism has been framed by some as a substantive advance grounded in living-systems thinking and reciprocal human–nature relations, yet it has also been questioned as a potential rebranding of sustainability if it remains a rhetorical label without conceptual rigour or operational clarity (Becken & Kaur 2022; Cave 2022). To address this tension, we treat “regeneration” as more than improved sustainability performance: in this study, it means place-grounded practices that actively contribute to renewal (i.e., ecological, cultural, and social) and can be seen in organisational routines, relationships, and decision-making (Becken & Kaur 2022).

Regenerative tourism positions destinations as living systems in which human and environmental well-being are interdependent. This model aligns closely with the values rooted in Arctic communities, where nature and culture have historically been seen as inseparable. In practice, regenerative tourism involves co-creation among residents, tourism workers, and visitors, grounded in a shared sense of place. The approach values knowledge embedded in local culture, traditional livelihoods, and indigenous practices (Berkes & Folke 2000). In both Iceland and Lapland, regenerative principles are reflected in initiatives that prioritize environmental stewardship, local food systems, and cultural storytelling within the visitor experience. We therefore discuss such initiatives as “regenerative” only where they demonstrate a realistic purpose to restore and strengthen local socio-ecological relationships, rather than minimise negative impacts. These practices not only enhance visitor satisfaction but also contribute to social and ecological renewal by reinforcing local identity and pride.

From an organisational perspective, regenerative tourism requires leadership that goes beyond profit-driven management. It calls for ethical decision-making, participatory governance, and the encouragement of relationships that sustain community well-being (Farrell & Twining-Ward 2004). This responds to recurring critiques that "sustainability" can remain an ambition unless it is translated into accountable practices and shared values within organisational cultures and leadership routines (Cave 2022). Such value-driven leadership is particularly relevant in small Arctic organisations, where community, environment, and business often overlap.

3. Methodology

3.1 Research Design

This study adopted a comparative qualitative case study design (Yin 2018) to examine how tourism companies in Iceland and Finnish Lapland integrate a *sense of place* and *community resilience* into their daily operations, leadership, and human resource practices. The comparative approach was chosen to explore both shared and context-specific strategies across two Arctic/sub-Arctic regions that, while geographically distinct, face similar challenges: strong seasonality, remoteness, labour shortages, a mostly foreign workforce, and, as a result, the need to sustain well-being and authenticity in tourism-dependent communities. The study followed an interpretivist paradigm, emphasizing how participants construct meaning from their lived experiences and relationships with place (Creswell & Poth 2018). This approach is particularly suitable for Arctic and rural research contexts, where human-environment interactions and local knowledge are central to understanding social and organisational dynamics (Saarinen 2013).

3.2 Case Selection and Data Collection

Two regional cases were selected to reflect different but complementary models of Arctic tourism development. The Icelandic part of the study focuses on tourism and hospitality companies located in remote coastal and rural areas in the North and South of the country. These companies were purposefully selected because they are actively engaged in sustainable tourism, invest in staff training, and maintain close collaboration with their local communities. The sample includes a mix of small accommodation providers, adventure and wellness tourism operators, and rural hospitality businesses.

The Lapland case is centred on a large Arctic resort. This resort operates in a highly international and strongly seasonal tourism environment and serves as a representative example of multicultural, globally oriented Arctic tourism. Its workforce includes a high proportion of seasonal and international employees working across accommodation, activities, and guest services. The case highlights key challenges typical for the region, including employee retention, cultural integration in diverse teams, and the ongoing need to balance rapid tourism growth with social and environmental sustainability in a fragile Arctic landscape.

The combination of these two settings enabled an exploration of *how place-based values are enacted in different organisational forms*: locally embedded versus globally networked, and how they influence resilience at both individual and community levels. First, semi-structured interviews were conducted in Iceland with managers, supervisors, and long-term staff members across several participating companies. These interviews explored perceptions of place and identity, leadership and well-being practices, and strategies for coping with seasonality and remoteness. Second, for the Lapland case, thematic qualitative materials from a series of field-based research reports were analysed. These reports included interviews, workplace observations, and reflections on leadership, diversity, and employee experiences within a large Arctic resort. They were selected because they offer rich, situated insights into the lived realities of multicultural tourism work and leadership in a highly seasonal and international context. Finally, supplementary documents, including company websites, social media communications, sustainability strategies, and staff training materials, were reviewed to contextualise organisational practices and regional conditions. All data were collected and analysed in accordance with ethical guidelines, and the anonymity of individuals and organisations was fully preserved.

The analysis followed a thematic analysis approach (Braun & Clarke 2006), combining both inductive and deductive coding.

Three overarching themes were identified:

- Nature as a Resource for Well-being and Resilience
- Belonging and Social Cohesion
- Supportive Leadership and Learning

These themes structure the findings section (Section 4) and serve as the basis for the comparative discussion between the Icelandic and Lapland contexts.

4. Findings

The findings are structured around three interconnected themes that emerged from the comparative analysis. Together, these themes reveal how a *sense of place* operates as both an emotional and organisational resource in Arctic and sub-Arctic tourism, influencing how employees experience their work, how leaders shape motivation and cohesion, and how communities sustain themselves within fast tourism growth and seasonal fluctuations.

4.1 Nature as a Resource for Well-being and Resilience

Across Iceland and Lapland, nature was described not only as the foundation of the tourism experience and the overall business, but also as an everyday (re-)source that shapes work routines, motivation, and emotional balance. Although the landscapes differ visually, employees in both regions work under relatively similar environmental conditions: strong seasonality, rapidly changing weather, long periods of darkness or low light in winter, cold, and long winter months, yet they are also very close to nature and remote. These shared features make nature an active part of everyday working life.

In Iceland, participants highlighted how immersion in the landscape supports resilience and helps them cope with seasonal demands. Stepping outside was seen as essential for "resetting" during long shifts. Nature was fully integrated into daily rhythms rather than treated as something separate. Staff often described a fluid boundary between the workplace and the surrounding environment and frequently referred to their role as "showing others our home," reflecting strong place attachment and pride.

In Lapland, employees expressed views very similar to those in other regions. Daily work was shaped by snow, silence, cold, and limited daylight during winter, which required continuous adaptation and awareness. Staff explained that working outdoors, preparing winter activities, or simply moving around the resort helped them stay grounded and focused. Nature-based routines, such as short outdoor breaks, aurora viewing, or shared sauna sessions, played an important role in reducing stress and fostering structure within a multicultural workforce.

Across both regions, nature acted as a stabilising force during demanding periods. Employees repeatedly described feeling calmer, more balanced, and more connected when they could integrate nature into their workday. Whether through briefly stepping outside, working in natural settings, or sharing experiences linked to the landscape, nature functioned as a buffer against fatigue, isolation, and seasonal pressure. This direct, everyday engagement with the environment contributed to well-being, motivation, and a sense of purpose in remote tourism settings.

4.2 Belonging and Social Cohesion

The second theme highlights the importance of social ties and shared commitment. In Iceland, tourism companies often operate within small, interdependent communities where professional and personal relationships overlap. Employers and employees frequently described their business as "extended families." Participants repeatedly emphasised teamwork, mutual support, and the feeling that "people look out for each other." Staff often relied on colleagues and the broader community for practical help, emotional support, and problem-solving during busy or challenging periods. This sense of belonging contributed to strong loyalty and long-term commitment.

In Lapland, community ties were more complex due to the highly international, seasonal, and diverse workforce. Resorts, such as in the case study, employ staff from more than 10 nationalities, many on short-term contracts, who want to stay for a few months to experience the Finnish winter. Managers and employees therefore emphasized the importance of deliberately building "micro-communities", for example, through shared housing groups, team gatherings, shared hobbies and activities, as well as shared meals, informal social events, cultural exchange, and support for newcomers adjusting to Arctic conditions. Community in Lapland thus takes a constructed rather than pre-existing form. It relies on intentional social design and leadership support, with social connection helping employees cope with long shifts, remoteness, and cultural differences, and ultimately contributing to a strong sense of "being part of something," higher job satisfaction, and better performance.

Despite different contexts, both cases demonstrate that resilience is strengthened when employees feel included, supported, and socially connected. Belonging reduces turnover, increases teamwork, and helps staff cope with the physical and emotional demands of Arctic tourism, especially during the winter season.

4.3 Supportive Leadership and Learning

The third theme concerns leadership behaviours and opportunities for learning. In the Icelandic companies, leadership was described as hands-on, approachable, and based on trust. Managers often worked alongside staff and maintained open communication. Employees valued leaders who understood the realities of remote tourism work and who supported them during high season, unexpected events, or long work periods.

In Lapland, leadership played a central role in helping a multicultural workforce navigate seasonal work, extreme weather, and intense guest demand. Leaders focused on clear instructions, patience, and ensuring that international staff felt safe and informed. Guiding local customs, Arctic weather, and daily routines was significant. Staff described feeling more confident and integrated when supervisors created structure and encouraged teamwork.

Learning, both formal and informal, also contributed to resilience. In Iceland, employees often learned about local culture, nature, and hospitality through experience and mentorship. In Lapland, learning was more focused on adaptation, i.e., understanding how to operate safely and effectively in Arctic conditions and in diverse teams.

Across both cases, leadership that emphasised support, clarity, and fairness had a direct impact on wellbeing and performance. Learning helped staff feel more capable, settled, and confident.

5. Discussion

Taken together, the themes show that *sense of place* in Arctic tourism is not a fixed cultural trait, but a dynamic relationship between people, organisations, and landscapes. Employees and managers in both Iceland and Lapland draw extensively on their immediate environment, i.e., harsh weather, different seasons, remoteness, and daily contact with nature, as an ongoing source of stability, motivation, and shared purpose. Nature becomes part of the work rhythm, not a conceptual setting. This supports the argument that sense of place is shaped by continuous interaction between people and their surroundings, rather than by cultural tradition alone.

Although the two cases differ: local rootedness and community continuity in Iceland, multicultural teamwork and higher seasonal adaptation in Lapland, both rely on similar mechanisms. Nature provides a daily basis, but also regeneration; social connection creates an emotional structure; learning and leadership translate values into practice; and shared identity establishes organisational stability. These mechanisms highlight that resilience in Arctic tourism is interactive, emerging from everyday practices that connect employees to place and to one another.

The findings also show that a sense of place is both inherited and created. In Iceland, it grows from long-standing community ties and the overlap between work, life, and nature. In Lapland, place identity develops through shared environmental experiences, team practices, and leadership support that helps international staff “learn” the Arctic. Both contexts demonstrate that organisations can actively cultivate place-based attachment as a resilience strategy through inclusive leadership, nature-based routines, and opportunities for connection.

Leadership plays a central role in this process. Supportive managers who emphasise trust, fairness, and clear communication help staff navigate demanding conditions and cultural diversity. Leaders facilitate the relationship between people and place: they set nature as a resource, give the tone for community, and create space and time for learning. This extends existing leadership models by showing that effective leadership in Arctic tourism requires ecological awareness and sensitivity to local or multicultural contexts.

The findings challenge narrow views of sustainable tourism focused mainly on environmental management. Instead, they support a more regenerative perspective, where well-being, cultural continuity, and care for place are understood as core elements of long-term sustainability. Resilient tourism in the Arctic is not achieved through infrastructure alone, but through strengthening the social and emotional ties that make employees feel connected, capable, and part of a living community.

To make the study’s theoretical contribution explicit, we synthesised the findings into the *Place-Based Regenerative Resilience Framework,* which links leadership practices, organisational culture, and community resilience through a sense of place. The framework proposes that (1) leadership enables regenerative routines

(e.g., trust, learning, and care for people and environment), (2) these routines shape an organisational culture of belonging and meaning, and (3) culture strengthens community resilience through collaboration, identity continuity, and place stewardship (Figure 1).

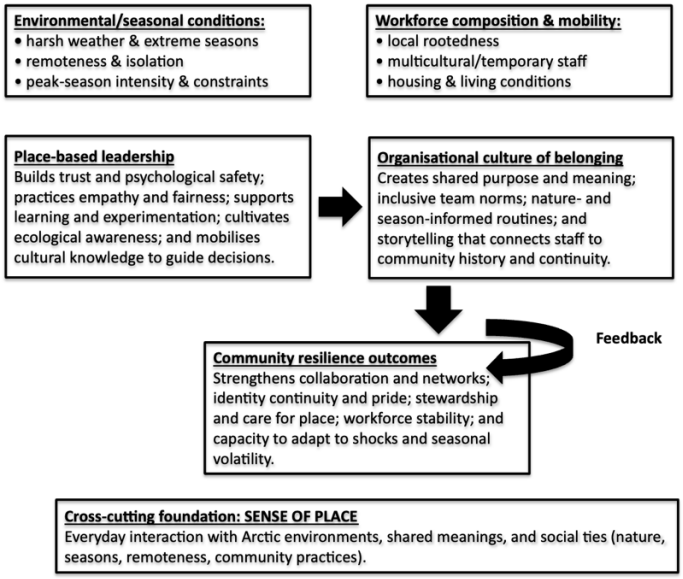


Figure 1: Place-Based Regenerative Resilience Framework

6. Conclusion and Practical Implications

This study shows that in both Iceland and Finnish Lapland, a sense of place is not a decorative element of tourism but a central force shaping how people work, team up, and cope with the demands of remote, seasonal environments. Nature, community, and supportive leadership together create the social and emotional grounds that emphasize employee wellbeing and organisational resilience. Whether rooted in long-standing local traditions, as in Iceland, or constructed through multicultural collaboration, as in Lapland, place-based relationships give tourism work meaning and stability. These findings suggest that Arctic tourism can become more sustainable not through infrastructure alone but by strengthening everyday ties among people, culture, and nature. Building on this, our *Place-Based Regenerative Resilience Framework* specifies what is novel in the move from "sustainability" to "regeneration": it shifts attention from impact mitigation toward the everyday organisational mechanisms through which tourism can actively renew socio-ecological relationships, by leadership, culture, and community collaboration grounded in a sense of place (Figure 1).

The results offer several practical implications. For tourism organisations, staff introductions and training should include place-based orientation to local culture, nature, and traditions, helping seasonal and international employees integrate and adapt more quickly. Nature-based wellbeing practices such as outdoor breaks or shared experiences in natural settings can reduce stress and strengthen team cohesion. Peer-mentoring systems and leadership training that emphasise empathy, cultural sensitivity, and environmental awareness further support belonging and performance. Creating simple community rituals, whether shared meals, taking part in local traditions such as sauna or sea bathing, or seasonal gatherings, helps foster connection in demanding working conditions.

For regional development actors, the findings highlight the importance of social infrastructure. Affordable seasonal housing and stable living arrangements underpin workforce retention and community integration. Public support for place-based training programmes and micro-credentials in Arctic hospitality, wellbeing, and cultural literacy can strengthen local skill development. Recognising tourism workers as contributors to community life and elevating local knowledge, storytelling, and cultural heritage within regional strategies can thereby reinforce the link between tourism and community wellbeing.

For researchers, the study points to the value of field-based Arctic learning models and the need for continued research on multicultural identity formation, workforce experiences, and regenerative wellbeing. Developing metrics that capture place-based wellbeing, community cohesion, and local value creation would allow destinations to evaluate sustainability beyond visitor numbers and revenue.

Overall, the study demonstrates that in Iceland and Lapland, place is not a setting; it is an active participant in tourism. Resilience grows when organisations and communities recognise this relationship and invest in belonging, identity, and care for place. Strengthening these connections offers a pathway toward a more regenerative and socially grounded future for Arctic and sub-Arctic tourism.

Ethics Declaration

Personal and organisational identities have been anonymised. No additional ethical issues arose during this research.

AI Declaration

ChatGPT 5.1 and Grammarly were used as writing aids for thesaurus-style word choice, grammar improvement, and occasional rephrasing.

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Strategic Decision-making in Tourism, Events, and Hospitality SMEs: A Scoping Review

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Abstract: This study explores how strategic decision-making (SDM) is addressed in tourism, events, and hospitality research and how contextual factors shape the understanding of strategy. While strategy remains a recurring topic in the field, only limited attention has been given to explaining how strategic decisions are actually formed, negotiated, and realised in practice. Drawing on the strategic management literature (Mintzberg, 1987; Eisenhardt, 1999; Elbanna et al, 2020), strategy is here conceptualised as a contextually embedded and iterative decision process rather than a fixed plan or analytical outcome. The aim is to identify how SDM appears in recent strategy-labelled studies and what kinds of contextual assumptions guide its interpretation. A scoping review framework (Arksey and O'Malley, 2005; Peters et al, 2020) was applied to map the fragmented research landscape and clarify how SDM has been implicitly examined across the tourism and hospitality domains. A total of 183 peer-reviewed articles published between 2020 and 2025 in 15 SJR-ranked journals were systematically reviewed. The analytical framework consisted of three tiers: SDM types (deliberate, emergent, reactive), approaches to uncertainty, and decision-making contexts. This design enabled a structured synthesis of conceptual emphases and revealed how different streams of literature define and position strategy and decision-making under uncertainty. The findings indicate that strategy is mainly understood as an organisational activity with a short-term, operational orientation. Uncertainty is often considered a controllable variable rather than an inherent and generative aspect of strategic behaviour. Small and medium-sized enterprises, despite their centrality to the sector, are commonly described as reactive instead of proactive decision-makers. Digital, hybrid, and data-driven contexts remain underexplored, indicating a conceptual gap in understanding how strategic choices are shaped in service-oriented environments. The study contributes to the strategic management discourse by systematising how SDM has been studied in recent tourism and hospitality research and by identifying directions for future studies focusing on context, uncertainty, and strategic decision-making processes in dynamic service settings.

Keywords: Scoping Review, Strategy, Strategic Decision-making, Context

1. Introduction

The tourism, events, and hospitality industries have undergone rapid and unpredictable changes in recent years. Many organisations have had to make high-risk decisions to adapt their operations. Alongside these changes, organisations operate in an environment of tightening sustainability requirements, increasing climate awareness, and changing customer expectations (Seidel et al, 2021; Salem et al, 2023). The short-term changes and long-term trends have challenged established business models and forced organisations to reconsider their strategies.

Strategic decision-making (SDM) refers to the process through which organisations define, evaluate, and implement strategic choices in uncertain environments (Mintzberg, 1987; Shepherd and Rudd, 2014). SDM has received limited attention in tourism, events, and hospitality research. Previous reviews in the field (e.g., Aladag, 2020; Okumus et al, 2020; Köseoglu et al, 2019) have studied the development of strategy research broadly and noted that the field tends to approach strategy as an outcome or a static state rather than as a dynamic process. As a result, understanding of mechanisms and contexts shaping strategic action remains fragmented.

SMEs are central to the transformation of the tourism, events, and hospitality sectors, yet research on their strategic activity also remains limited. Their flexibility and resilience have been particularly important, as SMEs form the backbone of the industry (Asthana, 2022). SDM often occurs in real time, with limited information and a strong reliance on managerial judgement (Elbanna et al, 2022). These conditions make SMEs an interesting context for examining how contextual factors shape the ways strategies develop.

The main objective of this study is to explore how SDM and its contextual settings are addressed in tourism, events, and hospitality management research, based on recent strategy-labelled publications (2020–2025).

Research question: *How is SDM described, and what contextual settings can be identified in strategy-labelled publications in tourism, events, and hospitality management research?*

The study employs a scoping review approach suitable for mapping fragmented research (Arksey & O'Malley, 2005; Peters et al, 2020). Its purpose is to clarify how SDM is implicitly addressed in strategy research within the tourism, events, and hospitality sectors. By focusing on studies where SDM is present but not explicitly defined, the review reveals how strategic decisions are interpreted in practice and how this implicit focus shapes the understanding of strategy formation in the field.

2. Research Background

Recent work in strategy research (Jarzabkowski et al, 2025) emphasizes dynamic and contextually embedded understanding over earlier static orientations. Strategy is an ongoing, situated activity rather than a fixed plan. Mintzberg (1987) distinguished between intended, deliberate, emergent, and realized strategies, arguing that strategy forms as an evolving pattern through organizational actions rather than solely through planning. Realized strategy represents the cumulative outcome of these processes, often diverging from original intentions.

From a practice-based perspective, Jarzabkowski (2005) defines strategy as "a pattern in a stream of goal-directed activity over time," identifying strategizing practices as institutionalized routines through which strategic conduct is reproduced and adapted. Later studies further develop this socially enacted view by highlighting the interplay of actors, practices, and context (Hautz, Seidl, & Whittington, 2017; Jarzabkowski et al, 2025). Also in research, strategy should not be viewed as a stable or objective construct but rather as a continuous process of meaning-making. It remains under construction as actors interpret and respond to situated contexts (Suchman, 1987).

Collis and Rukstad (2008) propose an instrumental framework in which effective strategy articulates three elements: objective (ends), scope (domain), and advantage (means). This model positions strategy as a concise structure linking intent, focus, and capability. Khalifa (2021) expands this integrative orientation by defining strategy as "a cohesive core of guiding decisions" and "an entity's evolving theory of winning high-stake challenges." This framing underscores the analytical nature of strategy as a response to uncertainty. Eisenhardt (1999) brings these perspectives together by framing strategy as strategic decision-making (SDM), arguing that strategies result from the accumulation of fast, iterative decision processes rather than from formal planning. In dynamic environments, effective strategies are constructed through real-time choices and adaptive reasoning.

2.1 Strategic Decision-making (SDM)

Strategic decision-making is a contextually embedded process shaped by interdependent actions, cognitive biases, and persistent uncertainty, rather than a sequence of discrete choices (Seidl et al, 2024; Rau & Bromiley, 2025). Mintzberg and Waters (1990) note that isolating discrete decisions can hinder understanding of organizational processes, as actions often occur without formal decisions and instead reflect responses to environmental conditions. Shepherd and Rudd (2014) model SDM as a process influenced by interacting managerial, organizational, and environmental factors. Their framework links attributes such as rationality and intuition to contextual variables, suggesting that outcomes stem from complex and non-linear interactions. At the individual level, Musso et al (2022) show that overconfidence and reliance on intuition shape strategic outcomes in internationalization decisions.

The strategic decision process involves the formulation and implementation of decisions, including the selection of goals, means, and their deployment over time (Noorderhaven, 1995; Elbanna, 2006). This perspective prioritizes mechanisms of enactment over decision content, focusing on how managerial cognition and contextual constraints guide the trajectory from problem recognition to action. Rather than following a linear path, strategic decision processes involve iteration, feedback, and adaptation to evolving conditions (Elbanna et al, 2020).

Although the triggers of strategic decision-making remain underexplored, complexity and uncertainty are intrinsic to the process (Elbanna et al, 2020). Uncertainty therefore constitutes a fundamental condition of SDM rather than an external disturbance. Brozović (2018), by contrast, conceptualizes uncertainty as an external challenge that requires active organizational response. He links uncertainty exposure to strategic flexibility—the capability to respond to change while maintaining strategic intent—which emerges through the continuous adaptation of decision processes.

Despite these differing conceptualizations, uncertainty remains a core condition of managerial decision-making (Sniazhko, 2019). However, inconsistent measurements across the business literature have produced fragmented findings regarding organizational behaviour. Strategy can be understood as an entity's chosen way of interacting with its environment in pursuit of survival and prosperity (Elbanna et al, 2020).

2.2 Strategy Research in Tourism and Hospitality

Okumus (2002) questioned whether hospitality researchers could contribute to the strategic management literature. He observed that most studies in the field address strategic management as a linear process consisting of analysis, formulation, implementation, and evaluation. Nearly two decades later, Okumus et al (2020) proposed several future research directions in which strategy was mentioned only in the form of strategic planning. Harrington and Ottenbacher (2011) reviewed strategy research in hospitality from 2005 to 2009 and identified ten main themes, including strategy and uncertainty, internal organization, and strategy implementation. Although the thematic scope had expanded, they noted that much of the research approached strategy through tactical or operational methods rather than engaging with its theoretical foundations.

Okumus et al (2017) highlighted the conceptual fragmentation of strategy research in tourism and hospitality, pointing to the lack of shared definitions and an integrated understanding of strategic management mechanisms. Aladağ et al (2020) reviewed research on strategy implementation in tourism and hospitality and identified four main clusters: success factors and impediments, organizational characteristics, management of external relationships, and implementation performance. Within these clusters, research has primarily focused on internal determinants and functional aspects of strategy implementation. This focus is evident in studies that emphasize the structuring and prioritization of strategic factors, such as the use of hierarchical A'WOT analysis (Lee et al, 2021) and data-driven approaches aimed at improving decision accuracy (Song, 2025). As a result, the dynamic and contextual nature of strategic decision-making has received limited attention in tourism and hospitality research (Aladağ et al, 2020).

Köseoglu et al (2019) identified a gap in systematic discussion on the advancement of strategic management research in hospitality and tourism. The field has largely adopted a content-oriented approach emphasizing competitive advantage, with limited focus on process-oriented perspectives addressing how and when strategies are formed and implemented. Kalıpçı and Yay (2018) stated that most studies in the tourism-related strategy literature concentrate on senior managers, overlooking the perspectives of other stakeholders involved in the strategic management process.

3. Research Methodology and Analysis Framework

This study applied a scoping review approach to examine how SDM and its contexts were addressed in tourism, events and hospitality research. Scoping reviews are considered suitable for determining the scope and coverage of an existing body of literature, providing a clear indication of the volume and thematic distribution of studies within a given field (Munn et al, 2018). The scope was defined using the PCC (Population, Concept, Context) framework by Peters et al (2020): the population consisted of strategy-labelled articles published in tourism, events and hospitality journals between 2020 and 2025; the concept focused on SDM and its contexts and the review context referred to the tourism, events and hospitality research domain.

The review followed the five-stage framework of Arksey and O'Malley (2005), complemented by methodological refinements proposed by Peters et al (2020). These stages included identifying the research question, identifying relevant studies, selecting studies, charting the data, and collating, summarising, and reporting the results. The review followed the PRISMA-ScR framework (Tricco et al, 2018) with minor adaptations. Phases such as protocol registration (no protocol applied) and critical quality assessment were excluded, as Pham et al (2014) noted that such evaluation does not form part of the scoping review methodology.

The literature search was conducted between 3 September and 15 October 2025. Fifteen SJR-ranked tourism and hospitality journals to which the authors had access were selected as information sources. Searches were carried out directly within the publishers' databases (Elsevier, EBSCO, Emerald, SAGE, and Springer). Only English-language, peer-reviewed research articles containing the term strateg* in the title were included, while editorials, review papers, book reviews, and expert opinion pieces were excluded. A total of 194 records were identified, of which 11 were excluded due to ineligibility, including process-related and indexing errors. Eight records were available only as titles and abstracts because the full texts were not accessible due to contractual restrictions. After screening titles and abstracts, 175 articles were reviewed at the full-text level. In individual

articles, details such as objectives, methodological choices, research findings, and conclusions were excluded from the full-paper analysis, which focused solely on the defined scope of the review. Detailed search results by journal and database were summarised in Table 1.

Table 1: Information sources and search results

Journal Name	Database	Literature search conducted	Number of articles found	Included articles	Excluded Articles	Reviewed articles based on title abstract	Reviewed full articles
Annals of Tourism Research	Elsevier	3.9.2025	4	4	0	4	4
Current Issues in Tourism	EBSCO	3.9.2025	11	11	0	11	11
Event Management	EBSCO	15.10.2025	5	5	0	5	5
Information Technology & Tourism	Springer	3.9.2025	3	3	0	3	3
International Journal of Contemporary Hospitality Management	Emerald	3.9.2025	15	15	0	15	15
International Journal of Hospitality Management	Elsevier	3.9.2025	52	50	2	50	50
Journal of Destination Marketing & Management	Elsevier	3.9.2025	5	5	0	5	5
Journal of Hospitality & Tourism Research	SAGE	3.9.2025	7	6	1	6	6
Journal of Hospitality and Tourism Management	Elsevier	3.9.2025	24	23	1	23	23
Journal of Hospitality & Marketing Management	EBSCO	3.9.2025	5	5	0	5	5
Journal of Travel & Tourism Marketing	EBSCO	3.9.2025	8	8	0	8	0*
Journal of Travel Research	SAGE	3.9.2025	12	12	0	12	12
Tourism Management	Elsevier	3.9.2025	21	19	2	19	19
Tourism Management Perspectives	Elsevier	3.9.2025	12	11	1	11	11
Tourism Review	Emerald	3.9.2025	8	6	2	6	6
Process related errors			*2*	*0*	*2*	*0*	*0*
Total			**194**	**183**	**11**	**183**	**175**

Data extraction was conducted using an Excel-based framework table initially structured around seven preliminary categories capturing article-specific characteristics. The table was refined iteratively to ensure consistency and transparency. Extracted data were then organised into three analytical tiers summarised in Table 2: strategic decision-making types (strategy type, actor, focus), uncertainty (locus, type), and decision-making contexts (macrocontext, contextual characteristics). The descriptive analysis mapped and categorised how the studies addressed these tiers, aiming to identify the range, nature, and extent of concepts represented in the literature rather than interpret relationships between them.

Table 2: Analysis Framework

Tier → Sub-elements	Description	Analytical subquestions	Key sources
Tier 1: Strategic Decision-Making Type	The act through which uncertainty is addressed.		Mintzberg (1987), Eisenhardt (1999), Elbanna et al (2020), Khalifa (2021)
→ Strategy type	Strategy domain	How is the strategy defined or described?	Mintzberg (1987), Elbanna et al (2020), Suchman (1987), Jarzabkowski (2005), Khalifa (2021)

Tier → Sub-elements	Description	Analytical subquestions	Key sources
→ Actor	The level or entity responsible for decision-making	How is the decision-maker specified?	Elbanna et al (2020), Musso et al (2022)
→ Focus	The object or domain of the decision	What is the decision about?	Collis & Rukstad (2008), Khalifa (2021)
Tier 2: Uncertainty	Uncertainty is the condition that makes decisions necessary.		Sniazhko (2019), Brozović (2018)
→ Locus of Uncertainty	The level or domain in which uncertainty resides or is experienced	In whose domain is uncertainty primarily located or perceived?	Sniazhko (2019), Brozović (2018), Musso et al (2022), Elbanna et al (2020)
→ Type of Uncertainty	Internal, business environment, macroenvironment	How is uncertainty defined or classified?	Sniazhko (2019), Brozović (2018), Elbanna et al (2020)
Tier 3: Decision-Making Contexts	The structural and situational conditions in which uncertainty arises and decisions are made.		Shepherd & Rudd (2014); Elbanna et al (2020)
→ Macrocontext	The broad external environment where the decision is made.	How is the macroenvironment specified?	Shepherd & Rudd (2014), Eisenhardt (1999)
→Contextual characteristics	The characteristics of the decision situation shape how uncertainty is interpreted and managed.	What decision-specific conditions are described?	Elbanna et al (2020)

4. Findings

Strategy types: A total of 183 distinct strategy terms were identified in the dataset. Of these, 80 were mentioned more than once. The most frequently used terms were crisis management (11), pricing (8), brand (6), competitive (6), marketing (5), social responsibility (5), coping (5), customer relationship (5), business (4), service recovery (4), innovation (4), and sustainability (3). Terms mentioned twice included language, stress and coping, asset-light, affinity-seeking, response, mitigation, and adaptation. In total, 103 terms were mentioned only once. These single occurrences cover a wide range of themes, including tourism, responsibility, digitalisation, resources, communication, and marketing.

Strategic actor: A total of eight main actor categories were identified in the reviewed articles. The most frequently studied strategy-related actor was the organisation (133), followed by customers (18) and society (15). Employees appeared in eight cases, while management (4), policy (2) and managers (2) were mentioned less often. Individual occurrences included external stakeholders.

Strategic focus: Seven main focus categories were identified in the material. The most frequent focus was on customers (85), followed by the industry level (63). Performance-related focuses appeared in 13 cases, while society (9) and employees (7) were mentioned in several studies. Stakeholders (4) and individuals (2) occurred occasionally. Across the material, the identified focuses varied from external targets, such as customers and industries, to internal or societal perspectives, including performance, employees, and society.

Strategic locus of uncertainty: Seven main loci of uncertainty were identified in the material. The most frequent references related to business (118), followed by communication (38) and society (13). Innovation (7) and performance (6) appeared in several studies, while management (1) was mentioned only once.

Strategic uncertainty type: Three strategic uncertainty types appeared more than once: crisis response (2), sub-strategic choice (2), and response to reviews and comments (2). The remaining 177 items were mentioned only once. These referred to customers, employees, communication, branding, marketing, technology, environmental aspects, and financial or operational themes. Several articles addressed the tourism and hospitality sector, while others related to broader business and organisational contexts.

Strategic macrocontext: A total of 19 macrocontext categories were identified within the general tourism and hospitality field. The most frequently mentioned strategic contexts were hotels (47) and tourism and hospitality (45), followed by restaurants (24) and hospitality (18). Other recurring contexts included destinations (15), events (8), and airlines (6). Less frequent references appeared in tourism (4), food delivery platforms (3), and hotels and restaurants (2). Single occurrences included cities, space travel, education, cruises, tourism companies, travel platforms, travel agencies, museums, food, and online services.

Strategic context characteristics: Altogether, 157 different context characteristics were found in the reviewed material. Nineteen additional cases explicitly referred to COVID-19, while China was discussed three times, and both Airbnb/homestay and conceptual studies appeared twice. The remaining contexts were diverse, ranging from country- and region-specific settings such as Pakistan, Vietnam, rural China, Iran, and the Cape region in South Africa to thematic perspectives including service recovery, crowdfunding, ethical restaurants, and drone food delivery. Generally, these contexts align with predominantly reactive and control-focused framings of strategic decision-making, centred on organisational actors in conventional service settings.

5. Discussion

The studies reviewed use "strategy" inconsistently and often lack grounding in established frameworks. In the dataset, strategy often refers to tactical or operational choices rather than to a process of strategic decision-making, which reinforces conceptual fragmentation. The findings show that the organisation is generally framed as the main strategic actor, while managers, employees, and customers are seldom mentioned. This framing presents strategy as an inherent organisational property rather than a practice shaped by human agency. It conceptualises the organisation as an impersonal actor, which simplifies how strategy develops within and between organisations and neglects the individual and context-specific perspectives highlighted in earlier research. While many studies include small and medium-sized enterprises (SMEs), this context is typically embedded rather than explicitly analysed, resulting in limited insight into how SMEs enact strategy. It also suggests that the SME perspective often serves as a convenient empirical setting rather than constituting a central theoretical concern.

Most studies describe the focus of strategy as being directed toward external targets, such as customers or industry-level factors, while internal or societal aspects receive little consideration. This external emphasis contrasts with the types of strategies described, which are largely reactive. The dominance of tactical strategy labels, the perception of the organisation as the main decision-making entity, and the externalisation of uncertainty collectively create the impression that strategic decision-making is primarily reactive and control-oriented.

Uncertainty is predominantly framed as an external threat to stability, prompting control-oriented and risk-avoidance responses. Such an interpretation reduces uncertainty to a variable to be managed, as reflected in the frequent use of structured and hierarchical decision-making approaches that score and rank strategic options under uncertainty such as A'WOT-type models (e.g. Lee et al, 2021). As a result, strategy is presented as an effort to maintain continuity and restore balance rather than to explore or experiment. Uncertainty is often treated as an external variable rather than as inherent to strategising. This separation hinders understanding of how different types of uncertainty interact and what their implications are for strategy. Studies generally frame uncertainty as negative, providing limited insight into how organisations identify, interpret, and use it in their strategic work.

The macrocontext category reveals a decoupling between broad environmental descriptions and narrow analytical focuses. While studies describe industry-level changes extensively, the actual analyses often target specific, isolated cases, failing to link systemic shifts to strategic action. Furthermore, research remains anchored in traditional settings like hotels and restaurants, underrepresenting structural transformations such as digital platforms and the sharing economy (e.g., Song, 2025). This creates a significant lag in the literature, where the strategic implications of emerging service ecosystems and their long-term effects remain largely unexplored.

Finally, the characteristics of research contexts illustrate how strategy is tied to specific empirical settings, such as COVID-19, social media responses, ethical consumption, and destination crises. These contexts indicate where strategic relevance is presumed to lie rather than clarifying what strategy itself entails. They also reveal the underlying assumptions about the level at which strategy is understood and required in tourism and hospitality research.

Despite its interesting findings, this study has some limitations. First, the analysis is confined to 183 articles published in 15 top-ranked journals (SJR) over the past five years, which may not capture the full diversity of research on strategy in tourism and hospitality, as these journals may not consider strategic themes to be particularly interesting or current. Second, the review relies on the content reported in the selected studies, and some nuances of SDM, particularly at the SME level, may not have been explicitly analysed or described. Third, the focus on published academic literature excludes practitioner perspectives and management literature, which could provide additional insights into strategic processes.

6. Conclusions

The scoping review reveals that the role and formation of strategic decisions in tourism and hospitality organisations—especially SMEs—remain poorly understood. Extracting coherent knowledge from the existing research is difficult, as strategy is mainly depicted as reactive adaptation to external pressures or changes, with limited attention to its cognitive, individual, and forward-looking dimensions.

The conceptual fragmentation indicates a persistent gap between empirical research and established strategic frameworks. Strategy often functions as a descriptive label for outcomes rather than as a construct that explains underlying processes. The limited attention to individual-level perspectives and the narrow view of uncertainty weaken the field's capacity to explain strategic decision-making in complex environments. Although SMEs are frequently included, their role is usually implicit rather than examined in depth, offering little understanding of how they practise strategy and further contributing to conceptual fragmentation.

Future research should shift the focus from viewing strategy as an inherent organisational property toward investigating it as a practice shaped by human agency. This requires adopting integrative approaches that link strategic intent, individual cognition, and contextual complexity. Uncertainty should be reconceptualised as a source of renewal and experimentation rather than merely an external threat to stability. Future studies should move beyond traditional settings to explore the strategic implications of structural changes and emerging service ecosystems in the decision-making process.

Ethical Declaration

This study did not involve the collection of primary data from human participants; all data were derived from published articles. Therefore, no ethical approval or participant consent was required. The review followed standard ethical practices for secondary research, ensuring accuracy, proper citation, and methodological transparency.

AI Declaration

Language editing and minor text refinement were supported by AI-assisted tools (DeepL, Microsoft Copilot, and ChatGPT-5). These tools were not used for content creation, data analysis, or interpretation. All conceptual and analytical work was conducted by the authors.

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Walking the Talk: Tourism Performance vs. Sustainability Communication in Six European Destinations

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Abstract: Tourism destinations increasingly promote sustainability in their communication efforts in the post-Covid period. However, a persistent gap often exists between their measurable sustainability performance and the communicated brand narratives. This study examines how countries with different World Economic Forum Travel & Tourism Development Index (TTDI) 2024 scores utilize sustainability themes in their tourism communication. We compare Germany, Portugal, Turkey, Spain, Italy, and Greece — six destinations with diverse performance levels and strategies — through a comparative case study approach. Quantitative data from TTDI are complemented by the Tourism Potential Creation Index (TPCI) to capture tourism efficiency relative to population size. These benchmarks are combined with a qualitative content analysis of official tourism websites, campaigns (2020–2025), and social media materials. The analysis builds upon Zenker's stakeholder-oriented place branding model and extends Kiraz's Sustainability-Oriented City Branding Index (SOCBI) to national tourism contexts. We employ the Tourism Potential Creation Index (TPCI = Country Tourism Creation Capacity Ratio ÷ Country Population Ratio) to understand the relationship between actual performance and the authenticity of branding. Official tourism websites and sustainability communication strategies are analyzed across three dimensions: Environmental Communication, Adaptive Branding, and Communication Authenticity. Our findings reveal a strong negative correlation ($r = -0.913$, $p < 0.01$) between environmental performance and communication intensity, suggesting that destinations with lower environmental performance compensate through intensified sustainability messaging. Four distinct patterns emerge: high-performing destinations (Germany, Spain) integrate sustainability authentically, silent performers (Portugal) underutilize their achievements, while aspirational communicators (Turkey) employ intensive communication focused on cultural and environmental heritage, and moderate aligners (Italy, Greece) balance performance with communication. This reveals a performance-communication gap that carries both opportunities and credibility risks. The analysis suggests sustainability communication serves primarily as a defensive strategy to avoid negative perceptions rather than a proactive differentiator, reflecting the asymmetric influence of environmental credentials on destination choice. The study contributes theoretically by linking performance indices with destination branding research, and practically by offering recommendations for aligning sustainability branding with measurable outcomes. The findings provide valuable insights for tourism boards seeking to balance authenticity and aspiration in sustainable destination marketing.

Keywords: Sustainability Communication, Destination Marketing, Sustainability, TTDI, Tourism Performance, Comparative Analysis, SOCBI

1. Introduction

Sustainability has moved from a niche concern to a practice actively promoted by many international organisations, as it increasingly touches multiple spheres of everyday life. We are gradually recognising that sustainability is not only about the planet we currently inhabit, but about the long-term viability of our broader ecosystem. One helpful lens is the yin–yang paradigm. In its simplest form, yin–yang suggests that everything in the universe exists as complementary opposites that are interdependent and mutually constitutive (Wang, *Yinyang: The Way of Heaven and Earth in Chinese Thought and Culture*, Cambridge University Press). In this context, the focus is not on "good" versus "bad" in a moral sense, but on two forces that require each other to create balance. Commonly cited interpretations note that "within every positive element there is a latent negative potential, and within every negative element there is a potential for transformation into something positive." The core objective, then, becomes balance. Translated into sustainability debates, the key question is how to hold the concepts of balance and sustainability together within the world of cities, countries, and socio-economic systems.

Within the framework of the SDGs—which aim, by 2030, to end poverty, fight inequality and injustice, and combat climate change—sustainability has, over time, become part of the **image and brand** of some countries. For decades, nations, regions and cities have engaged in place branding, deploying a range of marketing and communication practices. Empirically, one can already observe that sustainability has become a more prominent brand element in national policy documents and political rhetoric than in the past. However, countries integrate

sustainability into their identities and images in **very different ways.** In some cases, this incorporation appears largely cosmetic—amounting to a "green makeover" or superficial branding exercise. In others, governments seek to leverage early-mover advantages by investing in more substantive and systemic sustainability initiatives.

The imperative for sustainable tourism has transformed from a peripheral concern to a central strategic priority for destinations worldwide, fundamentally reshaping how tourism organizations communicate their environmental commitments and achievements. As climate change impacts intensify and traveler awareness of sustainability issues grows, destinations increasingly position themselves as responsible stewards of natural and cultural resources. However, a critical question emerges: do destinations' sustainability communication strategies accurately reflect their actual environmental performance, or do they represent strategic compensation for performance deficits?

This study addresses a significant gap in the destination branding literature by empirically examining the relationship between environmental sustainability performance and digital communication intensity across European tourism destinations. While previous research has extensively explored sustainability communication strategies (Font & McCabe, 2017; Tölkes, 2018) and destination branding practices (Kavaratzis & Hatch, 2013; Pike & Page, 2014), limited attention has been paid to the potential misalignment between what destinations achieve and what they communicate. This gap is particularly problematic given growing concerns about greenwashing and authenticity in tourism marketing (Hanna et al., 2018; Andersson & James, 2017).

We propose a "performance-communication paradox" hypothesis, suggesting that destinations with lower environmental performance compensate by intensifying their sustainability communication efforts, while high-performing destinations may underutilize their genuine achievements in marketing communications. This paradox challenges conventional wisdom that communication intensity should correlate positively with actual performance, instead suggesting that competitive pressures and reputational management concerns drive inverse relationships.

The European tourism context provides an ideal setting for investigating this phenomenon. European destinations operate within a relatively homogeneous regulatory framework while exhibiting substantial variation in environmental performance, tourism intensity, and communication approaches. The continent's leadership in sustainability initiatives, combined with intense competition for increasingly sustainability-conscious travelers, creates conditions where strategic communication choices become particularly salient.

1.1 Research Aim and Research Questions

This study aims to empirically examine the relationship between actual environmental sustainability performance and digital communication intensity across European tourism destinations. Specifically, we test the "performance-communication paradox" hypothesis suggesting that destinations with lower environmental performance compensate through intensified sustainability messaging.

To achieve this aim, we address three research questions:

- **RQ1:** What is the relationship between environmental sustainability performance (as measured by TTDI) and sustainability communication intensity in European tourism destinations?
- **RQ2:** How do destinations with varying performance levels strategically position themselves in terms of sustainability communication?
- **RQ3:** Does tourism efficiency (SPOE) influence sustainability communication strategies independently of environmental performance?

This research makes three primary contributions to the destination branding and sustainable tourism literature. First, it empirically demonstrates the existence of a performance-communication paradox through systematic content analysis and statistical correlation, providing quantitative evidence for a phenomenon previously discussed only conceptually. Second, it adapts the Sustainability-Oriented City Branding Index (SOCBI) framework from urban to national destination contexts, demonstrating its applicability across scales while identifying necessary modifications. Third, it develops a typology of destination sustainability communication strategies that links performance metrics with communication choices, offering practical guidance for destination management organizations (DMOs) seeking to align their messaging with authentic sustainability achievements.

The paper is organized as follows. Section 2 reviews relevant literature on destination branding, sustainability communication, and performance measurement, establishing the theoretical foundation for the performance-

communication paradox hypothesis. Section 3 details the methodology, including the adaptation of the SOCBI framework, sampling procedures, and analytical approaches. Section 4 presents the empirical findings, revealing patterns of alignment and misalignment across the six studied destinations. Section 5 discusses theoretical and practical implications, while Section 6 concludes with limitations and directions for future research.

2. Literature Review

Destination branding has evolved from promotional campaigns to strategic, multi-stakeholder processes that translate place identity into coherent images and reputations (Kavaratzis, 2004; Dinnie, 2011). Within this evolution, sustainability has emerged as a central promise in destination narratives, particularly following the COVID-19 pandemic's disruption of global tourism. However, as countries increasingly position themselves as "sustainable destinations," the extent to which they genuinely embody these claims remains uneven and under-examined. The integration of sustainability into destination branding reflects broader shifts in consumer consciousness and regulatory frameworks. The UN's Sustainable Development Goals have provided a common language for destinations to articulate their commitments, yet implementation varies dramatically based on factors including development levels, institutional capacity, and competitive pressures (Taecharungroj et al., 2019).

A recurring concern in place branding literature is claim-performance misalignment, including risks of greenwashing when brand messages outpace systemic change (Andersson & James, 2017; Holgersen & Malm, 2015). While scholarship warns about eco-branding unsupported by substantive transformation, limited empirical research quantifies this gap or examines its strategic implications. Font and McCabe (2017) emphasize that how sustainability is communicated matters as much as what is communicated, yet systematic analysis of this relationship remains scarce. The challenge is compounded by governance structures in destination branding, which are typically networked rather than hierarchical (Klijn & Eshuis, 2011). This distributed authority can lead to fragmented messaging and difficulty in aligning diverse stakeholder communications with measurable performance outcomes.

Recent developments in sustainability indices provide opportunities to empirically examine performance-communication relationships. The World Economic Forum's Travel & Tourism Development Index offers comprehensive metrics across environmental, social, and economic dimensions, enabling cross-destination comparisons. However, these performance metrics rarely connect directly to branding claims or communication strategies (Braun et al., 2018). The Sustainability-Oriented City Branding Index (SOCBI) developed by Kiraz (2023) addresses this gap by evaluating sustainability communication across multiple dimensions including environmental messaging, adaptive branding capacity, and communication authenticity. While developed for urban contexts, its framework offers potential for adaptation to national destination branding.

Drawing on stakeholder-oriented place branding theory (Zenker & Braun, 2017), we conceptualize destination sustainability communication as a multi-dimensional construct requiring alignment between internal identity (actual performance) and external image (communicated narratives). The potential misalignment between these dimensions — influenced by competitive pressures, institutional capacity, and strategic choices — forms our theoretical foundation for investigating the performance-communication paradox. Despite growing attention to sustainable tourism and destination branding independently, the intersection remains under-theorized and empirically understudied. This research addresses this gap by systematically examining how destinations with varying sustainability performance levels construct and communicate their environmental commitments.

3. Methodology

This study employs a mixed-method comparative case study approach to examine the relationship between sustainability performance and communication strategies across six European tourism destinations: Spain, Germany, Italy, Portugal, Greece, and Turkey. These countries were selected using maximum variation sampling (Patton, 2002) based on their World Economic Forum Travel & Tourism Development Index (TTDI) 2024 rankings and environmental sustainability scores, representing diverse performance levels: Spain (2nd, environmental score: 4.25), Germany (6th, 3.41), Italy (9th, 3.46), Portugal (12th, 4.76), Greece (21st, 4.29), and Turkey (29th, 4.32).

This exploratory research design prioritizes theoretical insight generation over statistical generalization. While the six-country sample limits inferential power, maximum variation sampling ensures sufficient heterogeneity

for pattern identification and hypothesis development in this nascent research domain (Eisenhardt, 1989; Yin, 2018). The sample represents approximately 45% of Southern and Central European tourism arrivals, capturing meaningful variation across TTDI rankings (2nd to 29th), environmental performance scores (3.41 to 4.76), and tourism efficiency ratios (2.48 to 10.18). This strategic case selection enables analytical generalization to theory rather than statistical generalization to populations (Yin, 2018).

We adapted Kiraz's (2023) Sustainability-Oriented City Branding Index (SOCBI) framework from urban to national destination contexts, evaluating sustainability communication across three dimensions with 20 indicators scored 0-5. Environmental Communication dimension includes keyword density, claim specificity, certification visibility, carbon tools, natural asset emphasis, sustainability visibility, navigation structure, and data provision. Adaptive Branding encompasses stakeholder coordination, policy integration, multi-channel integration, central coordination, program structure, and partnership legitimacy. Communication Authenticity comprises evidence-based claims, third-party verification, measurement tools, transparency, specific/general ratio, and outcome/intent balance.

Primary data collection involved systematic content analysis of official tourism websites: spain.info/sustainability.spain.info, germany.travel, italia.it, visitportugal.com, visitgreece.gr, and goturkiye.com. For each destination, we analyzed the homepage, sustainability/environment pages (where available), and experiences/activities sections. Three independent coders from different disciplinary backgrounds (Philosophy/Communication, Marketing/Branding, Engineering/Public Relations) evaluated the content following pilot testing and protocol refinement.

The TTDI methodology employs a comprehensive framework measuring destination competitiveness across 17 pillars organized into five dimensions: Enabling Environment, Travel & Tourism Policy, Infrastructure, Travel & Tourism Demand Drivers, and Travel & Tourism Sustainability. The environmental sustainability pillar specifically evaluates performance through indicators including environmental treaty participation, stringency of environmental regulations, sustainability of travel and tourism development, particulate matter concentration, and environmental-related treaties in force (World Economic Forum, 2024, pp. 15-18). Each indicator is normalized on a 1-7 scale using min-max normalization methodology, with detailed scoring procedures and data sources outlined in the TTDI methodology section (World Economic Forum, 2024, pp. 89-92, see Appendix A for scaling methodology). This multi-faceted approach provides a robust measure of actual environmental performance independent of marketing communications.

Inter-coder reliability was assessed using multiple metrics to ensure robustness. Cohen's weighted Kappa (quadratic weights) yielded $\kappa = 0.767$ indicating substantial agreement, while Krippendorff's Alpha ($\alpha = 0.939$) and Gwet's AC1 (0.986) demonstrated very high reliability. ICC(2,k) for average measures was 0.908, confirming excellent consistency. Perfect agreement occurred in 46.4% of ratings, with 98.6% falling within ±1 point difference.

Secondary data included TTDI 2024 environmental sustainability scores and Tourism Potential Creation Index (SPOE) calculations following Akıncı and Yüzbaşıoğlu (2015): SPOE = Country Tourism Creation Capacity Ratio ÷ Country Population Ratio. This metric captures tourism efficiency relative to population size, providing insight into how demographic factors influence sustainability communication strategies. Statistical analysis employed Pearson correlation and regression analysis to examine performance-communication relationships, with Z-score normalization addressing scale differences between variables.

4. Findings

Content analysis of the six European destinations revealed significant variation in sustainability communication quality. Germany led with a SOCBI score of 4.88, followed by Spain (4.28), Turkey (3.80), Italy (3.36), Greece (3.28), and Portugal (2.18). The average communication score across all destinations was 3.63, with only Germany and Spain exceeding this threshold. Table 1 presents the comprehensive scoring across all SOCBI dimensions. Germany's superior performance stemmed from evidence-based claims, multiple certifications, and functional tools like CO_2 calculators, while Portugal's surprisingly low score reflected weak central coordination despite strong environmental performance.

Table 1: SOCBI Scores and Key Characteristics

Country	Environmental Communication	Adaptive Branding	Communication Authenticity	Total SOCBI	TTDI Env. Score	SPOE
Germany	4.75	5.17	4.83	4.88	3.41	2.54
Spain	4.63	4.17	4.17	4.28	4.25	5.95
Turkey	3.88	3.50	4.00	3.80	4.32	2.48
Italy	3.38	3.33	3.33	3.36	3.46	2.90
Greece	3.25	3.50	3.17	3.28	4.29	8.69
Portugal	2.38	2.33	1.67	2.18	4.76	10.18

The relationship between environmental performance and communication intensity revealed a striking paradox. Statistical analysis demonstrated a strong negative correlation ($r = -0.913$, 95% CI [-0.99, -0.54], $p < 0.01$) between TTDI environmental scores and SOCBI communication scores, representing a very large effect size (Cohen's $d = 3.2$). Portugal exemplified this paradox with the highest environmental performance (4.76) but lowest communication score (2.18), while Germany showed the inverse pattern (environmental: 3.41, communication: 4.88). Regression analysis confirmed that environmental performance explained 83.3% of variance in communication intensity ($R^2 = 0.833$), suggesting systematic compensatory behavior. While these findings should be interpreted cautiously given the sample size (n=6), the effect magnitude and consistency across multiple analytical approaches strengthen confidence in the identified pattern.

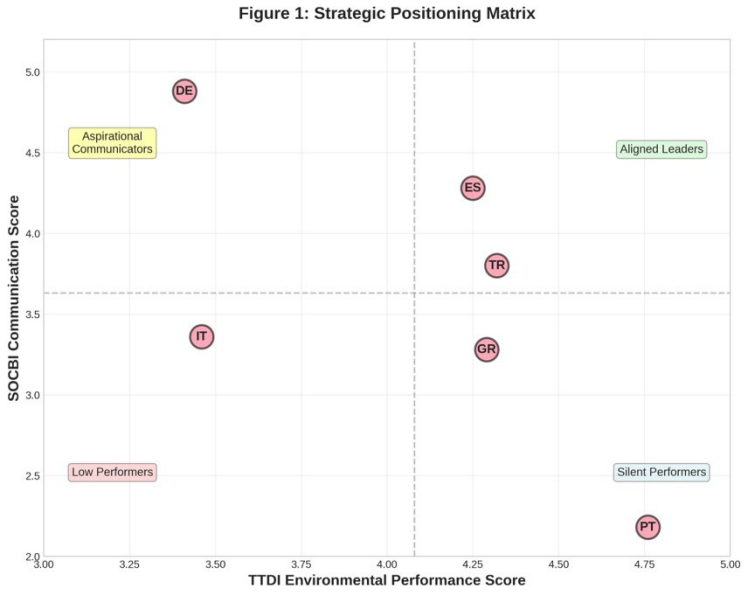


Figure 1: Strategic Positioning Matrix

Four distinct strategic patterns emerged from the analysis, as visualized in Figure 1. *Aligned Leaders* (Germany, Spain) demonstrated high communication scores matching their strong overall tourism development, though Germany's environmental performance lagged behind its messaging intensity. *Silent Performers* (Portugal) achieved excellent environmental outcomes but failed to leverage these achievements in communications. *Aspirational Communicators* (Turkey) employed intensive sustainability messaging despite moderate performance, emphasizing future commitments over current achievements. *Moderate Aligners* (Italy, Greece) showed balanced approaches with communication roughly matching performance levels.

The Tourism Potential Creation Index (SPOE) analysis provided additional insights into these patterns. Countries with high tourism efficiency relative to population (Portugal: 10.18, Greece: 8.69) showed lower communication intensity, while those with lower efficiency (Germany: 2.54, Italy: 2.90) compensated through enhanced sustainability messaging. The correlation between SPOE and communication scores ($r = -0.690$, $p < 0.05$)

suggested that destinations facing tourism competitiveness challenges use sustainability communication as a differentiation strategy (Figure 2).

To explore potential variations in sustainability sensitivity, we examined whether countries could be grouped by their environmental regulation stringency and tourism sustainability indices. While the limited sample size (n=6) precludes definitive clustering, preliminary analysis suggests that Central European countries (Germany) demonstrate higher regulatory compliance focus despite lower environmental outcomes, while Southern European destinations show varied patterns. This tentative distinction warrants further investigation with larger samples to determine if regional regulatory cultures influence the performance-communication relationship.

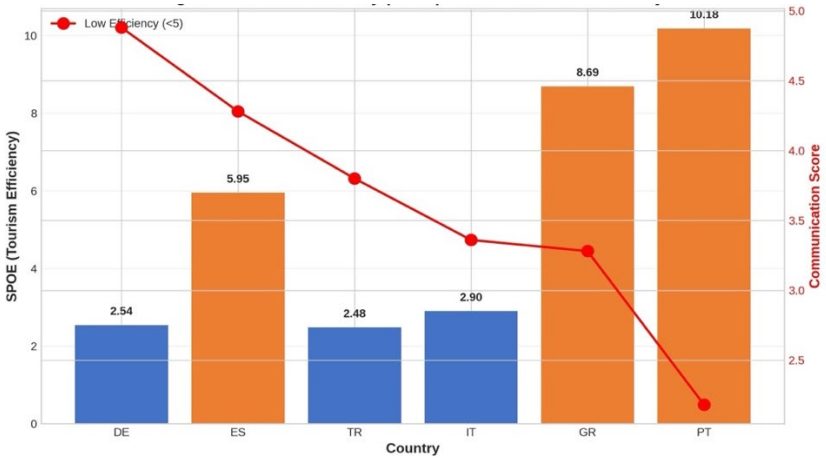


Figure 2: Tourism Efficiency (SPOE) vs Communication Intensity

Dimensional analysis revealed systematic strengths and weaknesses across the SOCBI framework. All destinations scored highly on natural asset emphasis (averaging 4.83) but poorly on carbon management tools (0.50), with only Germany offering CO2 calculators. Adaptive Branding showed the greatest variation (σ = 1.89), reflecting differences in institutional capacity and DMO coordination. Portugal's low Adaptive Branding score (2.33) despite environmental excellence highlighted how organizational weaknesses can undermine communication effectiveness. Communication Authenticity scores correlated strongly with overall DMO resources and professionalization, with Germany and Spain leading through comprehensive data provision and third-party verification.

5. Discussion

Our findings reveal a profound performance-communication paradox in European destination sustainability communication, with significant theoretical and practical implications. The strong negative correlation (r = -0.913) between environmental performance and communication intensity challenges conventional assumptions about authentic destination marketing. As illustrated in Figure 3, this inverse relationship suggests that sustainability communication serves primarily as a compensatory mechanism rather than a transparent reporting tool, raising critical questions about the credibility and effectiveness of destination branding strategies.

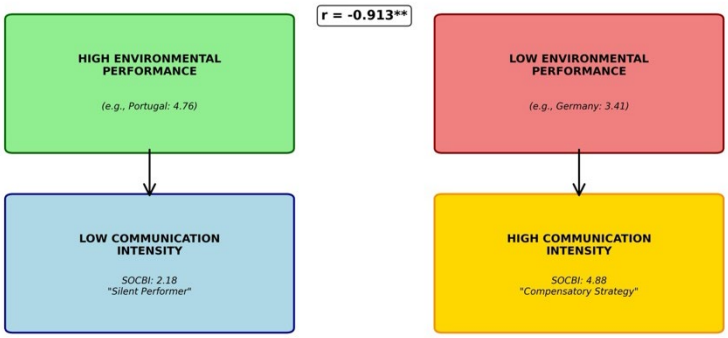


Figure 3: Performance-Communication Paradox Mechanism

The emergence of four distinct strategic patterns provides a nuanced typology for understanding destination approaches to sustainability positioning (Figure 4). Germany's case is particularly instructive: despite leading in communication sophistication, its actual environmental performance (3.41) falls below the six-country average (4.08). This misalignment exemplifies how advanced DMO capabilities and resources can mask performance deficits through professional communication strategies. Conversely, Portugal's position as a "Silent Performer" represents a significant missed opportunity, suggesting that institutional capacity constraints can prevent destinations from capitalizing on genuine sustainability achievements.

The SPOE analysis adds crucial context to these patterns. Destinations with high tourism efficiency relative to population size (Portugal, Greece) appear less motivated to invest in sustainability communication, possibly because their tourism sectors already operate at optimal capacity. In contrast, countries with lower tourism efficiency (Germany, Italy) use sustainability messaging as a differentiation strategy to enhance competitiveness. This finding aligns with resource-based theories of competitive advantage, suggesting that destinations deploy communication strategically based on their market position rather than actual sustainability performance.

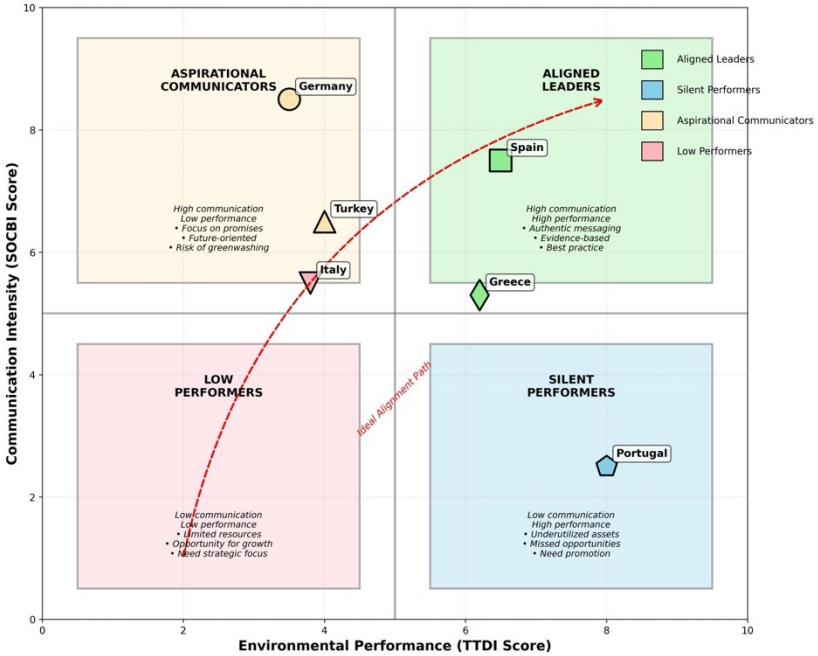


Figure 4: Strategic Positioning Framework

Our findings suggest that sustainability communication in tourism functions primarily as a defensive marketing tool rather than a proactive differentiator. This defensive positioning aligns with the concept of 'hygiene factors' in consumer behavior — sustainability credentials may not drive destination selection but their absence can trigger rejection, particularly in an era of heightened social media scrutiny. The performance-communication paradox thus reflects rational strategic behavior: destinations with weak environmental performance must invest heavily in communication to avoid negative perceptions and potential social media backlash.

This defensive dynamic is amplified by the 'greenwashing paradox' evident in our data. Destinations appear caught between two risks: under-communicating genuine achievements (Portugal) leaves them vulnerable to being overlooked, while over-communicating relative to performance (Germany) risks exposure and reputational damage if inconsistencies are revealed. Social media's role as an accountability mechanism intensifies this dilemma, as travelers can instantly share experiences that contradict official sustainability narratives, creating viral negative publicity that can undermine years of brand building.

The asymmetric nature of sustainability's influence on destination choice — where presence doesn't attract but absence repels — explains why lower-performing destinations feel compelled to compensate through intensive communication. This defensive imperative is particularly acute for destinations with established reputations that could be damaged by perceived environmental negligence. Germany's high communication intensity despite moderate performance may reflect this reputational risk management, using sophisticated messaging to preempt criticism rather than showcase genuine leadership.

The systematic absence of functional sustainability tools across most destinations — with only Germany offering CO2 calculators — reveals a critical gap between rhetorical commitment and practical implementation. All destinations scored highly on natural asset emphasis, yet this traditional approach to showcasing environmental beauty fails to address modern expectations for active sustainability management. This disconnect between passive appreciation and active stewardship represents a fundamental misunderstanding of contemporary sustainability communication requirements.

These findings contribute to destination branding theory by empirically demonstrating how competitive pressures and institutional capabilities shape the relationship between performance and communication. The strategic positioning framework (Figure 4) offers practical guidance for destinations seeking to move along the "ideal alignment path" toward authentic integration of achievements and messaging. For practitioners, our research underscores the risks of communication strategies divorced from performance realities. As travelers become increasingly sophisticated in evaluating sustainability claims, the credibility gap identified in this study may undermine destination competitiveness rather than enhance it. DMOs must therefore prioritize authentic alignment between achievements and messaging, investing in both performance improvements and communication capabilities to achieve sustainable competitive advantage in the evolving tourism marketplace.

6. Conclusion

This study empirically demonstrates a performance-communication paradox in European destination sustainability communication, revealing that destinations with lower environmental performance compensate through intensified communication efforts. By adapting the SOCBI framework to national contexts and integrating it with TTDI performance metrics, we provide a comprehensive methodology for assessing authenticity in destination sustainability positioning. The identification of four distinct strategic patterns offers practical guidance for DMOs seeking to align their communications with actual achievements. The defensive nature of sustainability communication revealed in this study — functioning more as risk mitigation than competitive advantage — highlights the need for destinations to move beyond greenwashing toward authentic environmental transformation that can withstand social media scrutiny and evolving traveler expectations. This raises an important question: is there any kind of standard for sustainability practices across countries of different sizes and geographies – and should there be? A German proverb captures the current situation succinctly: *“Ein gutes Pferd springt nur so hoch, wie es muss”* (“a good horse only jumps as high as it has to”). Many countries appear to do precisely what is minimally required—meeting the formal expectations of international frameworks, but not necessarily exceeding them. In line with this, the literature on branding often examines isolated parts of branding processes and tends to focus on drivers of successful branding or ways to enhance brand performance. When it comes to sustainability branding, many public actors still treat sustainability primarily as a tool to access national or international funds, or as a set of rules to be complied with and legitimised within legal frameworks. As the tourism industry faces increasing pressure for genuine sustainability transformation, destinations must move beyond compensatory communication toward authentic integration of performance and messaging.

Several limitations warrant acknowledgment. First, the six-country sample, while strategically selected for maximum variation, constrains statistical power and limits generalizability to broader European or global contexts. The strong correlations observed ($r = -0.913$) should be validated with larger samples before drawing definitive conclusions. Second, the cross-sectional design captures a single temporal snapshot; sustainability communication strategies evolve rapidly in response to market pressures and regulatory changes. Third, our analysis focused exclusively on official DMO websites, excluding social media presence, third-party platforms, and user-generated content that increasingly shape destination perceptions. Fourth, the SOCBI framework adaptation from city to national contexts, while theoretically grounded, requires further validation across diverse geographical and cultural settings.

Future research should address these limitations through expanded samples encompassing diverse global regions, longitudinal designs tracking communication evolution, and multi-platform analyses incorporating social media and user-generated content Additionally, tourist perception studies could validate whether the identified performance-communication paradox influences actual destination choice behavior, while experimental designs might test causal mechanisms underlying compensatory communication strategies.

Ethics Declaration

Ethical review and approval were not required for this study because it did not involve human participants, identifiable personal data, or interventions, and all data analyzed were publicly available and anonymized. The research complied with relevant institutional and national guidelines.

AI Declaration

No generative artificial intelligence tools were used in the conception, design, analysis, or writing of this manuscript. Standard software (e.g., reference managers, statistical packages, spelling/grammar checkers) was used only for routine tasks, and the authors take full responsibility for the content.

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Trust or Convenience: Which Is More Correlated to Continuous Usage of Chatbot Applications in the Travel Trade Industry?

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Abstract: Chatbot applications have benefited not only individual users but also corporate users, such as travel trade specialists. This research examined the unique characteristics of chatbot applications and the ongoing adoption of chatbots by travel agencies that provide airline-related services in the Philippines. Applying the Theory of Reasoned Action, this study evaluated respondents' perceptions of how chatbot applications addressed aspects of trust and convenience. This addressed the empirical research gap on the use of trust and ubiquity as correlates of continuous use of chatbot applications, as well as the scope gap by analysing the perceptions of travel trade specialists, which is innovative given that previous studies focused on individual customers as end-users of chatbot applications. Using survey research among travel trade specialists, the study revealed that either chatbot trust or chatbot ubiquity correlates with continuous usage. The study found that travel trade companies are more likely to use chatbots continuously when they have higher levels of trust and perceive chatbots as ubiquitous. Specifically, trust in chatbots strongly influences the intention to use them consistently, as these companies rely on them to manage risks across their business processes. While both trust and ubiquity play significant roles in chatbot adoption, developers should recognize that travel trade companies prioritize trust when embracing technological applications like chatbots.

Keywords: Chatbot Applications, Trust, Ubiquity, Continuous Usage, Travel Trade Specialists

1. Introduction

One emerging Industry 4.0 application within the construct of artificial intelligence is chatbots (Hsu and Lin, 2023). A chatbot is a computer program that simulates a conversation with its intended users online (Adamopoulou and Moussiades, 2020). Chatbots are used in the industry to serve customers of manufacturing or service companies through the convenience, relevance, and appropriateness of their functions, which supplement customer service (Hsu and Lin, 2023; Petersson, Pawar, and Fagerstrøm, 2023). In e-commerce, chatbot applications foster a positive attitude towards the brand among users, encouraging them to use the application (Li and Wang, 2023). Various studies have identified the antecedents of chatbot satisfaction that led to usage intention (Petersson, Pawar, and Fagerstrøm, 2023; Liu et al., 2023), but there are still limited studies that explore chatbot repeat usage intention (Nazir et al., 2023). Repeat usage, or usage continuity, plays a significant role in evaluating the effectiveness of an online application because it thrives on the consistent satisfaction of user expectations, which often reflects loyalty (Nugroho, Setyorini, and Novitasari, 2019).

The applications of chatbots in the tourism industry significantly enhance the customer experience (Chi, 2022; Cheng et al., 2022). The tourism industry is one of the largest global economies, operating to provide customer service (Hadjielias et al., 2021). The airline and aviation industries are significant players in the tourism industry, whose primary operations focus on meeting transportation needs and requirements (Steven, Dong, and Dresner, 2012; Chow, 2014). The airline industry optimizes the use of chatbots to address passenger inquiries and process reservations, adding value through convenience and functionality (Melián-González, Gutiérrez-Taño, and Bulchand-Gidumal, 2019). The role of artificial intelligence in these steps can be attributed to providing instant responses and feedback based on the values added to the database management (Hadjielias et al., 2021; Melián-González, Gutiérrez-Taño, and Bulchand-Gidumal, 2019). However, the few studies that have explored chatbot applications for customers in the airline industry have primarily focused on the experiences of tourists, passengers, or individual users (Steven, Dong, and Dresner, 2011; Chow, 2014). The analysis of chatbot application use among B2B users, such as travel trade companies like travel agencies, has not yet been fully explored in the academic literature. Previous studies have only focused on the experiences of travel agency customers and their interactions with A.I.-enabled travel agents (Singh, Rana, and Parayitam, 2022; Lalicic and Weismayer, 2021). Given that chatbot applications are now designed to deliver value in business-to-business

transactions (Kushwaha, Kumar, and Kar, 2021), understanding how airlines manage the experience of their travel agencies or travel trade partners can contribute to the body of knowledge in this field.

Trust issues are pressing the perceived value and effectiveness of using A.I.-enabled applications (Sasikumar et al., 2022; Youn and Jin, 2021). Digital trust refers to the level of confidence users have in the technology and the processes that underpin its operation (Sasikumar et al., 2022; Weck and Afanassieva, 2022). Digital trust corresponds to the value users place in the application based on its features, thereby reducing the anxiety and worries users have about its functionality (Szumski, 2020). Online application developers strive to establish digital trust among their users, as it has been proven to be linked to online user satisfaction and gratitude (Yamamoto et al., 2022). User trust in online applications has been widely explored among end users (Steven, Dong, and Dresner, 2012; Kushwaha, Kumar, and Kar, 2021). There are still limited studies exploring digital trust in B2B transactions, where intended users are industrial businesses, such as travel agencies, that use chatbots to facilitate transactions with other tourism service suppliers (Kushwaha, Kumar, and Kar, 2021).

Convenience has been considered a critical outcome of digital technologies and applications (Melián-González, Gutiérrez-Taño, and Bulchand-Gidumal, 2019). Previous studies emphasized the value of convenience, such as automatic responses and the dependability of artificial intelligence applications, when users intend to use them (Uzir et al., 2021; Amagasa and Moriya, 2022). Perceived ubiquity is a specific factor related to user convenience, which refers to the ease with which customers can complete a transaction when needed (Benedicenti, 2017; Okazaki & Mendez, 2013). Artificial intelligence applications in various industries are considered convenient because they eliminate temporal and spatial constraints (Kelly, Kaye, and Oviedo-Trespalacios, 2022). The ubiquity of chatbots has been less explored because they are intended to provide convenience to end users during business transactions (Alagarsamy and Mehrolia, 2023; Wang et al., 2023). The chatbot application among travel agencies that work with other suppliers may need to leverage ubiquitous applications to achieve better operational outcomes (Lalicic and Weismayer, 2021). As the use of chatbot applications grows to improve the user experience for industrial businesses, such as B2B firms, this gap needs to be bridged.

This study examines the individual characteristics of chatbot applications and the ongoing use of chatbots by travel agencies collaborating with airline companies in the Philippines. Specifically, it addresses the following research questions: (a) What is the perceived chatbot trust, perceived chatbot ubiquity, and continuous chatbot usage intentions of travel agents in dealing with airline companies? and (b) What is the extent of the relationship between perceived trust and ubiquity and the continuous usage of chatbots among travel agents whenever they depend on chatbots in dealing with airline companies? This research examines the knowledge gap that exists in the analysis of the perceived trust and ubiquity of chatbot applications used by travel agents in dealing with airline A.I.-enabled services. Moreover, there is still a gap in the limited studies that have analysed chatbot applications for continuous use, as most previous studies have focused only on usage intention.

2. Theoretical Background and Hypotheses Development

This research investigates the relationship between chatbot trust, ubiquity, and continuous usage, grounded in the Theory of Reasoned Action (TRA). The Theory of Reasoned Action, developed by Fishbein and Ajzen, suggests that individual action is driven by human attitudes and behaviour (Mishra, Akman, and Mishra, 2014; Skewes and Gonzalez, 2013). In this study, trust is selected as the human attitude for the topic because these variables are constructed relatively in terms of technology use (Modliński, Gwiaździński, and Karpińska-Krakowiak, 2022). Ubiquity is also considered a key aspect of human behaviour for study because previous studies have identified it as a behavioural outcome of artificial intelligence applications (Paz-Lopez et al., 2013). Meanwhile, continuous usage is the human action intended as the study's outcome to bridge the gap in reasoned action, as previous studies have explored usage intention only.

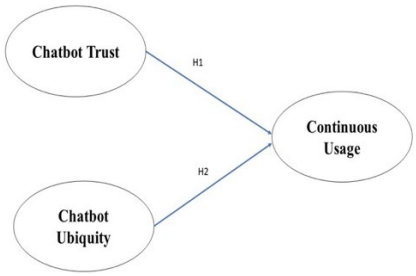


Figure 1: Research Framework

2.1 Chatbot Trust and Continuous Usage

Several studies have demonstrated a positive relationship between trust and customer action (Mangus et al., 2023; Mofokeng, 2023). Previous studies have shown that attitude outcomes can lead to continued use because they foster a positive image in users' perceptions (Liu et al., 2023). The technological application's usage extends significantly due to the established trust in its features, which deliver the user's requirements (Jiang, Wang, and Yuen, 2021). In the tourism and hospitality industry, studies have revealed that users who trust the application tend to exhibit extended usage, as they depend on the technology's reliability to deliver results (Shen et al., 2022). Despite the widespread use of chatbots, there remains a need to explore their relevance to the operations of tourism and hospitality establishments (Li and Wang, 2023; Chow, 2014). Given the long history of chatbot applications and their ongoing improvements and updates, these developments could have positive implications for the efficiency of tourism and hospitality operations (Adamopoulou and Moussiades, 2020). Thus, if results are delivered to meet the expectations of users of chatbot applications in the travel trade sector of the tourism industry, it is hypothesized that:

H1: Chatbot trust is highly correlated with continuous usage of chatbot applications.

2.2 Chatbot Ubiquity and Continuous Usage

Convenience is considered a behavioural outcome because users aspire to achieve it in assessing the functionality of the product they are using (Chang and Polonsky, 2012). In terms of technological use, chatbot ubiquity is directly linked to user convenience, as it underscores the application's reliability when the user needs it (Paz-Lopez et al., 2013). This implies that users who depend on a particular technological application do not experience any hassle with its use if it becomes available when and how they wish to use it (Chekembayeva, Garaus, and Schmidt, 2023; Park and Zhang, 2021). In the tourism and hospitality industry, a chatbot convenience assessment was conducted based on users' intention to use the application repeatedly, reflecting the satisfaction they experienced (Chang and Polonsky, 2012). The dearth of studies focusing on chatbot application usage in the travel trade sector opens opportunities for exploration, provided that operational functionality differs from end-user use. However, chatbot applications showed positive results for customer loyalty in the tourism industry (Lee and Li, 2023) and thus, result in the following hypothesis:

H2: The ubiquity of chatbots is highly correlated with continuous usage of chatbot applications.

3. Methodology

The methodological gap highlighted in this research is the scarcity of studies focusing on the experience of technology users in business-to-business transactions (Kushwaha, Kumar, and Kar, 2021), rather than on individual customer interactions.

3.1 Research Design

This research follows a descriptive–correlational study, employing a quantitative mode of inquiry. A previous perspective on similar designs found that tourism research benefits from this approach, as it provides empirical evidence, particularly on measurable items such as individual users' perceptions (Dolnicar, 2019; Suominen et al., 2022). Moreover, the benefits of a correlational study can shed light on which of the identified independent variables are associated with the expected behavioural outcome, which, in this context, pertains to continuous use of chatbot applications (Suominen et al., 2022).

3.2 Sampling Procedure

To identify respondents for this study, a purposive sampling technique was employed, screening them based on the identified criteria. To qualify as respondents, travel trade sector specialists must be (a) have worked in the travel trade sector of the Philippines for at least three years, (b) have utilized chatbot applications in dealing with airline reservations partners for at least a year, and (c) must have clearly shown knowledge and context in the usage of chatbot applications in dealing with business-to-business transactions. The following criteria for respondents were established based on the strength of validating data sources from previous literature on chatbot applications and usage (Liu et al., 2023; Chi, 2022). A total of 420 surveys were distributed, but only those respondents who met the set criteria were included in the screening process. Around 67 travel trade specialists were disqualified based on the screening questions' requirements. Meanwhile, another seven

responses were deleted because they were evident straight responses to scale items. Three hundred forty-five travel trade specialists in the Philippines qualified for this study.

3.3 Instrumentation and Data Collection

This research utilized an adapted survey questionnaire contextualizing the measures of chatbot applications and usage. For the chatbot trust items, the items were adapted from previous literature (Alagarsamy and Mehrolia, 2023). For chatbot ubiquity, the adaptation was based on previous literature (Li and Wang, 2023). The behavioural outcome identified in continuous usage also aligns with previous literature on technological continuity (Nugroho, Setyorini, and Novitasari, 2019). The question items were modified to reflect the context of business-to-business transactions in the travel trade sector, as they involve representatives from airlines. This research bridges the gap in the empirical focus on these operations because travel trade requires immediate, yet accurate, responses from their airline counterparts during reservation transactions (Lee and Li, 2023).

An online survey approach was adopted, with strict monitoring of respondents' profiles based on the study's set criteria (Suominen et al., 2022). A reliability test was processed following the modification and combination of scale items from related literature. Two items from chatbot trust, two items from chatbot ubiquity, and one item from chatbot continuous usage intention were deleted because their Cronbach's alphas were below 0.70. After deleting items, the overall Cronbach's alpha was 0.82, indicating the reliability of the research instrument.

3.4 Data Analysis and Ethical Considerations

In a correlational study, Spearman's rho was used to assess the significance of the association between the independent and dependent variables. To address the main research question, the analysis determines which of chatbot trust and chatbot ubiquity leads to greater continuous usage. The higher R values can help determine which, among trust and convenience, is considered a predictive factor for the constant use of chatbot applications by travel trade specialists dealing with airline reservations officers. Meanwhile, data processing was kept anonymous to prevent bias in the analysis. Moreover, data storage and confidentiality were ensured for respondents, ensuring that their personal information would be protected.

4. Results and Discussion

4.1 Descriptive Statistics

Table 1: Perceived Trust

No	Perceived Chatbot Trust		
	Scale Items	Weighted Mean	Standard Deviation
1	Chatbot applications can provide beneficial information to help us achieve our objectives.	3.75	0.76
2	Chatbot applications deliver answers to our queries from our business partners.	4.26	0.91
3	Chatbot applications present trustworthy results from our requests or concerns.	4.10	0.83
	Over-all	4.04	0.83

This result aligns with previous literature highlighting the importance of chatbot trust, grounded in its functionality in delivering responses that address end-users' concerns or queries (Liu et al., 2023; Szumski, 2020). This also demonstrates that chatbot functionality is crucial to its trustworthiness, as travel trade specialists must fulfill the demands of users conveyed to their customers (Yamamoto et al., 2022; Amagasa and Moriya, 2022). Their trust in using chatbot applications is primarily defined by the accuracy of responses to submitted questions, as travel arrangements in the airline industry require a high level of precision and error-free service (Chekembayeva, Garaus, and Schmidt, 2023). Connecting the descriptive result to TRA, travel trade specialists perceived the level of chatbot trust primarily based on the promptness with which chatbots delivered answers when asked questions. This implies the development of a positive human attitude towards chatbots once they address users' concerns (Mishra, Akman, and Mishra, 2014). No matter how beneficial the information provided

by chatbots is, they should be able to answer transactional queries because they have a critical effect on the service offered by travel trade specialists, which justifies the perception of chatbots (Li and Wang, 2023; Shen et al., 2022).

Table 2: Perceived Ubiquity

No	Perceived Chatbot Ubiquity		
	Scale Items	Weighted Mean	Standard Deviation
1	Chatbot applications are available anytime our office needs them	4.25	0.83
2	Chatbot applications are easily accessible when the need arises	4.45	0.87
3	Chatbot applications on different platforms make it easier to utilize	4.40	0.91
	Over-all	4.37	0.87

This result supported previous literature (Li and Wang, 2023; Amagasa and Moriya, 2022) that emphasized the convenience value of chatbot applications. Among ubiquity items, it revealed that "Chatbot applications are easily accessible when the need arises" has the highest weighted mean, indicating that its accessibility across different platforms makes it easier for the travel trade specialists who are meant to be using different technological systems in their function (Weck and Afanassieva, 2022; Paz-Lopez et al., 2013). Moreover, the availability of chatbot applications has a significant impact on their utilization (Chang and Polonsky, 2012). Connecting the result to TRA, the item with the highest mean indicates that travel trade specialists found chatbots more convenient when they were easily accessible when needed. The same transactional feature was assessed by users, who deemed the chatbot to be ubiquitous when it can easily provide value in circumstances that call for urgent access (Paz-Lopez et al., 2013). The reliability of chatbots, which are readily available at any time and as needed, justified travel trade specialists' perception of chatbot ubiquity (Chekembayeva, Garaus, and Schmidt, 2023; Park and Zhang, 2021).

Table 3: Perceived Chatbot Continous Usage Intention

No	Perceived Chatbot Continuous Usage Intention		
	Scale Items	Weighted Mean	Standard Deviation
1	I continue using chatbot applications after the benefits I experienced in using them	3.85	0.78
2	I use chatbot applications more frequently than I do manual processing.	3.95	0.81
3	I have processed more transactions through chatbot applications since I started using them.	4.10	0.85
	Over-all	3.97	0.81

This finding aligns with previous literature that emphasizes the value of chatbots in the industry (Lee and Li, 2023). This can be explained by the hectic travel trade specialists' schedules and their high demand for accessibility, which can be met through the use of chatbot applications (Kushwaha, Kumar, and Kar, 2021; Kelly, Kaye, and Oviedo-Trespalacios, 2022). Among the various items, the productivity value of chatbot applications has the highest mean of 4.10, reflecting how travel trade specialists optimize their usage to process more transactions due to the speed of response and feedback (Youn and Jin, 2021; Cheng et al., 2022).

4.2 Inferential Statistics

Based on previous literature (Hou, Guo, and Pan, 2023; Benedicenti, 2017), users who trust and are familiar with their technological applications tend to exhibit continuous usage. However, a deductive analysis, which would lead to constant use to a greater extent, has not yet been undertaken, especially in the field of chatbot applications within a B2B transaction model.

Table 4: Relationship of Trust and Ubiquity to Continuous Usage Intention

No	Relationship of Chatbot Trust and Ubiquity towards Continuous Usage Intention			
	Variable	Correlation Coefficient (r)	P-Value (Sig)	Strength of Relationship
1	Chatbot Trust	0.769	0.000	Strong
2	Chatbot Ubiquity	0.367	0.031	Moderate

The analysis revealed that both perceived trust and the ubiquity of chatbot applications are significantly correlated with a continuous usage intention, with p-values below 0.05, which fall below the threshold for significance. This indicates that both H1 and H2 should be accepted, as these two attributes led to a continuous usage intention for chatbot applications, with p-values of 0.000 and 0.031, respectively, which align with previous studies (Chang and Polonsky, 2012; Modliński, Gwiaździński, and Karpińska-Krakowiak, 2022).

However, a deeper analysis revealed that the relationship coefficients of these two variables differ in their degree of association with continuous usage intention. It showed that chatbot trust (r = 0.769) has a strong positive relationship. In contrast, chatbot ubiquity (r = 0.367) has only a moderate positive relationship with the continuous usage intention of the chatbot application, aligning with the critical values prescribed in the literature (Mofokeng, 2023). These findings supported the arguments of previous studies (Petersson, Pawar, and Fagerstrøm, 2023; Melián-González, Gutiérrez-Taño, and Bulchand-Gidumal, 2019), which explained that users of technological applications behave more proactively in their use if anxiety associated with its use is managed. Chatbot trust has a stronger relationship with continuous usage intention because travel trade companies systematically validate their mechanisms before integrating a step into their business transactions (Nugroho, Setyorini, and Novitasari, 2019). Even though chatbot ubiquity also has a significant relationship with continuous usage intention, the deductive analysis revealed that users are willing to continuously use chatbot applications, whether easy or challenging, as long as they are comfortable in using it without the burden of doubts in processing their transactions (Youn and Jin, 2021; Weck and Afanassieva, 2022).

In the relationship analysis, travel trade specialists showed a stronger relationship between their perceived trust in chatbot applications and continuous usage than between the perceived ubiquity of chatbots and constant usage. This implies that travel trade specialists formed a stronger, more positive attitude towards chatbots, mainly when their questions were addressed right away, because this reduced risk and uncertainty, given that human users are talking to non-human users (Mishra, Akman, and Mishra, 2014; Shen et al., 2022). Moreover, chatbots' perceived ubiquity or convenience was assessed as part of the subjective norm in service design between travel trade specialists and their suppliers using chatbot applications for communication and coordination (Chang and Polonsky, 2012; Park and Zhang, 2021). Perceived trust that results in a positive attitude is highly correlated with higher behavioural intention, which, in this case, is continuous usage, because trust development was deemed more challenging than convenience evaluation (Skewes and Gonzalez, 2013). Moreover, Filipino technology users do not readily trust an application unless the technology has contributed to solving their concerns, which, in this case, chatbot applications have managed to do (Yamamoto et al., 2022). Travel trade specialists in the country are more cautious about trusting chatbot applications, which is why, when chatbot applications earned trust by providing reliable information when needed, continuous usage intention emerged.

5. Conclusion and Recommendation

The findings revealed that travel trade companies have a higher intention to use chatbot applications continuously, provided they have a higher degree of trust and ubiquity towards these applications. Deductively, chatbot trust has a stronger relationship with chatbot continuous usage intention because travel trade companies showed a greater dependence on risk mitigation integrated into their business transaction processing. Although both factors were significantly related to chatbot applications, developers may consider how travel trade companies place a higher value on trust when patronizing technological applications, such as chatbots, continuously.

This research expanded the Theory of Reasoned Action by not only providing a specific context for the justification of continuous use of chatbot applications but also contextualizing the experience and perceptions of travel trade specialists working on a B2B model. The majority of studies that adopted TRA focused on the

experience of individual end users, such as customers. This study analyzed the evaluation of trust and ubiquity towards a tool that contributes to its functionality and operations.

It is recommended that chatbot developers consider these two factors when designing chatbot applications for travel trade companies. Both trust and ubiquity were significantly related to continuous usage; hence, developers should find ways to manage the perceived risks associated with the use of chatbot applications, as well as make their interfaces more straightforward to use and follow for convenience. For prioritization, developers should address potential risks that travel trade companies may encounter when processing transactions via chatbot applications. This can be achieved by promptly responding to queries, presenting evidence-based results, and enhancing assurance mechanisms within the chatbot system. To encourage continuous use of chatbot applications among travel trade specialists, suppliers should anticipate the questions that may arise during chatbot use. Understanding the service design behind travel trade operations will provide context for the most critical questions to address, because if chatbot applications can provide contextual information and answers to these questions when travel trade specialists raise them, this is highly related to a greater level of perceived trust. When chatbot trust is higher, a positive attitude towards chatbot applications can be associated with a greater level of continuous usage, as per TRA.

6. Limitations and Future Research

A positive attitude associated with trust is highly related to behavioral intention, which, in this context, focuses on continued use. However, this research focused on the experience and perceptions of travel trade specialists in the Philippines, where the adoption of AI and chatbot applications is not comparable to that in developed economies. Moreover, the topic focuses only on chatbot applications implemented by their suppliers, such as airlines and ticketing organizations. Conducting a study on the variety of chatbot interfaces with diverse modules and content may lead to a critical analysis of the results. Future researchers can explore the potential challenges of trust and ubiquity faced by travel trade companies, allowing systems designers of chatbot applications to develop a more specific, action-based approach. Moreover, a cross-sectional study across different sectors of the tourism industry and their use of chatbot applications can provide greater value to the existing body of knowledge on the ongoing use of chatbot applications in this growing industry.

Ethics Declaration

This paper underwent ethics review and approval on the research instrument, data collection, and data analysis phases. A basic ethics review was conducted because human subjects were involved only in the anonymized survey research.

AI Declaration

The researchers utilized Grammarly for language editing and proofreading.

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Exploring the Perceived Influence of Cinema on Destination Image, Destination Attributes and the Intention to Travel

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Abstract: Cinema has long been acknowledged as a cultural mediator capable of shaping perceptions, imagery and attitudes associated with tourism destinations. However, empirical evidence regarding its influence on destination perceptions beyond single case studies remains limited. This quantitative exploratory study investigates how individuals perceive the influence of cinema on travel decision, mediated by destination image and destination attributes. An online survey was administered to 262 participants, examining patterns of cinema consumption, attention to filmed landscapes and self-reported predisposition to travel after watching films. Descriptive and inferential analyses do not demonstrate direct relationships among cinema consumption, destination image, destination attributes and travel decision. Rather, findings suggest that cinema may operate as an indirect experiential and symbolic stimulus within a longer decision-making trajectory. The study contributes a broader empirical perspective to the field of film-induced tourism and highlights the need for further research addressing contextual, motivational and demographic variables that may mediate these relationships

Keywords: Film-induced Tourism; Cinema; Destination Image; Destination Attributes; Travel Behaviour; Exploratory Study

1. Introduction

Cinema and audiovisual media have become central components of contemporary destination promotion and cultural mediation. The role of cinema as a cultural element capable of stimulating tourism imaginaries has been widely discussed, especially in studies concerning film-induced tourism. Research on film-induced tourism has shown that audiovisual narratives may influence tourist motivations and stimulate interest in particular places. However, most empirical works in this field rely on case studies centred on specific films or discrete locations, which limits broader theoretical generalisation. It is therefore relevant to deepen the understanding of how audiovisual contents may contribute to representations of destinations and possibly stimulate tourism interest.

Within this context, the present study adopts an exploratory approach and seeks to preliminarily map individuals' perceptions regarding the possible influence of cinema on the willingness to travel. Rather than analysing a specific audiovisual product or location, a broader and perceptual perspective is adopted, focusing on how participants evaluate the relationship between cinema consumption and travel-related ideas. By adopting a quantitative exploratory approach, this research aims to identify preliminary perceptual patterns rather than test causal relationships.

The paper has six sections: it introduces the research topic, reviews concepts on travel decisions, destination image, attributes, and Cinema, and theorizes their relationships. It then presents the methodology, analyses the data, and discusses the findings, concluding with the study's contributions, implications, and suggestions for future research.

2. Literature Review

The phenomenon of Film-Induced Tourism (FIT) has been recognized in academic literature as an area of growing interest, driven by the capacity of audiovisual productions to shape destination image and influence traveller behaviour (Barrado-Timón & Sáez-Cala, 2020; Novack, 2022)

Existing research highlights films are able to generate emotional bonds with destinations through imagery, symbolic interpretation and narrative identification, contributing to travel-related imagination (Beeton, 2004, 2016; Kim & Richardson, 2003). Within tourism studies, destination image and destination attributes are widely recognised as determinants of tourist evaluation, decision-making and market positioning (Beerli & Martin, 2004; Echtner & Ritchie, 1993; Tasci et al., 2021). However, most research focuses on specific films or locations, so little is known about how cinema is perceived by audiences independently of particular audiovisual contexts, which justifies an exploratory approach.

2.1 Travel Behaviour

Motivation theories have traditionally explained how travellers seek to satisfy psychological needs, including self-actualisation, belonging, security or physiological comfort (Maslow, 1943; Dann, 1981; Pearce, 1988; Pearce & Lee, 2005). Maslow's hierarchy has therefore been widely applied to interpret motivations underlying travel behaviour (Jumaday et al., 2022; Yousaf et al., 2018; UK Essays, 2021), although several authors note that behavioural drivers extend beyond basic needs and are also influenced by additional psychological and contextual variables (Dann, 1977; Tikkanen, 2007; Shin et al., 2022; Shaikh et al., 2020).

Beyond motivation, travel decision-making has evolved from classical behavioural models (Fourie, 2015) to digitally driven frameworks that recognise the complexity of contemporary information environments. Following this line, Dimitriou and AbouElgheit (2019) argue that decisions now occur simultaneously across multiple channels and devices (Wei, 2016), initiated by internal or external stimuli that activate need recognition and subsequent evaluation, booking and post-travel assessment (UNWTO, 2024).

2.2 Destination Attributes

In addition, travellers are drawn towards destinations not only due to internal motivations but also because of destination attributes such as natural resources, culture, accessibility, infrastructures or safety (Dann, 1977; Coban & Aydin, 2020; Ciro & Toska, 2021; Mwawaza et al., 2022). Attributes influence perception, selection and post-travel behaviour including revisits and word-of-mouth (Chi & Qu, 2008, 2009; Ozdemir et al., 2012), reinforcing their strategic relevance.

2.3 Destination Image

These attributes interact with destination image, understood as the sum of beliefs, impressions and attitudes formed through organic, induced and complex processes (Gunn, 1972; Crompton, 1979; Fakeye & Crompton, 1991; Tasci et al., 2007). Organic images emerge through informal media consumption and interpersonal communication, often exerting a stronger effect than induced promotional communication (Hudson & Ritchie, 2006; Campo et al., 2011; Shani et al., 2009). Because images shape decision-making and competitive advantage, destinations must integrate organic and induced elements across communication strategies (Howie, 2003; Selby, 2010; Eom et al., 2020; Foroudi et al., 2018).

Through this lens, cinema functions as a distinctive and comparatively non-intrusive mechanism of organic imagery formation (Butler, 1990; Busby & Klug, 2001), capable of raising awareness, encouraging information search and enabling vicarious experiences of place (Kim & Richardson, 2003). The economic, social and cultural impacts of cinema therefore align with wider strategies of film-induced tourism, a field studied increasingly since the 1990s (Beeton, 2016) and recognised for shaping destination images and attracting potential visitors (Ahmed & Ünüvar, 2022; Barrado-Timón & Sáez-Cala, 2020).

3. Methodology

Based on the literature review, Cinema is recognised as a powerful agent influencing behaviour, with the potential to affect travel decisions. Previous studies suggest that exposure to destinations on screen can increase the likelihood of choosing to visit those locations (Beeton, 2016; Kim & Richardson, 2003).

To better understand this phenomenon, the present investigation is structured around a model that places Cinema (the independent variable) as an initial indirect stimulus, influencing the Decision to Travel (dependent variable) through a sequence of cognitive and perceptive processes, represented by Destination Image and Destination Attributes (mediating variables).

Cinema is operationalized as the perceived or recalled exposure to a tourist destination through films and series. Its influence is based on the theory of Film-Induced Tourism, which argues that the visual narrative and emotional representation of a location create an organic and non-intrusive link with the audience (Beeton, 2016; Hudson & Ritchie, 2006a). To measure this variable the model proposed by Macionis (2004) which consists in 3 dimensions and 9 items was used. These items were answered in a 6-point Likert scale. The exploratory factor analysis resulted in three factors, excluding one item, that explained 76,47% of the variance: Place (α = 0,70), Personality (α = 0.90) and Performance (α = 0,77).

Destination Image is the first theorized mediator. Cinematic exposure contributes to the formation of the destination's "organic image," i.e., the beliefs and attitudes formed outside of promotional efforts (Beeton, 2005;

Gartner, 1994). This variable was operationalised using 6 items adapted from Foroudi et al. (2018), Byon and Zhang (2010), Echtner and Ritchie (1993), Beerli and Martin (2004). These items were answered in a 6-point Likert scale. The exploratory factor analysis resulted in one factor, excluding one item, that explained 54,28% of the variance (α = 0,79).

Destination Attributes, constitute the second mediator. This variable was operationalised using 10 items, according to the model proposed by Foroudi et al. (2018) and Datta (2019). These items were answered in a 6-point Likert scale. The exploratory factor analysis resulted in one factor, excluding four items, that explained 62.01% of the variance (α = 0,87).

Cinema provides visual and contextual insights that fill information gaps and inject symbolic meaning into the destination, creating a more vivid, engaging, and emotionally charged image. A more positive, clear, and affective destination image, influenced by cinematic exposure, increases perceived attractiveness and reduces uncertainty, culminating in a higher propensity to travel (Nazir et al., 2021; Matarín Rodríguez-Peral & Gómez-Franco, 2024).

The way Cinema represents these attributes can alter the perception the viewer has of them. Cinema acts as a visual validation of certain attributes that would otherwise be just textual or promotional information. Exposure can highlight attributes that were not previously noticed. The positive and validated perception of a destination's attributes is a determining factor for the final evaluation and subsequent travel choice (Chi & Qu, 2008; Echtner & Ritchie, 1993).

The Decision to Travel is the final outcome, measured by the behavioural intention to visit the destination following cinematic exposure. Therefore, this study proposes that Cinema, mediated by destination image and destination attributes, may positively affect travel decisions.

3.1 Exploratory Hypotheses

Given the exploratory nature of this research, the study aims to identify patterns and relationships rather than test causal effects definitively. The following hypotheses were formulated to guide the investigation:

H1: Cinema positively influences the decision to travel to tourism destinations.

H2: Destination image positively influences the decision to travel.

H3: Destination attributes positively influence the decision to travel.

H4: The relationship between cinema and the decision to travel is mediated by destination image and destination attributes.

3.2 Research Design

Data were collected through an online questionnaire distributed to 262 participants using a convenience sampling strategy. The instrument was structured into four sections: socio-demographic profile, cinema consumption habits, perceptions of destination image and attributes, and travel intention. The study does not aim at statistical representativeness, but at identifying exploratory perceptual patterns.

3.3 Data Analysis

Data analysis was conducted using SPSS 16.0, including: Normality tests: Kolmogorov-Smirnov and Shapiro-Wilk; Exploratory factor analysis to verify the validity of scales; Cronbach's Alpha to assess internal consistency (α, significance level 0.05); Descriptive and inferential statistics to explore patterns and relationships.

The assumption of normality was not met for all variables. In such cases parametric and non-parametric tests were carried out, and since the results obtained were the same, results of parametric tests are reported (Fife-Schaw, 2006).

Given the exploratory approach, results are interpreted as preliminary insights rather than evidence of causality. Findings are intended to inform future hypothesis-driven studies and identify key dimensions for further investigation.

4. Results

When analyzing the sociodemographic variables, results show that the majority of the respondents are female (58%), 41% are male and 1% didn't identify with any specific gender. Regarding age, 42% of the respondents have 27 years old, or less, 30% are aged between 28 and 43 years old. Only 19% have 44 to 59 years old, and 5% of the respondents have 60 years old, or more. Most respondents have concluded high school (52%), 25% have gained a bachelor's degree and 13% of the sample has a master's degree. Only 2% of the respondents have finished doctoral studies.

Regarding the attitude of respondents towards Cinema, most respondents watch movies daily (57%), or every week (34%). A small percentage of the sample (7%) consume Cinema at least once a month, and only 1% do it seasonally or yearly. The favorite genre of films are comedies (22%), followed by drama, action, real life stories, romance, documentaries, music, and video songs (10% to 15%). Cartoons (6%), terror (4%) and soap operas (3%) rate lower.

When images of a tourism destination are displayed on the movie screen, 25% of respondents are very likely to have their attention caught by the landscapes, the overall image (24%), the actors (23%), the characters (19%), the destination attributes (17,5%), and the sceneries (17%).

When considering the influence of Cinema in the desire and decision to travel, almost all respondents claim to have felt the desire to travel after watching a movie (96%), but only 53% have decided to travel after consuming Cinema.

Regarding the frequency of travelling, most respondents travel once per year (47%), or every two years (26%). Around 14% of the sample do seasonal displacements for tourism destinations, while 3% and 1% of the sample travel every month or every week, respectively. The number of respondents that never travel ascends to 8%.

When travelling, most respondents stay between 4 and 7 days at the destination (58%). Around 25% of the sample spends 8 to 14 days abroad. Those who travel for less than 3 days, or more than 15 days, represent 5% and 4% of the sample, respectively.

Regarding expenditure, participants spend, in average, less than 500€ (20%) or between 501€ to 1000€ (38%), while travelling. A percentage of 13% claim to spend between 1001€ and 2000€. Around 4% and 2% of the sample seems to spend 2001€ and 3000€ or above. A percentage of 14 respondents is not aware of their travelling expenditure.

Portugal (92%), Europe (66%) and Africa 11% are the destinations to which respondents have travelled the most, being Europe the continent to which 14% of the respondents have travelled two times. America was visited once by 17% of the respondents, while Europe and Africa were visited once by 13% of the sample. To Asia 11% of the respondents have been one time.

The least visited regions are Oceania (97%) and Asia (84%), followed by America (71%) and Africa (70%). Only 7% of the sample has not visited Europe at all, and 1% seem not to know Portugal as a travel destination.

No significant differences were found (all $p > 0.05$) between male and female participants regarding cinema consumption. Results also show no significant differences (all $p > 0.05$) for the analysis comparing participants who have decided to travel after watching a movie, and those who have not. In this sense hypothesis 1 'Cinema influences the decision to travel to tourism destinations', is rejected.

The same is valid for destination image and destination attributes, meaning that the analysis comparing participants who have decided to travel after watching a movie, and those who have not, in what concerns destination image and destination attributes didn't show any significant differences ($p > 0.05$). Results force us to reject hypothesis 2 and 3. Destination image and destination attributes do not influence the decision to travel to tourism destinations.

Given the fact that it was concluded that Cinema, destination attributes and destination image seem to have no influence in the decision to travel, there is no mediation role established between the variables. Therefore, hypotheses 4 is rejected: the influence of Cinema in the decision to travel is not mediated by destination image and destination attributes.

5. Discussion

Understanding the influence of cinema on travel decisions, mediated by destination image and destination attributes, was the central aim of this exploratory study. The literature traditionally highlights the relevance of these variables for encouraging travel motivation and affective engagement with places (Riley & Van Doren, 1992; Busby & Klug, 2001; Kim & Richardson, 2003; Hudson & Ritchie, 2006; Tzanelli, 2008; Beeton, 2004, 2005, 2016; Sellgren, 2011). Accordingly, none of the proposed direct or mediated relationships between cinema, destination image, destination attributes and travel decision were statistically confirmed.

These findings resonate with previous research acknowledging that the specific influence of cinema on travel decision-making has received limited scholarly attention. Araújo et al. (2015) note that only one study directly examined this question—Im & Chon (2008)—and that subsequent publications have mostly focused on specific films or particular destinations, frequently adopting case-study, experimental or survey-based exploratory designs that cannot be easily generalized. Examples include Akhajam's (2015) study on Ouarzazate (Morocco), Daniel & Halford (2021) analysis of Forks in the United States, and Vila et al. (2021) examining the Spanish context.

A similar dynamic seems to apply to destination image. Despite substantial emphasis in tourism literature on the capacity of a positive and attractive image to stimulate tourism demand (Hua et al., 2021; Foroudi et al., 2018; Macionis, 2004), the present research did not confirm a direct association between image and travel decision either. Likewise, no direct impact of destination attributes on travel decisions emerged from the data. This aligns with Rewtrakunphaiboon (2009) and Dellaert et al. (1998), who argue that destination attributes operate indirectly by influencing phases of the decision-making process rather than determining the final decision itself.

The results also indicate that gender does not significantly influence cinema-related perceptions. In contrast, cinema consumption appears strongly shaped by age and education, with younger respondents reporting daily viewing habits and greater exposure to audiovisual content. This is consistent with Dimitriou and AbouElgheit (2019), who show that younger audiences are particularly receptive to visually driven media such as Instagram or TikTok.

In terms of preferences, comedies were identified as the most popular film genre, followed by documentaries and real-life stories. Given younger generations' high engagement with social digital media (Dimitriou & AbouElgheit, 2019), destinations may benefit from encouraging audiovisual content sharing on these platforms, emphasising elements to which viewers appear sensitive—landscapes, scenery, characters, actors, and specific destination attributes.

The data also suggest that travel decisions often take time to mature, especially among individuals who travel only once per year. This may explain why cinema does not produce an immediate decision but potentially contributes to intention formation by reducing perceived constraints and offering an organic, less intrusive informational approach (Butler, 1990). In addition, travel choices seem more attractive when destinations are geographically closer, indicating that promotional effort may be more effective when targeted at nearby regions.

Taken together, the findings suggest that cinema may play an indirect role within a multi-layered decision-making trajectory rather than acting as a single determinant. In this sense, cinema can be conceptualized as a symbolic, cultural or emotional stimulus embedded within a longer and more complex process influenced by socioeconomic factors, motivations, personal preferences and destination accessibility. Consequently, the results underline the complexity of tourism decision-making and reinforce the need to further investigate audiovisual mediation alongside other determinants.

6. Conclusion

This exploratory study provides initial empirical evidence regarding how individuals perceive the influence of cinema on destination image, destination attributes and the intention to travel. Although no direct statistical relationships were found between these variables, the findings highlight relevant perceptual tendencies—namely high visual attention to filmed landscapes and scenery, a recurrent desire to travel after film exposure, and a clear generational pattern in cinema consumption. These elements indicate that cinema may not function as a direct predictor of travel behaviour but rather as a symbolic, emotional and gradual trigger integrated into wider decision-making processes.

From a theoretical perspective, the study contributes to film tourism literature by shifting emphasis from single case studies to broader perceptions of audiovisual content. This supports emerging interpretations that

conceptualise cinema as a mediated cultural stimulus rather than an immediate behavioural driver. The results therefore challenge linear causal assumptions and encourage a more nuanced framework in which film exposure interacts with motivations, socio-economic conditions, and digital media environments. By emphasising indirect influences, this work also opens theoretical avenues related to mediated imagination, symbolic consumption and audiovisual decision complexity.

In practical terms, several insights emerge for destination managers, marketers and public tourism authorities. Given the strong visual attention to landscapes and scenery, promotional strategies can capitalise on cinematic imagery and emphasise scenic elements through short-form audiovisual content. Generational differences also suggest opportunities for youth-oriented digital campaigns on platforms where audiovisual consumption is dominant (e.g., Instagram, TikTok, streaming services). Furthermore, destinations located closer to audiences may benefit most from cinematic promotion, indicating that regional targeting and proximity-based campaigns could be particularly effective. The findings also reinforce the value of encouraging user-generated audiovisual content, since it may enhance organic image formation and reduce perceived travel constraints.

The study is limited by its exploratory design, single-country sample and reliance on self-reported measures; therefore, findings cannot be generalised. Nevertheless, these limitations point towards directions for future research, including comparative cross-cultural studies, longitudinal designs, experimental exposure to audiovisual material, and a stronger integration of cinematic genres, narrative forms and digital platforms. Examining the articulation between travel intention and actual behaviour, together with motivational and demographic segmentation, would further strengthen theoretical development in the field.

Overall, by extending the analytical gaze beyond individual films and specific destinations, this study contributes a preliminary mapping of cinema's perceived influence on tourism-related representations. It proposes conceptual and empirical pathways for a deeper understanding of how audiovisual media participate, indirectly and symbolically, in the construction of contemporary travel imaginaries and in the evolution of film-induced tourism research.

Ethics Declaration

Participation was voluntary and anonymous. Respondents were fully informed about the research objectives and assured of the confidentiality of their responses.

AI Declaration

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Time Management Skills and Strategies of Hospitality Faculty: Practices and Demographic Differences in a Philippine State University

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Abstract: The purpose of this study was to examine the time management skills and strategies practiced by Bachelor of Science in Hospitality Management (BSHM) faculty members at West Visayas State University (WVSU) across its Calinog, Lambunao, Janiuay, and Pototan campuses. Specifically, the study aimed to assess the extent of time management practices among faculty and determine whether significant differences existed when grouped according to marital status, job status, length of teaching experience, and educational attainment. The study employed a descriptive cross-sectional survey design utilizing a researcher-adapted 25-item Time Management Behaviour Questionnaire (TMBQ) that measured six domains, namely planning, prioritization, organization, distraction control, delegation and boundary management, and recovery. A total of 32 faculty respondents participated through convenience sampling, and data were analysed using descriptive statistics for item ranking and inferential tests such as t-test, ANOVA, Mann–Whitney U, and Kruskal–Wallis to identify significant group differences. Findings revealed that the overall level of time management skills and strategies was rated "very good" across all classifications, with the highest-rated behaviours being setting clear career perspectives, prioritizing wisely, practicing personal goal setting, and demonstrating self-discipline and determination. Results also indicated significant differences when respondents were grouped according to marital status and length of teaching experience, while no significant variations were observed by job status and educational attainment. These findings suggest that personal circumstances and professional tenure influence time management practices more strongly than employment classification or academic degree. The practical contribution of the study reveals the need for institutional strategies such as professional development workshops, mentoring programs, and workload management policies that accept certain demographic and experiential variation while ensuring that there are robust aggregate practices by faculty. Further, the results offer empirical evidence that effective time management provides an essential function that facilitates effective teaching development, work-life balance, and modelling for hospitality program classes such that applied courses and lab-based classes require extensive preparation. The study's novelty and contribution are that hospitality faculty from higher education from the Philippines have never been examined previously for time management scholarship. Through item-level recording of behaviours and investigating demographic variation, the study offers theoretical contribution toward faculty workload management literature as well as practical contribution toward individuals who aspire that faculty efficiency, productivity, and instruction quality could be improved.

Keywords: Faculty Workload, Higher Education, Hospitality Management, Philippines, Teaching Effectiveness, Time Management Strategies

1. Introduction

Time management has become increasingly acknowledged as a key element of academic and professional achievement across faculty members who shoulder multiple and frequently conflicting roles. University educators need to manage time effectively between teaching preparation and classroom instruction, grading and advising, administrative tasks, scholarship production, and community or industry participation. In vocationally oriented programs like hospitality management, these calls become stronger because hands-on training needs to be orchestrated with the collaboration of businesses as well as with classes that occur partially in laboratories. Therefore, time management is as much an issue of personal efficiency as an element of institutional effectiveness and student learning.

In the past few years, the complexities of faculty time management have been intensified by higher education developments such as digitalization and hybrid approaches to teaching. Literature has noted that online and blended learning contexts exacerbate the complexity of academic tasks management, as faculty members experience fragmented timetables, incessant demands for communications, and spillover of professional boundary across personal life (Oyarzun et al., 2020; Gao et al., 2022). The issues are pronounced in resource-heavy subject areas like hospitality and tourism education wherein hands-on skill training and experiential learning need high levels of preparation and coordination (Hong et al., 2023; Stangl, 2024). Productively notwithstanding, there exists an international body of scholarship on faculty workload and professional development that has been helpful; there are gaps in characterizing discipline-based practices of faculty members, specifically from the ASEAN countries and the Philippine situation.

Previous studies tend to concentrate on populations of fac1ulty at large or on students' time management while allocating hospitality faculty relatively sparse representation within scholarly works. Further, few studies examine item-level behaviours like the assignment of tasks for others' execution, management of digital distraction, and allocating recovery time for schedule demands although they matter significantly for sustainable teaching proficiency. These shortcomings usher in an imperative for empirical findings recording actual strategies employed by hospitality educators while interpreting differences across demographic variables.

1.1 Aim

The study aimed to evaluate the time management skills and strategies of Bachelor of Science in Hospitality Management (BSHM) faculty members at West Visayas State University and to identify variations across demographic factors.

1.2 Objectives

- To assess the overall level of time management skills and strategies practiced by BSHM faculty at WVSU.
- To identify the most and least frequently practiced time management behaviours among faculty.
- To determine whether significant differences in time management skills and strategies exist when faculty are grouped according to marital status and length of teaching experience.
- To verify whether job status and educational attainment account for any variations in time management practices.

1.3 Hypotheses

$H0_1$: There is no significant difference in the time management skills and strategies of BSHM faculty when grouped according to marital status.

$H0_2$: There is no significant difference in the time management skills and strategies of BSHM faculty when grouped according to length of teaching experience.

$H0_3$: There is no significant difference in the time management skills and strategies of BSHM faculty when grouped according to job status.

$H0_4$: There is no significant difference in the time management skills and strategies of BSHM faculty when grouped according to educational attainment.

2. Literature Review

2.1 Conceptualization of Time Management

Classic models of time management framed time management as a multi-faceted set of behaviours—Planning/Goal Setting, Prioritising, Scheduling/Mechanics of Organisation, and Perceived Control of Time—linked with performance and well-being outcomes (Macan, Shahani, Dipboye, & Phillips, 1990). More recently, synthesis confirmed associations these linkages: a meta-analysis reported moderate, positive relationships between use of time management and job performance, student achievement, and well-being, with a moderate negative relationship between time management use and distress (Aeon, Faber, & Panaccio, 2021). Taken as a whole, theory and evidence characterize time management as a behavioural repertoire (e.g., planning, priorities, boundary control) and cognitive appraisal (perceived control) that characterize effective professional practice. (Macan et al., 1990; Aeon et al., 2021.)

2.2 Faculty Workload and Hybrid/Online Teaching

In higher education, hybrid and online modes amplify time-on-task with sustained communication, modularized content, and fusing of work-home boundaries. Survey data from online faculty referred to pedagogical time management strategies—namely, establishing overt expectations and structuring content into discrete modules—as effective strategies for workload management (Oyarzun et al., 2020). At the field level, a 248-paper bibliometric analysis revealed continued growth of scholarship on online faculty professional development and identified emerging foci around training for pedagogy, building of online communities, and facilitation—domains that immediately bridge with instructors' time management requisites (Gao et al., 2022). Qualitative work

before/after the pandemic also recorded fragmentation of scholarly work with faculty relating difficulties across learner expectations, culture, approaches to teaching, and technologies—stressors that aggregate time management complexity (Mulla et al., 2023). Balida & Encarnacion (2020) supports challenges of e-learning tools and their relationship to teaching practices. This connects directly to workload and digital management issues. Together, these studies imply that hybrid time management effectiveness is not solely individual technique but a consequence of course design, institutional resource, and digital environment. (Oyarzun et al., 2020; Gao et al., 2022; Mulla et al., 2023.)

2.3 Hospitality-Specific Teaching Demands

Hospitality and tourism education possesses typical temporal demands of experiential learning, internships, laboratories, and industry partnerships that require advance scheduling, safety guidelines, and external actor coordination. Program-level research carried out recently linked perceived quality of the curriculum, campus receptiveness, and self-efficacious student belief with student satisfaction and career preparation in hospitality programs—implicitly bringing attention to faculty time expenditures involved in designing, delivering, and monitoring applied experiences (Hong et al., 2023). Sector analyses of transferable maps of skills also identified broad portfolios of hard and soft competencies that are hospitality work cores (e.g., problem solving while multitasking), which imply instruction designs that are preparation-centric and time-dependent (Stangl et al., 2024). For faculty members, these attributes evoke increased item-level time management behaviours such as intensive planning, optimization of critical path components of tasks (e.g., windows of procuring/bookings), control of extraneous influences/distractions, and recovery time for buffering against fatigues. (Hong et al., 2023; Stangl et al., 2024.)

2.4 Identified Gaps: Philippine/ASEAN Context and Item-Level Behaviours

Despite a rapidly increasing volume of literature on online/hybrid teaching and faculty development, discipline-spaced evidence from ASEAN hospitality educators—and the Philippines specifically—remains sparser than that from Western and North American contexts (Gao et al., 2022). In addition, nearly all such studies report composite indexes but refrain from describing at an item-level which of these behaviours (e.g., boundary management/task delegation, distractibility control, recovery) are accountable for perceived faculty effectiveness from applied, hands-on fields. The present study meets these limitations by capturing item-level practices from hospitality educators at a Philippine state university system and by validating demographic correlates of marital status, employment status, teaching experience, education, in order to inform targeted professional development initiatives as well as workload policies. (Gao et al., 2022; Oyarzun et al., 2020; Aeon et al., 2021.) Balida & Alhabsi (2024) shows how faculty face complexity in composition writing in Oman, aligning with workload and faculty strategies in the Asian context. Balida et al. (2024) (AI-based digital knowledge ensemble) connects to emerging challenges in teaching practices, highlighting the need for innovative strategies to cope with workload and management of academic tasks.

3. Conceptual Framework

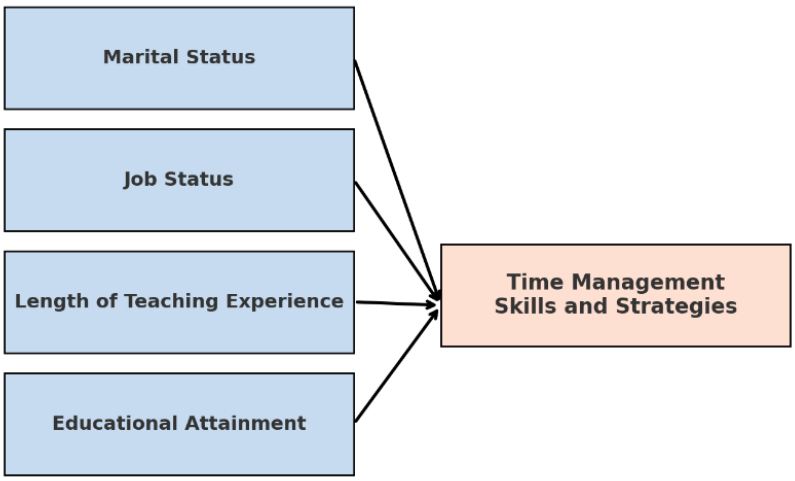


Figure 1: Diagram of Conceptual Framework

Figure 1 provides the conceptual framework of the relationship between the chosen demographic variables and the time management skills and strategies of faculty members of the Bachelor of Science in Hospitality Management program of West Visayas State University. Marital status, employment status, years of teaching experience, and education are the independent variables. These variables are hypothesized as affecting the dependent variable, the overall level of time management skills and strategies adopted by the faculty. The framework provides a picture of how personal and professional attributes could explain differences in faculty's behaviour on planning, prioritization, organization of work, control of distraction, delegation, and recovery. By organizing the analysis in such a way, the study offers a systematic foundation for exploring whether shifts in demographic attributes reflect meaningful shifts in time management practices, thus informing both explanatory interpretation and practical interventions.

4. Materials and Methods

4.1 Research Design

This study employed a descriptive cross-sectional survey design to identify the time management strategies and competence of faculty members of the Bachelor of Science in Hospitality Management of the West Visayas State University. It was an appropriate design as the researcher was able at a single point in time to capture the perceptions of faculty members as well as their usage and provide both descriptive profiles by groups of demographics as well as comparative statistics.

4.2 Participants and Sampling

Participants consisted of 32 BSHM faculty who teach at WVSU campuses of Calinog, Lambunao, Janiuay, and Pototan. Convenience sampling was used given ease of accessibility of the population as well as relatively low faculty. The sample was also representative of diverse demographic profiles like marital status, employment status (permanent/non-permanent or part-time), teaching experience, and education levels.

4.3 Research Instrument

The questionnaire used was a researcher-adapted version of the 25-item Time Management Behaviour Questionnaire (TMBQ) of Macan et al. (1990), later adapted for higher education contexts. The questionnaire aimed at tapping six related areas of time management: planning, including goal-setting and career orientation; prioritization, including keeping essential tasks paramount; organization, including organizing work activities and resources; distraction control, including managing interruption and evading time wasters; delegation and boundary management, including appropriately assigning tasks and establishing professional boundaries; and recovery, including the need for rest and maintaining energy for ongoing productivity. Answers were scaled on a 5-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree), such that faculty practices across these areas could be quantified. The questionnaire had shown acceptable reliability in earlier studies, with Cronbach's alpha coefficients of greater than 0.70 for each of its subscales, and here its content validity was assessed by an expert panel of hospitality and education specialists to ensure that its content was relevant within the Philippine culture.

4.4 Data Collection Procedure

Data were collected from an online questionnaire that was shared on Google Forms. Faculty members were encouraged by official means of communication and made acquainted with the aim of the study. To attain greater correctness, respondents were prompted to respond genuinely and assured of confidentiality. The questionnaire was shared within three weeks of time, and reminders were issued to achieve high response rates.

4.5 Data Analysis

Descriptive statistics, that is, the mean and standard deviation, were used to approximate the aggregate level of time management behaviours as well as sort individual behaviours by the response of faculty. In order to compare differences across demographic categories, a test of inferential statistics was used. The Mann–Whitney U test was utilized comparing two-group classifications of the variable’s marital status and job status. The Kruskal–Wallis test was used comparing across multiple categories of educational attainment. Teaching experience was also examined by use of the Mann–Whitney U test with faculty divided into two groups: those who had accumulated ten or fewer years of teaching experience and those who had accumulated a greater

tenure. A significance value of $p < 0.05$ was selected as a basis for determining statistical significance, and effect size was also calculated in addition to significance value to gain a greater insight into the magnitude of effects as well as practical significance of differences that were noted.

5. Results

Table 1: Overall Level of Time Management Skills and Strategies of BSHM Faculty (N = 32)

Category	Mean	Description	SD
Entire Group	4.19	Very Good	0.38
Marital Status – Single	3.99	Very Good	0.34
Marital Status – Married	4.28	Very Good	0.36
Job Status – Permanent	4.21	Very Good	0.37
Job Status – Part-time	4.11	Very Good	0.43
Experience ≤ 10 years	4.12	Very Good	0.40
Experience > 10 years	4.39	Very Good	0.22
Bachelor's Degree	4.20	Very Good	0.56
Bachelor's + MA Units	4.16	Very Good	0.37
Master's Degree	4.16	Very Good	0.14
Master's + Doctoral Units	4.35	Very Good	0.07
Doctoral Degree	3.96	Very Good	1.13

Table 1 demonstrates that WVSU BSHM faculty indicated an extremely good quality of time management skill and strategy (M = 4.19). Throughout every demographic grouping, the score always remained within the range of "very good." Those with over 10 years of teaching experience (M = 4.39) indicated the highest levels of any grouping, while single faculty members (M = 3.99) and doctoral degree recipients (M = 3.96) scored a notch lower. These results tend to indicate that faculty personal stage of life and professional maturity could improve faculty skill at managing time, but consistency across groups overall indicates a pervasive strong culture of time efficiency.

Table 2: Most and Least Practiced Time Management Behaviours of BSHM Faculty

Item	Mean	Rank
Setting clear perspective on career choice, goals, and objectives	4.56	1
Set priorities wisely and focus on what is more important	4.50	3
Practice personal goal setting to make good choices	4.50	3
Understand that self-discipline, action orientation, and determination contribute to effective time management	4.50	3
Delegate excess and difficult tasks to others	2.06	19
Go elsewhere when unable to avoid interruptions	3.88	22
Break very big tasks into smaller pieces	4.03	20.5
Firmly allocate time for meetings, emails, paperwork, and visitors	4.03	20.5

Table 2 identifies the most and least practiced time management behaviours. Faculties most frequently practiced behaviours like establishing career outlooks and priorities, goal-setting as a habit, and exercising self-control, all of which demonstrate good personal organization and drive. In contrast, delegating tasks and interrupt-reducing strategies were scored relatively low, perhaps indicative of over-dependency on self-control by faculty at the expense of boundary-setting in practice. This disparity indicates areas of opportunity for institutional support and work management.

Table 3: Mann–Whitney U Test Results for Differences in Time Management by Marital Status, Job Status, and Teaching Experience

Variable	N	Mean Rank	Sum of Ranks	z	p-value
Marital Status – Single	10	11.05	110.50	2.219	0.026*
Marital Status – Married	22	18.98	417.50		
Job Status – Permanent	26	17.02	442.50	0.553	0.514
Job Status – Part-time	6	14.25	85.50		
Experience ≤ 10 years	24	14.52	348.50	2.079	0.038*
Experience > 10 years	8	22.44	179.50		

*Significant at $p < 0.05$

Table 3 demonstrates that there were also substantial differences in time management by faculty marital status ($p = 0.026$) and years of teaching experience ($p = 0.038$). Married faculty members and faculty members with higher teaching experiences reported stronger practices that suggest personal as well as professional maturity fortify time management. No difference was observed between permanent faculty members and part-time faculty members that implies that their employment status did not play a crucial part in their time management.

Table 4: Kruskal–Wallis Test Results for Differences in Time Management by Educational Attainment

Educational Attainment	N	Mean Rank	df	χ^2	p-value
Bachelor's degree	4	16.50	4	3.240	0.518
Bachelors with MA units	14	15.18			
Master's degree	6	13.83			
Masters with Doctoral units	6	22.50			
Doctoral degree	2	15.75			
Total	32				

There was no significant difference in time management skill and strategy by faculty by educational attainment ($p = 0.518$) (Table 4). That is, regardless of whether faculty had bachelor's, master's, or doctoral degrees, their skill at managing their time was the same. It could be that higher education per se does not particularly strengthen time management; workload demands, institutional policies, personal commitments perhaps play greater roles.

6. Discussion

6.1 Key Findings

The survey revealed that BSHM faculty's overall proficiency in time management strategies and skills was assessed as very good. The faculty indicated robust practices pertaining to maintaining a clear career vision, prioritizing tasks, personal goal orientation, and practicing self-discipline. These results indicates that hospitality program faculty exhibit high levels of self-control and organizational abilities that are foundational when sustaining the demands of instruction, administrative tasks, and personal development. Some of the behaviours like boundary management, interruption reduction, and delegation were not exercised frequently enough, suggesting areas of improvement for faculty regarding efficiency.

6.2 Demographic Differences

Differences were also noted when faculty were clustered by marital status and teaching experience. Married faculty indicated higher time management practices than their unmarried peers, an influence that could be linked to the contribution of family commitments towards higher levels of discipline and structured use of time. Likewise, faculty who indicated over ten years of teaching experience scored higher than their peers with lower

years of experience, an indication that professional maturity adds up towards higher standards of time management strategies. In contrast, no differences were realized across job status as well as educational attainment, an indication that neither employment category nor academic credentials made a substantive contribution towards time management behaviours.

6.3 Comparison with Existing Studies

Results are aligned with existing studies which have showcased the positive association between time management structured behaviours and professional competence. Ajayi (2007) stressed that productive use of time minimizes stress related to the professional role, while Aeon et al. (2021) indicated that planning, prioritizing, and boundary control strongly forecast job performance and well-being. Lower use of the practice of delegation and interruption control herein is reflected by the problem noted by faculty members who work in career-related areas like hospitality wherein instruction often involves direct engagement by the instructor for tasks like lab work, industry liaison, and student supervision. This confirms literature citing that hospitality-related teaching environments create specialized temporal demands that are not always present across broad faculty populations. Balida et al. (2024) on EduIntegrity supports link to institutional policy implications for faculty time and integrity practices.

6.4 Implications for Faculty Development and Institutional Policy

The findings highlight the necessity of developing integrated faculty development programs that close the gap in behaviours of delegation, boundary establishment, and recovery. Institutions could provide training on managing workload, cooperative mentoring programs that establish an environment of shared practices, and policies that establish a more balanced mix of teaching, scholarship, and personal life. In hospitality programs focused on experientially-based and industry training programs, institutions will need to study affirmative actions such as providing teaching assistants, strengthening admin support, and incorporating digital scheduling and resource management programs. By institutionalizing such actions, universities will maintain the high-quality time management practices already seen while improving areas of weak practice that could have negative effects on sustained faculty productivity and well-being over the longer term. Balida, Gonzaga, & Gonzaga (2023) on modular distance learning challenges in the Philippines, showing parallels in how faculty balance multiple demands.

7. Conclusion and Recommendations

Time management practices and strategies of the faculty of Bachelor of Science in Hospitality Management (BSHM) of West Visayas State University were studied. From the results, faculty manifested a very good overall level of time management practices. The highest ratings were accorded by faculty members for behaviours like enhancing clear career outlooks, giving priorities to essential tasks, personal goal establishment, and self-discipline. These findings indicate that hospitality faculty are strongly motivated from within and have organizational capabilities to cope with the multiple demands of their calling. However, there were certain behaviours like delegation of tasks, management of boundaries, reduction of interruption, that were not usually practiced by faculty members; these areas of relatively poor practices need areas of strengthening. Significant differences also appeared when faculty were classified by marital status and years of teaching experience, while there was no meaningful difference revealed across job status and educational attainment.

Based on these results, a variety of recommendations are made. First, institutions need to continue strong practices already existing among faculty by rewarding effective time management as part of the performance assessment systems. Second, professional development programs need to emphasize underutilized strategies like delegation, boundary-setting, and recovery that are key components of maintaining productivity while minimizing burnout in high-demand teaching careers. Third, peer-support programs and mentoring could be implemented that partner junior faculty with more senior colleagues who model stronger time management strategies. Finally, institutional policies need to offer structural reinforcements like administrative support, software programs that schedule automatically, and adjustments of workload that reinforce faculty efficiency. By tackling both individual-level practices as well as institutional-level systems, these recommendations aim to maintain high levels of performance while also strengthening faculty well-being and long-term professional development.

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Ethical Considerations

The researcher followed ethical standards of research. The respondents were given informed consent. It was voluntary participation of respondents. The data were confidential at all costs. The study did not include any forms of compulsion or undue influence. The response was also anonymized for privacy.

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The outputs from these AI tools were used to enhance language precision, improve transitions, and support the stylistic alignment of the manuscript with academic publication standards. However, these tools were not used to generate original content, structure the manuscript, analyze data, or draw conclusions. All intellectual framing, interpretation of findings, and scholarly analysis remain entirely my own. While the author acknowledges the usage of AI, the author maintains that, Ma. Nellie L. Mapa, is the sole author of this article and takes full responsibility for the content therein, as outlined in the recommendations.

Informed Consent

The author obtained informed consent from all participants.

Conflict of Interest

The author declares that there is no conflict of interest.

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Exploring the Impact of Wildfires on Cyprus' Wine Tourism

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Abstract: This paper investigates the impact of wildfires on the wine tourism sector in Cyprus, where viticulture constitutes a vital pillar of rural development and cultural heritage. The primary objective is to understand how recent wildfires have affected wine tourism operations, infrastructure, and visitor perceptions, as well as to explore pathways for sustainable recovery and sectoral resilience. The study adopts a qualitative methodology. Primary data were collected through semi-structured interviews with winery owners, tourism stakeholders, and local policymakers in fire-affected areas. Secondary data through the form of content analysis—including regional tourism statistics, environmental assessments, and industry reports were analysed to contextualise the findings. Preliminary results revealed significant disruptions to vineyard landscapes, supply chains, and tourism flows. Nonetheless, interviews uncovered a growing awareness among stakeholders of the need for adaptive strategies, such as fire-resilient vineyard practices, climate-conscious marketing, and the integration of eco-tourism narratives. These strategies are seen not only as recovery tools but also as long-term opportunities for repositioning Cyprus's wine tourism identity. The findings offer valuable implications for post-crisis rural destination management and regeneration. Further, the results contribute to the broader discussions on climate resilience in tourism planning, particularly for Mediterranean regions increasingly vulnerable to environmental hazards.

Keywords: Wine Tourism, Wildfires, Sustainable Recovery, Stakeholder Perceptions, Rural Resilience

1. Introduction

Wildfires have increasingly become a significant threat in Mediterranean regions, adversely affecting natural ecosystems, human settlements, and economic sectors that rely on a stable environment (Penuelas et al., 2017). The wine tourism industry, in particular, faces multifaceted challenges due to both direct damage to vineyards and related infrastructure as well as indirect effects including shifts in stakeholder perceptions and disruptions to tourism flows (Kutlu et al., 2025). Cyprus, renowned for its scenic vineyards, historic wineries, and a growing reputation as a wine tourism destination, has not been immune to these challenges. While several studies have discussed the overall impacts of wildfires on tourism and agricultural sectors in Mediterranean Europe (Abrham et al., 2025; Boustras and Boukas, 2013; Molina et al., 2019) the specific case of Cyprus merits an in-depth examination.

This research paper evaluates the multifaceted impacts of recent wildfires on Cyprus' wine tourism sector. It explores disruptions to operations, infrastructure damage, and the perceptions of key stakeholders such as wine producers, tourism operators, and local communities. Moreover, the study examines sustainable recovery strategies and rural resilience measures that can aid in mitigating future risks and supporting long-term economic and environmental recovery. By integrating insights from broader research on wildfire impacts with new observations from the Cypriot context, this paper aims to provide actionable recommendations for policymakers, tourism stakeholders, and winery owners.

2. Literature Review

2.1 Wildfires in the Mediterranean Context

Wildfires in the Mediterranean have severe implications, not only for ecosystems and rural communities, but also for tourism-dependent economies, which rely heavily on natural landscapes, protected areas, and cultural rural environments. In contexts like Cyprus, particularly in wine-producing regions, such as the Krasochoria of Limassol, the Troodos foothills, and agritourism villages, fires directly threaten vineyards, orchards, forest trails, and rural accommodation units. Comparable impacts have been recorded internationally: case studies from Canada (Hystad & Keller, 2006, 2008) and Australia (Cioccio & Michael, 2007) show that wildfire crises can lead

to immediate and prolonged declines in tourism visitation, business closures, and millions in revenue losses. These findings offer useful analogues for Mediterranean destinations, where small, family-run tourism enterprises and agritourism units may possess even lower resilience to prolonged visitation drops or landscape degradation (Boukas, 2019; Marneros et al., 2025).

The Mediterranean region has witnessed a sustained escalation in wildfire frequency and intensity over recent decades, a trend consistently documented across Southern Europe (Marques et al., 2011; Pausas et al., 2008; Pereira et al., 2005). These patterns are driven largely by climate change, with rising temperatures, prolonged drought periods, and more frequently, extreme fire-weather days contributing to heightened fire risks—a dynamic also strongly relevant for countries such as Cyprus and Greece, where summer heatwaves and dry winds increasingly create conditions conducive to uncontrollable fires. Research from Portugal shows that approximately two-thirds of fires can be attributed to climatic conditions (Pereira et al., 2005), a finding that parallels the experiences of Eastern Mediterranean islands and mainland Greece, where similar climatic regimes prevail. For Mediterranean rural economies, this multidimensional loss profile is particularly salient: fires can disrupt local supply chains (e.g., wine production, local food processing), halt seasonal agricultural labour, damage cultural heritage sites, and reduce domestic and international tourist flows (Boustras & Boukas, 2013). Moreover, for agritourism operations, which rely heavily on experiential offerings tied to landscape quality (vineyard tours, hiking, nature-based activities), even short-term environmental degradation can undermine core value propositions.

Furthermore, there is also evidence that wildfires affect individuals' psychological well-being and influence tourist behaviour. Studies from Southern Europe show that large fire events significantly reduce population life satisfaction and generate emotional stress, even among individuals not directly affected (by them) (Kountouris & Remoundou, 2011). This has important implications for tourism demand in Mediterranean destinations, where safety perceptions, environmental quality, and destination image are central to travel decision-making. Findings from the United States further demonstrate that a substantial proportion of tourists would cancel or postpone trips in the presence of wildfires (Thapa et al., 2013), suggesting similar behavioural responses in Mediterranean islands and mainland regions during fire crises.

Research on post-fire recreational demand offers additional insights relevant to Cyprus and Greece. Studies suggest that activities such as hiking, cycling, and nature-based recreation typically decline in fire-affected areas, in the short term (Boxall & Englin, 2008), though certain forms of outdoor recreation, such as hiking, may gradually recover or even temporarily increase following ecological regeneration (Hilger & Englin, 2009). For Mediterranean agritourism areas, this underscores the importance of rapid landscape restoration, trail maintenance, and ecosystem recovery strategies to preserve the attractiveness of rural experiences.

In this regard, the literature suggests that intensifying wildfire activity, driven by climatic change and land-use transformations, poses substantial risks for rural tourism and agritourism across the Mediterranean (Molina et al., 2019). Case studies from North America and Australia provide critical benchmarks for understanding potential short- and long-term consequences for Cyprus and Greece, where the combination of climate vulnerability, dense forest-agriculture interfaces, and heavy dependence on tourism heightens the socio-economic stakes (Boukas, 2025; Georgiou, 2021). Wildfires not only damage agricultural production, vineyards, and landscapes central to agritourism identity, but also disrupt tourism flows, affect destination image, and undermine community resilience—making wildfire adaptation a core priority for sustainable rural and agritourism development in the region.

The Mediterranean region has, over recent decades, experienced an increasing frequency and intensity of wildfires due to climate change, prolonged droughts, and changes in land use patterns (Marques et al., 2011). Many studies have highlighted that areas with a combination of dense natural vegetation and abandoned agricultural lands are particularly vulnerable (Fayet et al., 2022). Wildfires not only destroy natural habitats but also impact infrastructure, disrupt agricultural practices, and indirectly affect tourism sectors by diminishing landscape aesthetics and altering the local economy (Fraser et al., 2002; Kim & Kwon, 2023). For instance, evidence from Portugal links wildfire incidence to shifting climatic conditions, especially increases in days with extreme fire-weather risk (Gomes & Radovanovic, 2008).

Similarly, the wine and forestry sectors have been identified as particularly sensitive to wildfire risks since vineyards often border forested areas, and the incidence of wildfire not only poses a physical threat to crops but also affects the market image and consumer confidence in the products produced in these regions (Zakowski et al., 2023). In this respect, as wine produce is a significant resource for tourism in rural areas (Marneros et al., 2024) the evident impacts of wildfires of the wine tourism context needs to be thoroughly examined.

2.2 The Wine Tourism Sector in Mediterranean Europe

Wine tourism, an industry that blends agricultural production with tourism services, has emerged as a powerful tool for economic development in Mediterranean countries (Marneros et al., 2024). Traditionally, wine-producing regions have leveraged their cultural heritage, scenic landscapes, and environmental authenticity to attract visitors (Hall et al., 2009). However, the occurrence of wildfires threatens this delicate balance by directly damaging vineyards, wineries, and ancillary tourist infrastructure (Bauman et al., 2020; Zakowski et al., 2023). For example, recent studies have shown that wildfires, while sometimes playing a role in natural rejuvenation, can lead to smoke taint, decreased vineyard yields, and increased operational costs for wineries due to necessary post-fire interventions (Daler, 2024).

Moreover, the literature consistently points to the "agro-forestry interface" as a critical zone where overlapping land uses require innovative risk mitigation strategies (Ramachandran, 2023). Research in areas such as Spain, Italy, and France has demonstrated that sustainable management of these transitional zones through practices like integrated forest management, formation of fire-smart territories, and financial incentives for affected land managers can reduce overall wildfire risks (Fernandes, 2013; Sil et al., 2024). Although comparable studies on Cyprus are limited, the underlying principles remain applicable.

2.3 Previous Studies and Their Relevance to Cyprus

Recent wildfire events in Cyprus highlight the island's growing vulnerability to climate-driven fire regimes, with particularly acute impacts on vineyards in the Troodos mountain region. Table 1 below summarises key wildfire incidents in Cyprus (Forest Department, 2025).

Table 1: Wildfire incidents in Cyprus that have directly affected the wine tourism industry

Incident Date	Location	Area Affected (sq km)	Estimated Economic Loss (Million Euros)	Infrastructure Affected
July 2025	Malia Limassol	125	Not publicly reported yet!	Direct / Indirect, Vineyards, winery buildings, roads
July 2021	Arakapas Region	55	60 million reconstruction / restoration of buildings. Does not include farms, businesses, lost ecosystem	10 Communities, houses, farms, local businesses
June 2016	Solea / Troodos Region	18.5	100 million	State forest land, private property.

Source: Forest Department (2025), Statistical data for forest fires in Cyprus, Forest Department, Republic of Cyprus

The most catastrophic one in Malia – Limassol indicates that 125 square kilometers of vineyard land have been affected, disrupting both agricultural production and wine-related tourism activities (Forest Department, 2025) (Figure 1).

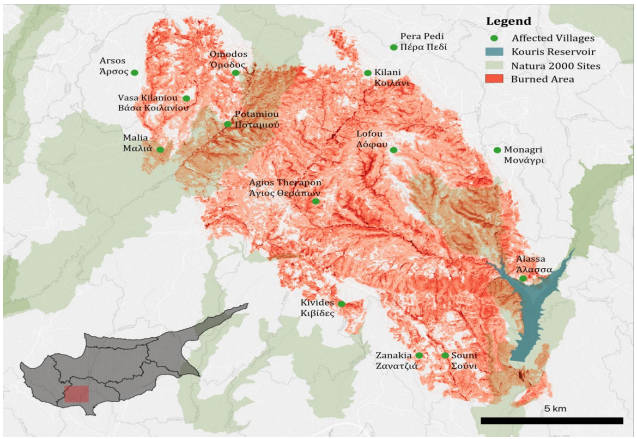


Figure 1: Losses and damages to wineries, vineyards, and wine-tourism caused by the 2025 Limassol wildfires originating near Malia

Source: Eftychiou (2025), How Cyprus entered 2025 wildfire season hotter, drier and underprepared, September 10, Cyprus Mail, Cyprus-mail.com/2025.

Although most existing research focuses on Western Mediterranean contexts, the insights derived, such as operational disruptions, damage to tourism infrastructure, and shifting stakeholder perceptions of safety, provide a foundation for understanding similar emerging patterns in Cyprus. The broader Mediterranean literature documents an escalation in wildfire frequency and severity (Pausas et al., 2008; Pereira et al., 2005), driven largely by extreme weather conditions. Portugal exemplifies this trend, where two-thirds of wildfires are weather-related and nearly 40% of the country's area burned between 1975 and 2007, generating wide-ranging social, economic, and ecological impacts (Gomes, 2006; Marques et al., 2011). Hence, this body of work positions Cyprus within a wider framework of increasing wildfire risk and its complex repercussions for tourism, agriculture, and community resilience.

3. Methodology

This study employs a qualitative research design through in-depth interviews as well as, content analysis through the collection and examination of secondary data sources including government reports regarding tourism and agricultural development in the area, tourism statistics (e.g., tourist arrivals, seasonal trends, purpose of visit, tourism economic impact etc.), and financial statements from affected wineries. Additionally, satellite imagery and fire incident reports have been examined to ascertain the spatial extent of wildfire damage in key wine regions of Cyprus. In the qualitative phase, 10 semi-structured interviews were conducted with winery owners, tourism stakeholders, local government policymakers, and community representatives in Cyprus mainly from the area of Limassol, and Nicosia (see Table 2). These interviews were carried out in both affected and neighbouring regions to capture a comprehensive understanding of stakeholder perceptions and adaptive responses. Interviews took place at the respective establishments of the interviewees, during September and November 2025, and lasted approximately one to one and half hours.

Table 2: Demographic Profile of Interviewees

Respondent	Gender	Profession	Area
A.	Male	Tourism Stakeholder	Limassol
B.	Male	Sales and Marketing Manager	Limassol
C.	Male	Wine Professional - Sommelier	Limassol
D.	Female	Journalist, Wine Writer	Limassol
E.	Female	Ministry of Agriculture – Policymaker	Nicosia
F.	Male	Leader of Affected Community	Limassol
G.	Male	Leader of Affected Community	Limassol
H.	Male	Winery Owner - Oenologist	Limassol
I.	Female	Winery Owner - Oenologist	Limassol
J.	Female	Tourism Stakeholder	Limassol
K.	Female	Winery Owner - Oenologist	Limassol

Source: authors' fieldwork

Qualitative data were subjected to thematic analysis to identify recurring themes related to the challenges and opportunities faced by the wine tourism sector in the wake of wildfire incidents. Key themes included operational disruptions, financial stress, stakeholder perceptions regarding risk and safety, and the effectiveness of ongoing recovery measures. Together, these analyses provide a multi-dimensional view of the impact of wildfires on wine tourism in Cyprus.

4. Findings

4.1 The Impact of the 2025 Wildfires on Wine-producing Region

The devastating wildfires that struck the Krasochoria (wine villages) of the Limassol district in Cyprus have severely affected the country's most historically significant wine-producing region. As producers were granted access to the fire zones shortly after containment, initial reports confirmed both physical and psychological distress among vine-growers, with many vineyards completely destroyed and some wineries suffering infrastructural damage or loss of equipment, something also noted in the news during that period (Eftychiou, 2025; Kassianos, 2025).

Prominent wineries in the region, including Zambartas, Vlassides, Argyrides, Ayia Mavri, Oenou Yi, and Gerolemo, reported safety of personnel but noted extensive damage to vineyards. Social media posts from affected wineries and associations, such as the Cyprus Sommeliers Association, highlighted the scale of vineyard loss—amounting to several hundreds of hectares. Notably, Papaioannou Winery in Vasa Koilaniou as mentioned in the interviews (Respondent H), shared distressing images of cultivated vineyards reduced to ash, challenging the common assumption that vineyards function as natural firebreaks. Overall, interviews as well as report data indicated a hit on the wine tourism industry during the specific wildfire. For instance, a chief oenologist and owner of an affected winery (Respondent K), confirmed that although vineyards can act as protective zones when well-maintained and free of wild vegetation, extreme fire conditions—intensified by strong winds—can still cause substantial damage. The respondent’s winery faced minor infrastructural issues, including prolonged power outages, which could affect wine storage and processing.

4.2 Impact Assessment and Response to the Limassol Wildfires from Local Policy Makers

In the aftermath of the recent wildfires in Cyprus, a tourism stakeholder and a member of the Limassol Chamber of Commerce and Industry (LCCI) (Respondent A), provided an update on the status of industrial and business facilities in the Limassol district. As of the latest reports, no widespread damage to industrial infrastructure was recorded, with the exception of a single incident. Notably, the Industrial Area of Agios Sylas and a major paper manufacturing facility were narrowly spared from destruction.

The primary concern expressed by the Chamber pertains to the agricultural sector, particularly local wineries. While most winery facilities escaped significant structural damage, Respondent A highlighted the complete loss of extensive vineyard areas—many of which were ready for harvest. As stated, this agricultural devastation is expected to have long-term implications for local wine production due to the extended period required for vineyard regeneration.

In terms of tourism, tourism infrastructure was also affected, particularly in the mountainous regions of Limassol. Several hospitality establishments were evacuated as a precaution, temporarily displacing tourists until conditions stabilise and safety can be ensured. This caused, loss of significant revenues not only on the bookings during that period but also for future ones, as several potential tourists cancelled their trips (Respondent B). In response to the crisis, LCCI issued an appeal to its members for financial and material support for those affected. The business community mobilised promptly, with numerous enterprises offering essential goods and resources. Respondent A emphasised the solidarity and humanitarian engagement of local businesses during this critical period. Until now, the Chamber awaits the completion of a formal damage assessment to better allocate resources and aid. Responded A also lamented the environmental destruction and long-term ecological consequences of the fires, expressing concern over the apparent systemic inability to respond swiftly to such disasters in 2025. Overall, interviewees indicated a foggy landscape for the recent future in their tourism operations, due to the specific wildfire incident, highlighting the importance of the speedy recovery in the post-crisis period.

4.3 Resilience and Recovery in Cyprus’s Wine Villages Following the 2025 Limassol Wildfires

In the immediate epilogue of the devastating wildfire that struck the wine-producing villages of Limassol, Cypriot vine-growers have begun assessing the extent of the damage. While early reports confirm significant losses to vineyards, based on the interviews, producers assert that the 2025 vintage—though diminished—will proceed.

The blaze caused widespread ecological damage across the region, particularly impacting vineyard zones critical to the country's viticulture. Fortunately, winery infrastructure narrowly escaped major structural damage, thanks in part to the efforts of local winemakers and residents. For instance, as claimed at Zambartas Winery in

Agios Amvrosios and Linos Winery in Omodos, vineyards were lost, but core facilities were preserved (Respondent I). However, damage across other areas—such as Omodos, Vasa, Arsos, and Mallia—was severe, with some growers reporting losses of over 80% of cultivated land (Respondent F).

As stated in the interviews, both state authorities and wine producers are currently undertaking detailed assessments. At present, individual vine-growers are estimating losses independently. According to Respondent B, formal evaluations are pending assistance from the Ministry of Agriculture. The Respondent underline the urge of this situation. Early approximations suggest losses of up to 20% in some estates, but concerns also extend to surviving vines that may suffer from heat stress, ash contamination, and smoke exposure. These factors could negatively affect the quality of the grapes and the final wine product. This is turn, as argued, will have also an impact on the visitation in these areas for wine tourist activities.

Despite the destruction, winemakers have pledged to maintain production. Even in severely affected wineries, such as Linos Winery, efforts are underway to source grapes externally to fulfil both domestic and international obligations. The timing of the wildfire—approximately ten days before the harvest of certain varietals like Xynisteri—has raised concerns about grape viability, but the full extent of the impact will only become clear during vinification.

However, some premium or terroir-specific wines derived from single-vineyard plots are unlikely to be produced in 2025, and possibly 2026 (Respondents F and K). Compensation from the state is expected, but the majority of the interviewees emphasize that support based solely on raw grape value inadequately reflects the broader economic losses associated with brand equity and value-added production.

Additionally, as claimed by the respondents, the fire further compounds the challenges faced by the Cypriot wine sector, which has already experienced declining yields due to adverse weather and shifting climatic conditions, affecting also tourist visitation (Respondent J). Climate change, drought, and the degradation of soil structure—often due to past wildfires—have exacerbated the spread and severity of fires, as natural firebreaks and underground water retention have weakened. However, vineyards have shown potential as natural fire-protection zones due to their structure and higher moisture content, prompting calls for state-backed investment in vineyard-based fire-prevention infrastructure.

Despite current difficulties, there is cautious optimism according to the interviews. As Respondent K) argued, vines are biologically resilient, capable of regenerating within two to three years if root systems remain intact—a contrast to forest trees that require decades to regrow. Furthermore, as noted by Responded C, the president of a local professional body, similar recoveries have occurred in Crete, where post-fire replanting restored productivity within a few years and rejuvenated also the wine tourism industry.

In addition, Responded D contextualises the wildfire within broader structural issues in Cyprus's viticulture. According to the respondent, the fire highlighted the long-term consequences of policy-driven vineyard abandonment and land mismanagement dating back to the 1990s. While recent efforts have aimed to revive local grape varieties and re-establish Cyprus's wine identity, this momentum is now under threat. As she complements, a comprehensive and visionary recovery plan that reconnects communities with the land, emphasising that vineyard restoration cannot rely solely on fragmented subsidies. As an act of immediate solidarity, the respondent claims that she urges consumers to support local producers by choosing Cypriot wines over imported alternatives and supports visitation to wineries to locals. In sum, while the wildfires of 2025 present severe challenges for Cyprus's wine sector, they also offer a critical juncture for reflection, reform, and sustainable regeneration, something reflected also in the tourism sector; interviews revealed that wine could be play a vital role on the affected areas sustainable -tourism- development.

4.4 Post-Wildfire Recovery and Policy Measures in the Wine-Producing Region of Limassol, Cyprus

Following the devastating wildfires of July 2025 in the wine-producing regions, Respondent F claimed that conducted an official visit to the village of Omodos, accompanied by representatives from the Ministry of Agriculture, the Water Development Department, the Forestry Department, and other relevant agencies. The visit aimed to monitor the implementation of state-led recovery measures and gather feedback from local officials and producers.

In this respect, Respondent F reported that more than 1,000 farmers have already received compensation, with only a few pending cases due to incomplete documentation. She also announced that applications for reactivation schemes—designed to support the resumption of agricultural activities, such as viticulture and tree cultivation—have exceeded 500 submissions. The deadline for these applications was extended to September

15. The overarching goal, she emphasised, is to bring life back to the fire-affected areas through re-cultivation and targeted youth engagement programs in agriculture and pertinent industries such as tourism.

In the same lines, Respondents G and H, local community leaders, acknowledged the rapid implementation of government measures and advocated for further decentralisation. Specifically, they called for the delegation of authority to local communities for the maintenance of natural channels and streams, as a means of safeguarding agricultural land and infrastructure.

Additionally, during the Respondent F's visit to local wineries, concerns were raised by producers regarding the long-term consequences of the fire on the 2025 vintage. Respondent I, a local Winemaker emphasised that although initial government compensation addressed immediate losses—particularly the destruction of vineyards and unharvested crops—the broader economic impact is much more complex. Wineries now face a loss of income, inability to produce final products, and damage to the region's image as a green, high-quality wine destination, affecting thus, visitation. In this regard, many wine villages, characterised as representative wine tourism destinations in the region, now face insecurity in terms of tourism development, something that, as claimed, may alter the overall long-term image of the destination.

Simultaneously, investigations into the origin of the July wildfires continue. A specialised team of ten American experts from the U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) is currently in Cyprus, having arrived at the invitation of the President of the Republic (Respondent F). Their presence reflects international collaboration in disaster response and accountability efforts. Overall, it is claimed that the government's response so far, has been met with cautious approval. However, producers continue to stress the importance of long-term planning, including structural reforms, sustained support for replanting, and economic assistance to mitigate the indirect impacts on the wine industry and in expansion the wine tourism business.

Importantly, the concept of vineyards as firebreaks, while valid in theory due to the moisture content and structured layout of vineyards, was complicated in practice by the intensity of the flames and environmental factors, such as wind. This is something mentioned almost by the entire sample of the interviews. Damage was also reported in vineyards located several dozen meters from the fire line, attributed to radiant heat and fire-induced wind effects.

For instance, Respondent J, a well-known oenologist , explained that beyond physical fire damage, the phenomenon of smoke taint poses a significant threat to grape and wine quality. As grapes approach full ripeness, they develop a waxy skin that readily absorbs volatile phenolic compounds from smoke—such as guaiacol and cresols. These compounds, if absorbed in high concentrations, result in wines with undesirable flavours reminiscent of ash, burnt rubber, or iodine. If contamination is severe, the grapes may be rendered unfit for vinification.

Responded J emphasised that timing is critical. A wildfire several months prior to harvest could potentially allow for rain or mechanical cleaning to mitigate damage. However, with this fire occurring just days before harvest, remediation is unlikely. Wines—particularly international white varieties harvested in early autumn—will be the most affected in terms of both harvest viability and final product quality.

The rapid spread of the fire was attributed, in part, to land abandonment. Responded J noted that previously cultivated agricultural zones, now overtaken by dry, resinous vegetation, acted as fuel for the fire. Similarly, neglected or poorly maintained vineyards contributed to the uncontrolled spread of flames.

Overall, despite the challenges, winemakers expressed cautious hope. Surviving vines may still yield usable fruit, and efforts are being made to support impacted producers. Responded K, a professional sommelier called on consumers to actively support the industry by choosing Cypriot wines—particularly those from the wine villages—to help preserve and revitalise the island's vinicultural heritage. The respondent also argued that the role of tourists is also crucial for the support of these areas, especially the locals. These vineyards are not only economically vital but also represent a living cultural legacy with the deepest winemaking roots in Cyprus, representing therefore a very appropriate representative of the Cypriot environmental authenticity, natural and cultural, for the international tourist that visit the island.

5. Conclusion and Implications

Based on the findings, several key recommendations emerge for policymakers and industry practitioners in Cyprus. These are presented below:

5.1 Enhanced Risk Mitigation Infrastructure

Investing in physical infrastructure improvements—such as building fire-resistant structures, creating effective firebreaks, and upgrading emergency response mechanisms—is essential. Financial incentives and subsidies should be made available to support these investments, especially for small and medium-sized vineyard operators. Additionally, investing in this infrastructure is tightly connected to tourism as the specific spaces are important tourism assets. As wine tourism depends a lot on conditions such as visitor safety, accessible areas, preservation of natural landscapes, culinary activities, as well as accommodation, this support and incentives for small and medium wine tourism companies would facilitate these destinations to remain safe and operational, in the long-term. This would ensure, hence, their future sustainability.

5.2 Integrated Public-Private Partnerships

Establishing formal channels for coordination between government agencies, local communities, and private stakeholders can improve both preventive measures and disaster response. Collaborative frameworks that include academic and technical expertise ensure that efforts are both comprehensive and sustained. Overall, according to theory, as tourism is a fragmented sector that requires the cooperation of several stakeholders, something vital for small destination, such as Cyprus, there is a need for goals' alignment between the policy makers in various levels, and the private sector (Boukas & Ziakas, 2016). In this respect, these partnerships will benefit both the wine industry as well as the wine tourism business, specifically.

5.3 Support for Technology Adoption

Encouraging the use of advanced monitoring systems, mobile communication platforms, and data analytics is crucial for early warning and proactive risk management. Technical training and financial support should be provided to assist local operators in integrating these solutions into daily operations. This is also evident for the tourism sector. As Ural (2016) argues, the viability of a tourism destination is greatly affected by its ability to adapt to dynamic environmental forces, proper utilisation of resources and formulating and implementing innovative strategies regarding its risk management. The technology adaptation would help towards this direction.

5.4 Development of Eco-Certification Programs

Launching a "fire-smart" certification program could help differentiate Cypriot wines in the international marketplace while providing tangible signalling benefits to consumers who value sustainable practices. Such programs also incentivise vineyard operators to maintain rigorous risk mitigation standards and would also have a great acceptance by tourists.

5.5 Community Engagement and Educational Initiatives

Regular workshops, training sessions, and public awareness campaigns are vital for building local capacity. Empowering communities with practical knowledge about wildfire prevention can foster a culture of preparedness and collective action, ultimately reducing the overall risk exposure. Additionally, the incorporation of locals in the tourism planning of the rural wine destination would enhance their sense of hospitality and decrease any possible contradictions (Boukas, 2019).

In conclusion, the resilience of the wine tourism sector in Cyprus depends on the rapid implementation of comprehensive wildfire mitigation strategies, innovative financial support mechanisms, and the active engagement of local communities. By harnessing lessons learned from other Mediterranean or similar regions and adopting tailored, technology-enhanced solutions, Cyprus has the potential not only to recover from recent disasters but also to transform wildfire risks into opportunities for sustainable rural development and enhanced market competitiveness in tourism and overall.

6. Challenges and Opportunities for Future Research

While this study provides an extensive evaluation of wildfire impacts on wine tourism in Cyprus, several avenues for future research remain. Longitudinal studies that track recovery measures and adaptive strategies over multiple fire seasons would yield deeper insights into the long-term effectiveness of implemented policies. Additionally, further exploration into consumer behaviour—specifically how eco-certification and fire-smart

labels influence purchasing decisions—would be valuable for refining marketing and operational strategies in the wine tourism sector.

The role of climate change, with its potential to further exacerbate wildfire frequency and intensity, also warrants more focused research. Integrating climate models with local risk assessments could provide predictive insights that allow stakeholders to pre-emptively adjust their strategies.

Ethics Declaration (Not applicable)

AI Declaration

AI was used in the translation of the interviews from the Greek language to English language.

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Bibliometric Analysis on "Sustainable Tourism" and “Destination Image " From 2009 to 2024

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Abstract: A comprehensive analysis of the extant body of scientific research on sustainable tourism and destination image in tourism literature is required. This analysis should encompass the period between 2009 and 2024. The bibliometric method was employed to analyse two tourism variables. The present study will utilise the PRISMA protocol to systematically review the extant literature on sustainable tourism and destination image, encompassing a total of 104 documents, with no exclusion filters applied. The year 2009 was selected as the initial point of reference because it marked the year when the volume of publications began to demonstrate a correlation with the two variables under investigation. The year 2024 was incorporated into the analysis as it represented the most recent complete year. The analysis concentrated on a set of three indicators: author, year of publication, and journal. The analysis employed a combination of quantitative and qualitative methods, encompassing both simple statistics and qualitative content analysis. The theoretical implications of this study broaden the existing discussions on the variables investigated. The analysis of the publications revealed the presence of patterns and trends, thus highlighting an interconnection between the themes with direct impacts on both the projected image and the management of destinations. This was achieved through the implementation of preservation policies and sustainable best practices. The primary limitations of the research are related to the temporal scope of the analysis, which covers only the period from 2009 to 2024, the restriction of the Scopus database, and the non-use of software that could expand the bibliometric study. The importance of bibliometric analysis as a crucial tool for synthesising and understanding the vast body of literature in the field of tourism is reaffirmed. The results of the study highlight the importance of creating strategies that give priority to the interests of local communities. This is an essential factor in promoting more sustainable, responsible, and conscious development by tourism destination managers. Consequently, emphasis is placed on the significance of research contributions and trends, in addition to identifying gaps and opportunities for future investigation.

Keywords: Sustainable Tourism, Destination Image, Tourism, Bibliometric, Sustainability, Sustainable Management.

1. Introduction

In light of the mounting concerns regarding the deleterious effects of tourism, sustainable tourism emerges as a pivotal response. This approach not only addresses the environmental degradation but also the social, economic, and heritage imbalances that are often associated with tourism. The pressure for excessive economic growth occasionally conflicts with the need to safeguard a policy of environmental preservation and social justice. In this sense, sustainable tourism must be integrated and monitored by various stakeholders and government leaders to enable the preservation and optimization of natural resources and their biodiversity, as well as natural and cultural heritage. The objective is to provide a satisfactory experience for visitors, thereby promoting economic growth and the implementation of effective social practices (Dodds and Butler, 2019; León-Gómez et al, 2021; Matarazzo et al, 2021).

The concept of destination image is predicated on the impressions in the minds of tourists, created through their intuitions and emotions about a particular destination. This image is formed from a combination of information sources, personal factors, and mental images, creating a unique perception on the part of the tourist. In this context, the quality of the tourist experience was intrinsically linked to the image of the destination, impacting the level of tourist satisfaction. This intricate and evolving relationship exerts a significant influence on the quality of the destination, which, in turn, shapes the image of the destination in the mind of the tourist (Nguyen, 2019; Jeong et al, 2019; Almeida and Almeida, 2023).

The concept of a "unique destination image" is predicated on the cognitive and affective stimuli to a destination perceived by the visitor, as a new element that can have an impact on tourist loyalty to return to visit. As posited by Marques et al, (2021), the image formed by the visitor in relation to the destination can have a significant impact on the manner in which said destination is promoted. The visitor's level of satisfaction and loyalty is a key factor in this relationship, with the result that they are motivated to recommend the destination or to intend to purchase it.

The present study aims to analyse scientific research on tourism and destination competitiveness between 2009 and 2024 using bibliometric analysis and the Scopus database. The relevance of this study is reflected in verifying

the existence of a relationship between the two variables and submitting the data collected via Scopus during this time period to in-depth analysis.

The article is structured as follows: section 1, introduction to the study; section 2, review of the literature on sustainable tourism and destination image, revealing the most relevant content on each variable; section 3, which describes the methodology used; section 4, results and discussion; and section 5, which concludes with final considerations and contributions from the study.

2. Literature Review

2.1 Sustainable Tourism

The concept of sustainable tourism is predicated on a series of principles, encompassing the utilisation of management and organisational methodologies, alongside legislative and political frameworks. The overarching objective of these principles is to facilitate the development of tourism in a manner that is conducive to the preservation and protection of a destination area's natural and environmental resources. This approach confers immediate advantages to the local community and the environmental biodiversity of the destination (Matarazzo et al, 2021).

In this sense, it is essential that sustainable tourism takes into account three fundamental dimensions: economic, social, and environmental. The objective of the programme is to promote local development, thereby ensuring that financial gains from tourism can be attributed to local populations in order to contribute to their well-being. In this equation, the circular economy can play an important role in the reuse of resources and waste, contributing to local economic strengthening and adding value to the destination's products and services. However, a balance must be struck between economic benefits, the conservation of heritage and natural resources, and the enhancement of the quality of life of the resident population. This can be achieved through respect and appreciation of local cultures, in the promotion and adoption of good sustainable practices. The governance framework plays a pivotal role in shaping, formulating, and implementing public policies and regulatory practices, leveraging collaborative mechanisms among the involved entities (Dogru et al, 2020; Garau et al, 2022; Ramkisson, 2023).

Technology is inextricably linked to sustainable tourism, providing innovative digital solutions and smart practices that facilitate the development of management and organisational strategies across the environmental, economic, social, and governance dimensions. The utilisation of smart technology, such as the Internet of Things (IoT), with the objective of enhancing the rational consumption of water and electricity, can contribute to the effective management of existing resources. This, in turn, can result in the creation of mechanisms for more environmentally friendly operational practices. From an educational perspective, the growth of digital social networks has the potential to contribute to the strengthening of good practices and environmental education. Furthermore, it can create mechanisms for disseminating and promoting sustainable initiatives within the local community. In addition, it can motivate residents to conserve the environment and value culture. In summary, the authors emphasise the significance of technological contributions to the sustainable development of tourism, both in the present and in the future (Choonhawong and Phumsathan, 2022; Paladini and Saha, 2023).

In order to ensure that good practices are integrated and achieved at all levels of tourism activity, it is essential that education and training in sustainable tourism be more comprehensive, involving stakeholders, the local community, industry professionals, and visitors. It is recommended that the aforementioned groups adopt training and educational strategies that are tailored to the different roles they play in the tourism sector. It is submitted that universities, technical schools and educational institutions can play an important role in disseminating knowledge and environmental awareness and adopting good sustainable practices, with the implementation of courses and topics related to sustainable tourism (Edelheim, 2020; Choe and Kim, 2024).

2.2 Destination Image

The concept of "tourist destination" is one which encompasses a wide range of meanings. The various objectives and approaches of researchers investigating this topic, as well as the different roles of the various actors in the tourism system who use the term to designate very different realities and contexts, are important factors in this regard. Consequently, the images projected of a given destination are aimed at a specific target audience (Almeida and Almeida, 2023; 2024). The utilisation of communication channels is of paramount importance in

the construction of this image, the dissemination of promotional messages, and the creation of advertising specifically targeted at a designated audience, with the objective of capturing the interest of potential visitors to the destination (Lojo, Li and Xu, 2020; Almeida and Almeida 2023; 2024).

The centrality of a tourist destination's image is determined by a multifaceted array of factors, including the allure of its primary attractions, the efficacy of its communication strategies, the management of visitor expectations, the quality of its services, and its ability to project a positive image within the local community. These factors will gradually affect tourists' perceptions of a given destination, profoundly influencing their decision-making behavior. The image of a tourist destination is the result of the interaction between tourists and the destination through their decision-making. Tourists invest time, effort, and dedication in their interaction with the services and infrastructure that the destination provides, contributing to their level of satisfaction and, consequently, the creation of an idealised overall perception of the destination based on their experiences. Destinations that have a well-designed and organised projection of their experience offerings, through a wide range of cultural and recreational activities that cater to different types of tourist interests and preferences, create the necessary opportunities to differentiate themselves from the existing competition and become a reference for the end consumer. This, in turn, creates a degree of satisfaction that allows for their loyalty to the destination (Song, Zhang, and Chen, 2021; Ramadhani et al, 2024).

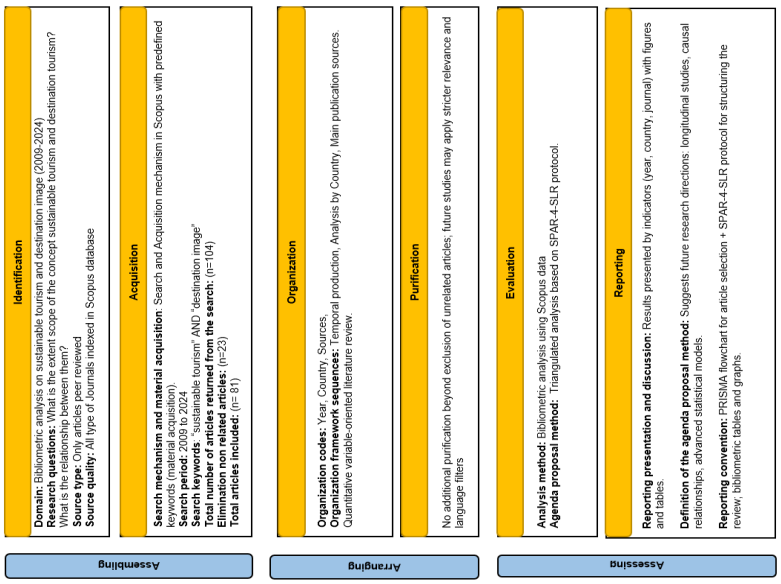
The development of a destination's image for sustainable tourism purposes has been shown to offer viable alternatives to ensure the ecological well-being of these tourist spots. It has the capacity to influence the awareness of residents and visitors, encouraging the adoption of sustainable behaviours and practices at the destination. This, in turn, can safeguard the preservation of cultural and environmental heritage, as well as the economic development of the region. Furthermore, it can improve the quality of life of the local community and enhance the tourist experience, with the intention of encouraging tourists to revisit the destination (Lee and Xue, 2020; C.-H. Liu et al, 2021).

3. Methodology

The methodology employed was bibliometric, utilising the PRISMA protocol (Table1), which was based on studies conducted in bibliographic databases. The present analysis focused on the variables "sustainable tourism" and "destination image," based on a set of three indicators: year of publication, country of publication, and journal of publication.

The initial Scopus database search, without the application of any filters, yielded a total of 104 documents. The subsequent phase of analysis of the results involved the reduction of the sample to 81 articles, with the application of the following filters: year (2009 to 2024) and document type (articles). For the sake of clarity, it is important to emphasise one of the earliest studies identified on the variables under investigation, which was published in 2009. This study examined the image of the destination in consumer behaviour in relation to the types of services experienced (Lee, 2009) (Table 2), and the most cited authors (Table 3).

Table 1: Application of the prism protocol in the study



Source: Authors

Table 2: First studies on the variables

Variable Investigated	Search Without Filter	Filter Applied	Theme of Study (Author, Year)
Sustainable Tourism and Destination Image	104 documents	81 articles	A structural model for examining how destination image and interpretation services affect future visitation behavior: A case study of Taiwan's Taomi eco-village (LEE, 2009).

Source: Authors

Table 3: Most cited authors in the Scopus database

Authors	Nº Citations	Title
Funk (2012)	**176**	Recurring sport events and destination image perceptions: impact on active sport tourist behavioral intentions and place attachment.
Andrades (2017)	**157**	Destination competitiveness and tourism development in Russia: Issues and challenges.
Lee and Xue (2020)	**155**	A model of destination loyalty: Integrating destination image and sustainable tourism.
Chi and Han (2021)	**105**	Emerging rural tourism in China's current tourism industry and tourist behaviors: the case of Anji County.
Kozak and Martin (2012)	**95**	Tourism life cycle and sustainability analysis: profit-focused strategies for mature destinations.
Lee (2009)	**95**	A structural model for examining how destination image and interpretation services affect future visitation behavior: a case study of Taiwan's Taomi eco-village.

Source: Authors

4. Results and Discussions

The results are presented according to the use of the following indicators (year of publication, country, and journal) of the variables investigated in this study.

4.1 Temporal Production

The annual indicator demonstrates that the number of publications was less than five in 2009, with a slight increase in 2012. However, 2023 and 2024 are noteworthy due to the heightened interest in this subject from Asian countries, which has led to a notable surge in research activity in this area. (Figure 1).

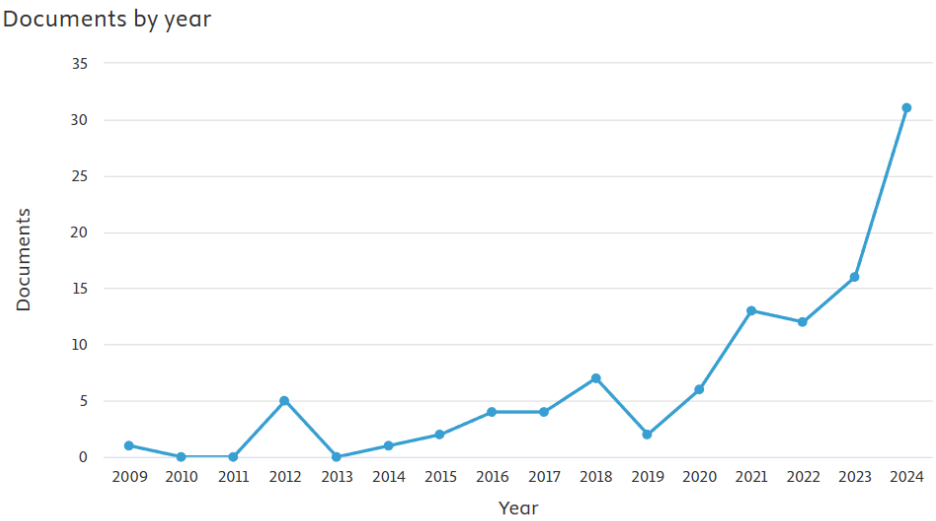


Figure 1: Year indicator

Source: Scopus (2024)

4.2 Analysis by Country

When analysing the countries, two stand out for their number of publications in relation to the others: China (15) and Indonesia (15). As demonstrated in the temporal analysis, Asian countries are distinguished as the most prolific in this domain, with Spain (12) representing Europe in this area of research. (Figure 2).

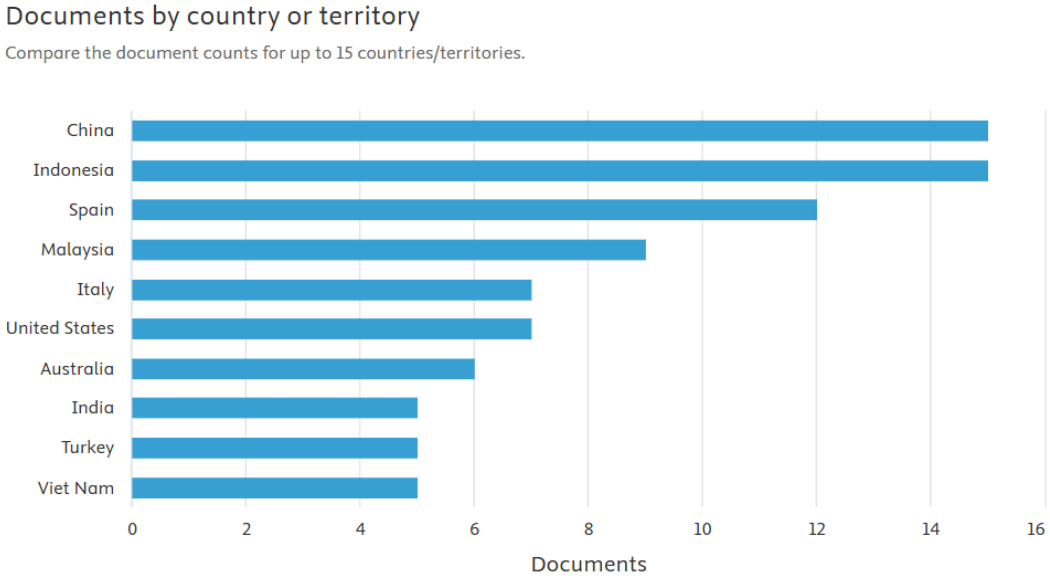


Figure 2: Publication sources

Source: Scopus (2024)

4.3 Main Publication Sources

The journals Sustainability Switzerland (15 publications), Journal of Sustainable Tourism (4), and Springers Proceedings in Business and Economics (4) are the primary drivers in the discussion and dissemination of the variables under study, with the first journal standing out for its volume of publications compared to the second and third journals, reinforcing its importance in addressing these topics as a platform for learning and debate in academic and scientific circles in this line of research. (Figure 3).

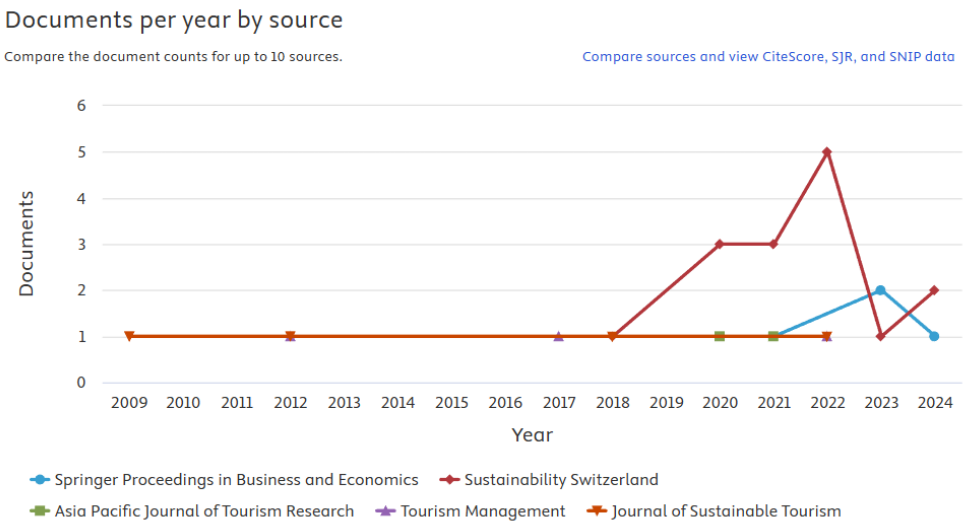


Figure 3: Main publication sources

Source: Scopus (2024)

The analyses carried out indicate that the variables "sustainable tourism" and "destination image" demonstrate continuous growth in publications in the Scopus database. In this sense, it is important to highlight the role of how tourist destinations manage their image, based on the sustainable use of existing resources, in order to differentiate themselves in an increasingly globalised and competitive market. It is evident that publications in this field may pertain to the identification and enhancement of strategies that ensure the competitiveness of destinations. Indeed, these strategies are intended to enhance the attractiveness, resilience, and sustainability of these destinations. In this context, Matarazzo et al, (2021) advocate the use of management, organisational and policy implementation methods that help chart a path for the sustainable development of tourism. Almeida and Almeida (2023) highlight the importance of using communication channels to project image, reinforcing the destination's ability to become more competitive.

5. Conclusion

The relationships between the variables investigated suggest an integrated approach to tourism management in destinations between 2009 and 2024. The mapping of scientific production facilitated the identification of publications, thereby providing a more comprehensive overview of the investigated topics and analysing the periods of greatest study intensity and publication.

The contemporary tourism scenario is characterised by an increasing interdependence amongst the factors that influence the competitiveness and attractiveness of tourist destinations. The study's emphasis on the variables examined mirrors the intricacy and multidimensionality of this emergent tourism phenomenon. In this sense, it is necessary to adopt strategies in the way destinations are managed and optimised, adjusting management models to make better use of cultural, economic, social, and human resources, integrated into the sustainability of destinations in an increasingly competitive and global market.

The study has evolved in terms of both volume and analytical complexity through the application of various approaches, ranging from comparative quantitative studies between destinations to qualitative studies focused on the perceptions of tourists and the actors in the tourism sector themselves.

The study's limitations stem from its reliance on a single database (Scopus) and its exclusive focus on the period from 2009 to 2024, potentially compromising the representativeness of the results. This may necessitate the utilisation of bespoke software to further the research in future.

For future research, it is recommended that the time period be extended, longitudinal studies be conducted to capture changes over time, and a systematic review of the literature be performed to deepen understanding of the theories and methodologies applied in the field. Another promising approach would be to use advanced statistical models, such as network analysis or structural models, to explore the causal relationships between the investigated variables and broaden the range of analyzed indicators.

The research under scrutiny here highlights bibliometrics as a strategic resource for structural and epistemological dynamics in the field, critical understanding, and guidance for future research agendas. In addition to contributing to the extant literature, this important body of research also adds significant guidelines for the development of research in future investigations. The incorporation of additional variables would facilitate a more profound comprehension of the dynamics and prevailing practices within the tourism sector.

Ethics Declaration

We state that ethical clearance was not required for this research.

AI Declaration

AI tools were not used the creation of this paper.

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Township Tourism Marketing in South Africa: Challenges and Opportunities

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Abstract: Township tourism is increasingly seen as a tool that can be used to transform the overall tourism industry. For South Africa, township tourism illustrates attempts to drive inclusive growth, safeguard cultural resources, and promote socio-economic benefits to historically marginalised communities. Despite the opportunities presented by township tourism, its marketing faces persistent challenges that impede successful implementation. This conceptual paper critically examines challenges and prospects of township tourism marketing in South Africa. Utilising the extant academic literature as points of discussion, this study identifies marketing challenges in marketing townships as tourism products. These problems comprise a continual negative destination image, insufficient infrastructure, low level of digital visibility, safety and security issues, and fragmented marketing. The study also brings to the fore new opportunities that are linked with township tourism in South Africa. The article also highlights the importance of strategic multi-stakeholder partnerships and collaboration in developing sustainable township tourism. Theoretically, the study synthesizes stakeholder and destination branding models to gain a comprehensive understanding of different marketing approaches that can be applied to reposition township destinations as culturally rich tourism environments. The paper concludes by outlining a framework for marketing township tourism in South Africa. This framework underlines the need to focus on collaboration, authenticity, and innovation as three basic pillars for ensuring sustainable township tourism marketing. The study provides recommendations on how to use digital marketing, storytelling, and co-branding interventions that increase awareness and attractiveness of township tourism. This paper adds to the body of knowledge regarding 'emerging market' tourism by creating a conceptual base for future empirical studies about township destination marketing.

Keywords: Community Participation, South Africa, Sustainable Tourism Development, Township Tourism, Tourism Marketing

1. Introduction and Background

Township tourism is one of the fastest-growing sectors in South Africa's tourist economy. It provides exclusive cultural experiences based on the country's social and political history as well as urban life (Dube & Muresherwa, 2025). South African townships such as Soweto, Khayelitsha, and Langa are by-products of Apartheid's spatial planning that once existed in cities and towns. These peri-urban residential spaces have become tourist attractions that depict local culture, heritage, dance and music, food, and the community's way of living (Booyens & Rogerson, 2019). Over the years, township tourism has been heralded as an instrument for social and economic change. This tourism contributes to inclusive socio-economic development, job creation, and cultural conservation (Ebrahim & Muresherwa, 2021). Despite its significance, township tourism still encounters some marketing-related challenges that impede its growth and global competitiveness.

South Africa remains one of the most visited destinations in Africa, and this is mainly because of its abundance of beautiful landscapes and rich cultural heritage. Because of this, the country has increasingly leveraged tourism as a key economic sector and tool for development (Hill et al. 2022). Thus, the tourism sector continues to be favoured for its value in steering socio-economic transformation and development. Within this context, Muldoon and Mair (2022) note that township tourism is a distinctive niche that offers visitors an immersive experience. In fact, township tourism provides tourists with the opportunity to experience the historically marginalised parts of the country.

According to Booyens and Hoogendoorn (2025), township tourism provides economic opportunities for residents. It also serves as an important platform for challenging the historical narratives and cultural exchange (Auala et al. 2019). However, the growth and sustainability of township tourism continue to face significant marketing challenges requiring strategic interventions. Dube and Muresherwa (2025) note the pervasive challenge confronting townships, especially in relation to accessing and engaging visitors. This paper, therefore, examines the multifaceted marketing challenges inherent in promoting township tourism in South Africa. In addition, it explores the opportunities that can be strategically harnessed to foster sustainable growth.

Township tourism, which is also widely known as 'slum tourism', 'heritage tourism', and 'dark tourism', has flourished in several contexts (Booyens, 2010). Despite the negative association that usually accompanies township tourism (Steinbrink & Voshage, 2021), careful planning that considers the locals often leads to its success. An ability to foster inclusive economic growth, cultural preservation, and community empowerment are

some of the desired outcomes (Dube & Muresherwa, 2025). It has, however, been noted that township tourism remains inadequately positioned and under-marketed, particularly within the South African context (Dube & Muresherwa, 2025). For example, the existing marketing strategies for township settings often fail to capture the authentic lived experiences of township communities. Consequently, low socio-economic returns for local business owners and entrepreneurs, and limited visitor engagement are easily noticed and experienced.

Moreover, the persistent challenges that stand in the way of township tourism include inadequate infrastructure, safety and security perceptions, fragmented marketing, and limited digital visibility (Booyens & Hoogendoorn, 2025; Chaturuka et al. 2020; Dube & Muresherwa, 2025). These challenges continue to constrain township tourism's competitiveness and, hence, require dedicated interventions to address. There is, therefore, a need to understand how effective marketing strategies can be developed to reposition townships as appealing, sustainable, and culturally rich spaces. This study thus conceptually examines the challenges and opportunities of South African township tourism marketing. The overall aim of the study is to propose a strategic township tourism marketing framework that promotes stakeholder collaboration, supports authentic experiences and innovation, leading to long-term sustainability and enhanced visibility.

2. Methodology of the Work

This research is conceptually designed to critically analyse the issues and prospects of township tourism marketing in South Africa. Instead of gathering new data, the paper is based on a full desk-based review of existing secondary sources. In doing so, relevant scientific literature, policy papers, and government reports, as well as tourism strategic plans, were accessed. According to Koskela-Huotari (2024), the conceptual research design enables the synthesis of diverse perspectives and empirical insights. The emerging themes from the examination of the reviewed literature on township tourism marketing guided the discussions.

The selection of sources for analysis was guided by relevance, credibility, and publication recency that ensured analytical rigour. Ultimately, this methodological orientation allowed for the development of a conceptual strategic framework for township tourism marketing. The approach was interpretive, seeking to generate insights that could inform future empirical research on township tourism marketing.

3. An Overview of South African Township Tourism

Townships in South Africa have historically evolved from segregated settlements under the separate development policy of Apartheid, becoming vibrant cultural spaces (Booyens, 2021). Today, townships attract thousands of visitors seeking authentic cultural experiences (Booyens, 2021; Donaldson, 2021; Dube & Muresherwa, 2025). The study situates township tourism within national development policies such as the Tourism Sector Master Plan and the National Development Plan (NDP) 2030, which emphasise inclusive growth, local participation, and cultural preservation as central to tourism-led development (South Africa Gov, 2025).

South African township tourism involves guided tours to historically marginalized urban communities commonly known as townships. Townships were established for non-white populations under the Apartheid regime (Ndzumo et al. 2021). Since the end of the Apartheid era in 1994, townships have grown significantly. Township tourism have evolved into key tourism products, providing visitors with an authentic, immersive look at the nation's history, culture, and current social realities (Dube & Muresherwa, 2025).

Township tours in South Africa are mostly experienced in Soweto (Johannesburg) and Langa (Cape Town). In these areas, visitors go beyond mere sightseeing, and witness the resilience, creativity, and vibrant culture of the residents that is showcased (Mpotaringa & Tichaawa, 2024). Visitors' experiences on a township tour typically include visits to historical sites, local businesses, craft markets, and eateries. These experiences foster direct interaction with the community members through performative arts, craft sales and home visits.

While sometimes viewed as controversial or voyeuristic (Huysamen et al. 2020), the intent of responsible township tourism is to promote cross-cultural understanding. This is enhanced through fostering authenticity by encouraging engagement between visitors and local communities (Dube & Muresherwa, 2025). In Langa and Soweto, for example, township tourism has enabled tourists to experience the daily lives of community members. At the heart of township tourism is the respect of local culture and support for community development initiatives. A notable example is the guided walking tours in Soweto that permits visitors to learn about the struggle for freedom while supporting local entrepreneurs. Similarly, cultural experiences in Langa Township include home dining, craft markets, and music performances that offers unique platforms for mutual learning and dialogue. In Khayelitsha, social enterprises and art collectives are seen using tourism revenues to

fund youth empowerment projects (Nkosi et al. 2025). Through these community-led and participatory initiatives, township tourism reduces exploitative practices (Dube & Muresherwa, 2025). Consequently, it helps foster respect across cultural divides and promote economic inclusivity.

Furthermore, township tourism is aimed at generating direct economic benefits for local entrepreneurs, guides, and businesses (Mpotaringa & Tichaawa, 2024). The main goal of township tourism is to move beyond showcasing poverty and instead highlight the energy, art, music, and hope prevalent in these communities (Dube & Muresherwa, 2025). By doing this, advocates for township tourism want to make it a critical sector for both historical education and socio-economic development (Aualaet al. 2019).

Despite its growing recognition, township tourism remains under-represented in mainstream tourism marketing campaigns. It is often perceived through stereotypical or deficit-based narratives that emphasise poverty rather than resilience and creativity (Dube & Muresherwa, 2025). This misrepresentation limits its potential contribution to destination branding and sustainable tourism growth. Nevertheless, the growing interest among domestic and international visitors for locally authentic experiences presents opportunities for repositioning townships as cultural landscapes of innovation, diversity, and shared identity. Thus, township tourism continues to evolve as a critical pillar of responsible tourism and local development in South Africa (Tourism Update, 2025).

4. Conceptualising Township Tourism Marketing

Township tourism marketing can be understood as a strategic process of promoting, branding, and positioning peripheral urban areas as desirable and authentic tourism destinations (Auala et al. 2019). Conceptually, township tourism marketing extends beyond traditional destination marketing as it incorporates community narratives, local creativity, and social transformation objectives. Within this framework, Destination Branding Theory (Hankinson, 2010) and Stakeholder Theory (Freeman, 1984) provide a useful foundation for understanding how multiple actors shape the township brand. Several stakeholders, including residents, entrepreneurs, tour operators, government agencies, and visitors, work to shape townships and activities happening in such areas.

Marketing township tourism requires the careful negotiation of identity and representation. This is due to the complex nature of these socio-cultural spaces embodying both historical trauma and contemporary creativity (Mary, 2020). Therefore, effective marketing must highlight community pride, cultural vitality, and human stories rather than perpetuating deficit imagery (Dube & Muresherwa, 2025). Community initiatives such as the Vilakazi Street precinct in Soweto, Guga S'thebe Cultural Centre in Langa, and Khayelitsha's Spinach King Café close to Cape Town illustrate how local entrepreneurs have redefined township spaces. This has been achieved through innovative branding and authentic storytelling, the key aspects in marketing these spaces as tourism products.

With the help of digital media, township tourism marketing has been transformed in a greater way. Tau et al. (2024) note the value of digital media in the marketing of townships, particularly their role in democratising access to global audiences. Several digital tools and platforms are increasingly playing a critical role in marketing townships (Ghauri et al. 2022; Ordoñez de Pablos, 2023). Examples of these digital media include Facebook, TikTok, Instagram, and YouTube. With these, residents and entrepreneurs can share visual narratives that celebrate everyday life, music, and cuisine (Dube & Muresherwa, 2025). This participatory approach enhances both destination authenticity and visitor engagement. This way, it reflects the shift from the traditional top-down marketing to community-driven branding (Muldoon & Mair, 2022).

However, conceptual clarity for township tourism marketing remains critical. Township tourism marketing involves selling experiences and co-creating value, particularly between hosts and visitors (Booyens, 2010). It thus requires a balanced blend of economic, cultural, and ethical considerations that support long-term sustainability (Dube & Muresherwa, 2025). Thus, conceptualising township tourism marketing involves recognising the township as both a living community and a cultural brand. Considering this, responsible representation, collaboration, and inclusivity become the foundation of all marketing strategies for township tourism.

5. Challenges in Marketing Township Tourism

Despite its potential, township tourism marketing in South Africa faces several interrelated challenges that continue to limit its competitiveness. One of the most persistent issues is the negative destination image associated with perceptions of poverty, insecurity, and poor service quality (Donaldson et al. 2023; Dube & Muresherwa, 2025; Huysamen et al. 2020; Ndzumo et al. 2021). These perceptions, often reinforced by

mainstream media, discourage potential visitors. In addition, they undermine the branding efforts of local entrepreneurs (Booyens & Hoogendoorn, 2025). Moreover, many townships continue to suffer from infrastructure deficits, including inadequate roads, unreliable public transport, and limited signage, which restrict accessibility and visitor mobility (Chaturuka et al. 2020; Dube & Muresherwa, 2025; Mpotaringa & Tichaawa, 2024).

Dube and Muresherwa (2025) note the evident marketing fragmentation within townships, which presents significant challenges. In most cases, township tourism initiatives are small-scale in nature and uncoordinated, which presents further marketing challenges. Moreso, the limited visible collaboration, especially between the various stakeholder groups, makes it more challenging to successfully market these spaces (Leonard & Dladla, 2020). The absence of a unified marketing strategy leads to duplication of efforts and weak brand visibility both domestically and internationally (Brown et al. 2025). Safety and security concerns further exacerbate these challenges, particularly for first-time visitors who are mostly unfamiliar with township environments (George & Booyens, 2014).

Another critical barrier limiting the full potential of township tourism marketing relates to digital exclusion. For example, many township entrepreneurs are crippled by a lack of resources, skills, or connectivity to effectively utilise digital marketing tools. As a result, township tourism remains underrepresented on global platforms such as Booking.com and TripAdvisor (Dube & Muresherwa, 2025). Furthermore, insufficient policy support and limited access to funding constrain innovation and marketing capacity-building initiatives.

Lastly, the representation dilemma continues to be felt, particularly on how to market township spaces in a more ethical way. In some instances, marketers tend to reinforce stereotypes or, at times, unintentionally exploit community narratives, thereby affecting the destination. Responsible marketing thus requires sensitivity, community participation, and transparent benefit-sharing (Booyens, 2010). Without these, marketing efforts risk being extractive rather than empowering. Therefore, addressing these interconnected challenges is essential for positioning township tourism as a sustainable segment of South Africa's tourism economy (Dube & Muresherwa, 2025).

6. Opportunities for Enhancing Township Tourism Marketing

Amid the presented challenges of township tourism marketing, significant opportunities exist for revitalising township tourism marketing in South Africa. The growing interest in responsible and experiential travel provides a valid basis for promoting township-based experiences (Matiku et al. 2020). Focus needs to be put towards the promotion of authentic, interactive, and community-led experiences (Dube & Muresherwa, 2025). With township tourism, travellers increasingly seek cultural immersion, thus making townships ideal spaces for storytelling and meaningful engagement.

The digital transformation of tourism presents another powerful opportunity (Ghauri et al. 2022). Through social media, websites, and influencer partnerships, township entrepreneurs can reach new audiences with minimal cost. Social media platforms have allowed initiatives such as Soweto Wine Festival, Maboneng Township Art Walks, and Khayelitsha's Bicycle Tours to attract diverse visitors to experience the local culture, food, and creativity. Furthermore, digital storytelling has allowed township hosts to reposition their communities as spaces of innovation and resilience (Dube & Muresherwa, 2025).

Community-based tourism businesses are offering opportunities for inclusive growth. When locals are integrated into tourism value chains, it allows for the creation of shared ownership that is grounded in authenticity, a factor for successful marketing of townships as tourism products. With township tourism, there are also vast opportunities for stakeholder partnerships, which can amplify township marketing through co-branding and joint promotional campaigns.

Moreover, leveraging township events has been instrumental in creating avenues for year-round tourism activity, thus helping extend the tourist season (McKercher et al. 2024). When marketed effectively, such events strengthen township identity and visitor loyalty (Dube & Muresherwa, 2025). These opportunities highlight the potential of combining digital innovation and strategic collaboration to transform township tourism marketing into a driver of sustainable development and cross-cultural exchange.

7. The Role of Stakeholders in Promoting Township Tourism

Effective township tourism marketing depends on multi-stakeholder collaboration (Ndzumo et al. 2021, Thetsane, 2019) involving several stakeholders. Each actor contributes unique resources and perspectives that can enhance marketing impact and sustainability. For example, local communities' role would involve providing local knowledge, cultural authenticity, and local knowledge, while the government's role relates to policy direction and infrastructural support (Selebi & Mhlongo, 2022). Meanwhile, the private sector invests capital and contributes innovation and marketing.

The City of Cape Town's Responsible Tourism Policy exemplifies a successful governance model. This policy has integrated township experiences into broader destination marketing strategies (City of Cape Town, 2025). Similarly, the Gauteng Tourism Authority has been instrumental in supporting township tourism. For example, targeted campaigns highlighting community-led experiences in Mamelodi and Soweto have been implemented (South African Tourism, 2025). However, sustained partnerships and collaboration remain limited, and most community tourism initiatives operate in isolation (Dube & Muresherwa, 2025).

Overcoming the often-experienced fragmentation requires multi-stakeholder partnerships, prioritising capacity building and empowerment (Dube & Muresherwa, 2025). Also important is focusing on skills development through initiating targeted training programs for local entrepreneurs. More specifically, training in digital marketing and visitor management helps equip township entrepreneurs with the essential skills (Booyens, 2010; Ghauri et al. 2022). Marketing platforms such as the online marketplace or through regional tourism associations can help collective promotion and facilitate resource sharing (Graci, 2020). Importantly, stakeholder engagement should follow the principles of inclusive governance. This helps ensure involvement, especially that community voices become part of marketing narratives. With transparent, mutually beneficial partnerships, township tourism marketing can be improved (Thetsane, 2019).

8. Towards a Strategic Framework for Township Tourism Marketing in South Africa

This study proposes a strategic framework that could help guide sustainable township tourism marketing in South Africa. The framework (see Figure 1) is anchored on three interrelated pillars - authenticity, innovation, and collaboration. Following these pillars are the aspects that should be present for the successful marketing of townships, and include the enabling conditions and supporting systems. At the end of the framework are the expected outcomes, which entail the aspirations of tourism developers.

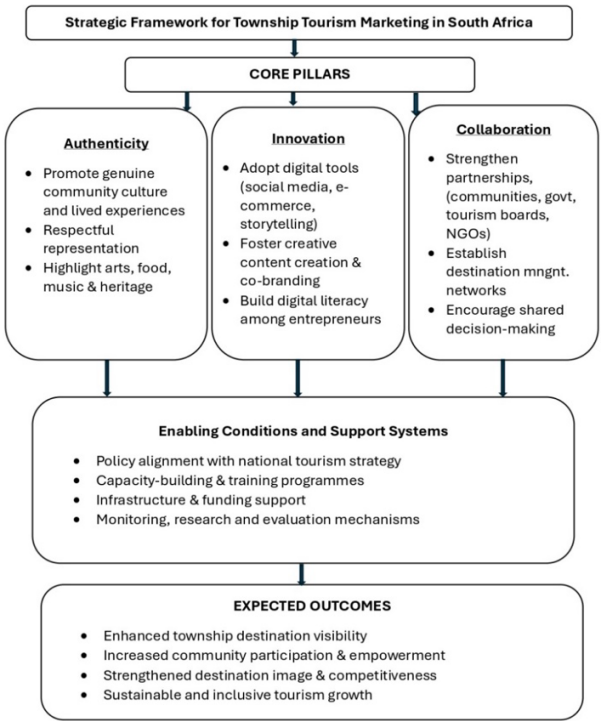


Figure 1: Township tourism marketing framework

Source: Authors' Construction

Township tourism marketing focuses on the promotion of tourism experiences, especially in historically marginalised urban areas. In most cases, it highlights the local culture, heritage, and creativity. Its success rests on the concept of 'authenticity', the real representation of township life, traditions, and community narratives. In other words, authenticity involves promoting township experiences that reflect the real community culture, creativity, and lived realities (Dube & Muresherwa, 2025). At the heart of celebrating local cultures and showcasing them to visitors, it is critical to ensure their respectful representation. When authentic experiences are available, it becomes easier for visitors to engage meaningfully with residents, thus fostering cultural understanding (Booyens & Rogerson, 2019). Booyens (2010) emphasizes the importance of providing authentic experiences by allowing tourists to engage with locals' lived accounts, thereby empowering local entrepreneurs. However, maintaining authenticity remains a challenge as increasing tourist demand could risk commodifying culture and eroding local values. Therefore, township tourism marketing should strive to strike a balance between community integrity and economic goals.

The second core pillar for township tourism marketing emphasises innovation. The digital interventions that marketers and local entrepreneurs should utilise include content creation, social media marketing, and e-commerce platforms. It has been known that when digital tools are carefully and strategically applied, it expands visibility and enhance competitiveness (Ordoñez de Pablos, 2023). By using creative digital technology, entrepreneurship, and community-driven initiatives, innovation has the power to enhance accessibility and marketing visibility. The innovative marketing tools can empower township entrepreneurs to engage directly with target audiences (Ghauri et al. 2022). Moreso, with these tools, it becomes easier to gather feedback and adapt offerings to market trends.

Collaboration is another core pillar that underscores the importance of coordinated action among various stakeholder groups (Bisani et al. 2024). Establishing township tourism groups or destination management networks is invaluable, as it allows the pooling of resources and assists in the marketing of townships. Of note is the involvement of community members, which should be prioritised in all tourism-related decisions (Dube & Muresherwa, 2025). Moreover, collaboration through partnerships with digital platforms, academic institutions, research centres, and NGOs can enhance skills development, advance research, and steer innovation in marketing. Collaborative networks also enable joint branding among township attractions (Graci, 2020). Ultimately, collaboration fosters trust and shared value creation, thus helping ensure that township tourism contributes to long-term socio-economic growth, cultural preservation, and long-term economic growth.

The framework also recognises the need for policy alignment with national tourism strategies and capacity-building initiatives to help strengthen local participation. By integrating these elements (enabling conditions and support systems), township tourism can evolve from fragmented marketing initiatives into a cohesive sector that contributes to South Africa's sustainable tourism agenda. This strategic orientation enhances the marketing effectiveness and helps ensure that township tourism remains a vehicle for cultural preservation and socio-economic development.

9. Conclusion and Recommendations

This paper supports the view that township tourism holds immense potential for South Africa. In fact, this type of tourism has been identified in numerous tourism development strategies for its potential to promote inclusive economic growth, social reformation, and conservation of culture (Donaldson et al. 2023; Dube & Muresherwa, 2025). Important to note from this conceptual analysis is that although township tourism is presented as an identifiable niche in the national tourism space, its marketing appears limited. However, the persistent challenges, such as inadequate infrastructure, negative perceptions, limited digital visibility, and fragmented marketing efforts, continue to constrain the full potential of township tourism. Conversely, opportunities exist through digital innovation, community-based entrepreneurship, and collaborative partnerships (Ndlovu et al. 2024). These can assist in repositioning township tourism as both an authentic and competitive niche within South Africa's mainstream tourism sector.

To realise the potential of township tourism, authenticity and ethical representation should underpin all marketing initiatives (Dube & Muresherwa, 2025; Ndzumo et al. 2021). This helps to ensure that township communities are accurately portrayed with dignity. Digital transformation must also be prioritised. This can be through capacity-building programs that help make local entrepreneurs more empowered, or it could be around social media and storytelling. Booking platforms (internet) serve as great tools to help local entrepreneurs to market their products and reach a wider customer base. Strengthening stakeholder collaboration through structured partnerships is critical for the success of marketing townships. Ideally, mutually beneficial

partnerships with different stakeholders need to be established to ensure resource sharing and coherent branding (Bisani et al. 2024; Graci, 2020).

Furthermore, funding mechanisms need to be established and accompanied by policy support to assist township-based tourism businesses. This funding should be directed towards improving local infrastructure, skills development programs (e.g., training), and subsidised marketing (Mnisi & Ramoroka, 2025; Tourism Update, 2025). Finally, ongoing research and monitoring are necessary to assess the socio-economic benefits of township tourism, which will help inform more responsive marketing initiatives. By implementing these recommendations, township tourism can be transformed into a model of sustainable tourism. Ultimately, this helps enhance community well-being, reinforce South Africa's cultural identity, and promote meaningful cross-cultural understanding.

A key limitation of this paper is its purely conceptual design, which relies exclusively on secondary data sources such as academic literature, policy documents, and reports. While this approach enabled theoretical synthesis and the development of a strategic framework, it does not provide empirical validation of the proposed relationships, stakeholder dynamics, or marketing outcomes discussed. As such, the findings remain interpretive rather than empirically tested, which may limit their immediate applicability to specific township contexts. In addressing this, future studies could attempt to empirically validate the proposed township tourism marketing framework. Surveys with tourists, interviews with township entrepreneurs, and stakeholder focus groups would provide empirical evidence on the effectiveness of collaboration, authenticity, and innovation as core marketing pillars. In addition, comparative and longitudinal research across different townships (e.g., Soweto, Langa, Khayelitsha) or between countries in the Global South could enhance theoretical robustness. Longitudinal research would be valuable in tracking how digital marketing adoption and stakeholder collaboration evolve over time and influence destination image and socio-economic outcomes.

Ethics Declaration

This study was ethically approved by the University of South Africa's College of Economic and Management Sciences Ethics Research Committee - ERC Marketing and Retail Management (Ref #: 11441).

AI Declaration

No AI tools were used in the conception, writing, and editing of this manuscript. All content reflects the authors' original work and intellectual contribution.

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Mapping the Future of Ecotourism: A Decade of Research Insights

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Abstract: This study underscores the importance of deepening understanding of ecotourism to foster sustainability and environmental responsibility in tourism. Through a systematic literature review of 84 articles published between 2015 and 2025 in Web of Science database, the study examines the intellectual and thematic structure of the discipline. Three major thematic clusters were identified, revealing a shift from descriptive studies focused on conservation and community participation toward integrative approaches that encompass governance, behavioral psychology, and digital transformation. By synthesizing current scholarship, this research highlights emerging theoretical trends, unresolved gaps, and future directions that align ecotourism with global sustainability goals. The findings offer conceptual insights for researchers, evidence-based guidance for policymakers, and practical strategies for tourism enterprises aiming to strengthen ecological integrity and community resilience.

Keywords: Ecotourism; Sustainable Tourism; Literature Review; Research Trends; Environmental Conservation

1. Introduction

Ecotourism is a critical area of study positioned at the intersection of environmental conservation and sustainable economic development. Its central role in the broader agenda of sustainable tourism makes it a crucial field for scholarly inquiry (W. Q. Zhang & Fukami, 2024). However, ecotourism is complex, often critically evaluated as a conservation tool that presents social dilemmas, emphasizing the persistent gap between its conceptual ideals and its implementation outcomes (Das & Chatterjee, 2015). Given the rapid evolution and multidisciplinary nature of the field (Zupic & Čater, 2015), there is a need for a systematic assessment of the intellectual landscape to advance sustainable practices and environmental awareness in the tourism sector.

This study addresses this need by through a systematic literature review using bibliometric analysis (Thirumaran et al., 2021; Zupic & Čater, 2015). Our approach provides a quantitative and reliable method for analyzing large datasets of academic publications (Milojevic et al., 2011). The research analyzed 84 articles published between 2015 and 2025, sourced from the Web of Science database using the keyword “ecotourism.”

The analysis identified three distinct thematic clusters (Sustainable Ecotourism Strategies and Community Involvement; Technological Innovation, Marketing Strategies, and Behavioral Drivers; and Ecotourism, Community Livelihoods, and Environmental Resilience), each reflecting major areas of inquiry and the evolution of ecotourism scholarship over the past decade. By synthesizing existing studies and applying co-occurrence and bibliographic coupling analysis (Veloutsou & Ruiz, 2020; Kessler, 1963; W. Liu et al., 2017), the review highlights emerging trends, research gaps, and new directions for future investigation.

The theoretical implications advance the understanding of ecotourism by demonstrating its evolution toward an integrated, multidisciplinary paradigm. The practical implications offer strategic guidance for policymakers and businesses, highlighting the importance of participatory governance and digital transformation in fostering sustainable ecotourism. Overall, the study contributes a comprehensive understanding of ecotourism’s development, serving as a foundation for future research and informed decision-making in sustainable tourism management.

2. Materials and Methods

Bibliometric analysis provides a systematic and quantitative approach to examine research trends and scholarly influence, ensuring objectivity and reproducibility (Milojevic et al., 2011; Zhi et al., 2015). Additionally, it enables the quantitative validation of conceptual categories identified in prior reviews, thereby strengthening the objectivity and credibility of the findings (Zupic & Čater, 2015).

In this study a systematic bibliometric approach was adopted to guarantee rigor, accuracy, and reliability in data collection. The Web of Science Core Collection (WoS) was chosen for its methodological rigor and curated records, which are particularly valuable in social science research (Franceschini et al., 2016; Z. Liu et al., 2015). Data were extracted on October 23, 2025, covering publications from 2015 to 2025 in order to capture a decade of ecotourism research. Following the methodological procedures outlined in previous studies, where the search was limited to titles (Nogueira & Montenegro, 2025) containing the term "ecotourism" (Dinç et al., 2023), including only peer-reviewed articles and review papers written in English were included (Nogueira et al., 2025), and the analysis focused on the fields of Business, Management, and Economics (Thirumaran et al., 2021). This multi-stage selection process yielded a final dataset of 84 publications for detailed bibliometric analysis (Table 1).

Table 1: Steps involved in the methodology.

Steps	Exclusion criteria	Number of Publications
Step 1	Select database: Web of Science	-
	Search date: October, **13 2025** (2015 -2025)	-
	Search performed by: title	-
Step 2	Search Keyword:	-
	ecotourism	1.427
Step 3	Documents types: articles and reviews	1.152 (275 excluded)
Step 4	Articles written in English	1.103 (49 excluded)
Step 5	WOS Categories: Business or Management or Economics	84 (1019 excluded)
	Articles for analyses - 84	

In the analytical phase, VOSviewer software was employed to construct and visualize bibliometric networks, enabling detailed interpretation of relationships within the dataset (Eck & Waltman, 2010; Eck & Waltman, 2017). A keyword co-occurrence analysis was conducted to explore how frequently keywords appeared together, revealing the conceptual structure and thematic development of ecotourism research (Veloutsou & Ruiz, 2020). Additionally, bibliographic coupling analysis was applied to measure the similarity between studies based on shared references (Kessler, 1963; W. Liu et al., 2017), allowing the identification of intellectual connections and clusters within the literature.

3. Results and Discussion

3.1 Co-Occurrence Analysis

The co-occurrence analysis of keywords from the 84 selected publications was carried out using VOSviewer (version 1.6.17). In total, 616 distinct keywords were identified within the dataset. To ensure analytical robustness and focus on the most significant terms, only those keywords that appeared at least four times were retained, resulting in 27 keywords being included in the final analysis (Figure 1). This approach enabled the visualization of keyword relationships and the identification of thematic trends.

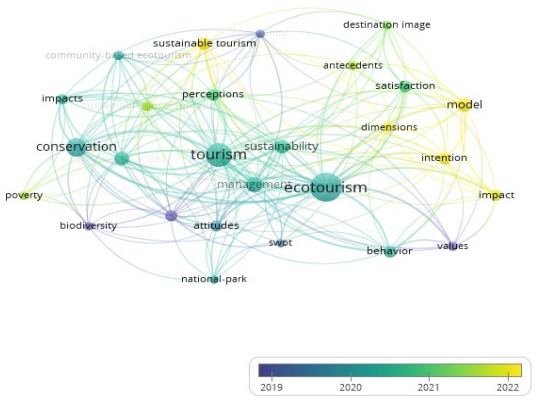


Figure 1: Co-Occurrence Analysis

Figure 1 illustrates the keyword co-occurrence network, where the color gradient from blue to yellow depicts the temporal evolution of ecotourism research between 2019 and 2022, highlighting the conceptual and thematic development of the field over time. "Ecotourism" emerges as the most central and interconnected keyword, closely linked with "tourism," "sustainable tourism," "management," "sustainability," and "conservation," underscoring its role as the core theme of the field. Temporal visualization shows a shift from early studies (2020–2021) focused on ecological and policy-oriented themes like "sustainable development" and "protected areas" to more recent research (2022–2023) emphasizing behavioral aspects such as "intention," "behavior," and "satisfaction." This indicates a growing interest in the psychological and experiential dimensions of ecotourism. Intermediate keywords like "tourism development" and "management" connect environmental and behavioral themes, reflecting a trend toward integrating sustainability with managerial and human-centered perspectives. Overall, the findings underline an ongoing alignment of ecotourism research with the broader sustainability agenda.

3.2 Bibliographic Coupling Analysis

The cluster analysis, conducted using VOSviewer (version 1.6.17), applied bibliographic coupling to identify and visualize the main research frontiers within ecotourism. This method effectively maps thematic connections among scholarly works, revealing how studies align and evolve across related topics (Zupic & Čater, 2015). Of the 84 analyzed publications, 79 were successfully grouped, while five were excluded due to limited bibliographic links. The results, shown in Figure 2, revealed three main thematic clusters: Cluster 1 (Red) – Sustainable Ecotourism Strategies and Community Involvement (36 articles); Cluster 2 (Green) – Technological Innovation, Marketing Strategies, and Behavioral Drivers in Ecotourism (26 articles); and Cluster 3 (Blue) – Ecotourism, Community Livelihoods, and Environmental Resilience (17 articles). The visualization illustrates the bibliographic coupling network, where node size represents citation strength and color differentiation highlights distinct research domains, illustrating the intellectual structure and interconnections within ecotourism scholarship.

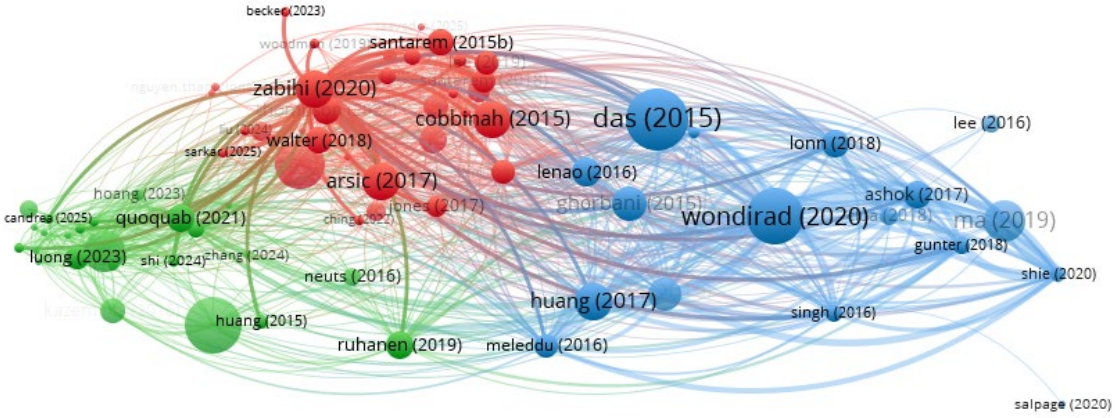


Figure 2: Cluster analysis

The analysis revealed three major thematic clusters that collectively define the intellectual landscape of ecotourism research over the past decade. These clusters highlight how the field has evolved from emphasizing sustainable resource management and community participation toward integrating behavioral sciences, technological innovation, and socio-economic resilience in tourism development.

3.2.1 Cluster 1

Sustainable Ecotourism Strategies and Community Involvement - primarily encompasses research focused on sustainability-oriented ecotourism models, community empowerment, and environmental conservation. Saavedra (2025) identified that ecotourism in Colombia contributes to forest preservation while fostering employment and local development. Similarly, Mohanty et al. (2024) emphasized that community-based initiatives in India's Bhitarkanika Wildlife Sanctuary improve conservation awareness and inclusive growth. Governance and collaboration appear as central themes, with Suryawan et al. (2025) and Tamrin et al. (2024) examining coastal and marine ecotourism management frameworks in Indonesia, highlighting the need for adaptive governance mechanisms. Studies such as Saxena et al. (2025) and Tiwari & Nguyen (2024) argued that

equitable community participation and inclusive governance are vital for ensuring sustainable tourism outcomes. Methodological innovation is another key element of this cluster: Sarkar et al. (2025) and Zabihi et al. (2020) utilized GIS-based and fuzzy-analytic hierarchy process (F-AHP) models to assess ecotourism suitability, while Arsic et al. (2017) and Becker et al., (2023) demonstrated how multi-criteria decision frameworks and economic valuation models can balance conservation and local development. Overall, the cluster reinforces the view that sustainable ecotourism depends on harmonizing ecological protection, governance structures, and socio-economic empowerment.

3.2.2 Cluster 2

Technological Innovation, Marketing Strategies, and Behavioral Drivers in Ecotourism - focuses on the intersection of technology, marketing, and psychology in promoting responsible ecotourism behavior and destination branding. Candrea et al. (2025) and Sorcaru et al. (2025) exemplified how augmented reality and digital engagement enhance online branding and family-focused ecotourism experiences. Complementarily, S. Zhang et al. (2025) explored how immersive virtual environments stimulate pro-environmental intentions, applying the stimulus-organism-response and theory of planned behavior frameworks. Policy and innovation studies such as Firman et al. (2022) demonstrated how eco-innovation, digital media, and government policy align to drive sustainable tourism in Indonesia, while Yuliarni et al. (2023) contrasted marketing strategies in Uzbekistan and Indonesia, showing that satisfaction and loyalty remain key mediating variables for competitiveness. Consumer behavior research by Hoang et al. (2023), Le (2024), and Luong (2023) revealed that destination image, satisfaction, and biospheric values influence visitors' loyalty and environmental responsibility. Meanwhile, Naparin et al. (2025) and Lee (2025) explored sustainability communication and biodiversity education as mechanisms to strengthen environmental citizenship. H. K. Shi & Chen (2024) and Silva et al. (2022) contributed cross-cultural insights, illustrating how emotional intelligence, collectivism, and activism shape ecotourism motivations in China and Brazil. Finally, Sana et al. (2023) and W. Q. Zhang & Fukami (2024) advanced the conceptual boundaries of ecotourism research through systematic reviews and the evaluation of codes of conduct for responsible tourism. Together, this cluster reveals a maturing research direction that combines technological innovation, affective engagement, and sustainable marketing as catalysts for ethical and environmentally conscious tourism.

3.2.3 Cluster 3

Ecotourism, Community Livelihoods, and Environmental Resilience - integrates works examining ecotourism's complex relationship with livelihoods, governance, and ecological resilience. Foundational studies such as Das & Chatterjee (2015) critically evaluated ecotourism as both a conservation tool and a social dilemma, emphasizing the gap between conceptual ideals and implementation outcomes. Their subsequent work, Das & Chatterjee (2020), investigated the Bhitarkanika Wildlife Sanctuary in India, showing that while ecotourism improves local employment, it exacerbates human–wildlife conflicts and economic disparities. Complementarily, Ma et al. (2019) demonstrated that ecotourism in Chinese nature reserves reduces poverty yet increases income inequality due to uneven access to tourism benefits. Wondirad et al. (2020) underscored the necessity of stakeholder collaboration and participatory governance in sustaining equitable ecotourism in developing contexts, whereas Shie (2020) explored how indigenous-led river ecotourism in Taiwan fosters community resilience through social capital and adaptive management. Gunter et al. (2018) extended the discussion globally by proving that international ecotourism contributes to economic growth and convergence across the Central American and Caribbean regions. On the behavioral front, Meleddu & Pulina (2016) found that environmental awareness and pro-ecological attitudes significantly enhance willingness to pay for sustainable tourism experiences. Broader system-level inquiries by Shi et al. (2019) and Salpage et al. (2020) assessed visitor dynamics and environmental vulnerability, revealing that mass ecotourism in China can foster ecological citizenship, while Sri Lanka's coastal wetland ecotourism faces climate-induced risks. Lastly, Singh et al. (2016) introduced a framework linking ecotourism certification and sport tourism, advocating standardized certification schemes to strengthen credibility and environmental accountability. Collectively, this cluster highlights the delicate balance between conservation, economic equity, and resilience-building, affirming that ecotourism's sustainability hinges on inclusive governance and proactive climate adaptation strategies.

The three thematic clusters identified align with key theoretical frameworks in sustainable and community-based tourism. Cluster 1 reflects the Community-Based Tourism Theory (Murphy, 1985; Scheyvens, 1999), and Stakeholder Theory (Freeman, 1984), emphasizing governance, participation, and local empowerment. Cluster 2 connects with the Theory of Planned Behavior (Ajzen, 1991) and Sustainable Marketing Framework (Belz &

Peattie, 2012), linking technology, behavior, and responsible tourism marketing. Cluster 3 aligns with the Social-Ecological Systems and Resilience Frameworks (Berkes & Folke, 1998; Folke, 2006), highlighting the balance between conservation, livelihoods, and adaptive capacity. Together, these frameworks demonstrate how ecotourism research integrates behavioral, governance, and ecological perspectives to advance sustainability and community resilience.

3.3 Academic Contributions

This study advances the theoretical understanding of ecotourism and sustainable development by mapping the intellectual landscape of the field between 2015 and 2025 through bibliometric coupling and co-occurrence analysis. The findings indicate that ecotourism research has evolved from descriptive assessments of sustainability and community participation toward an integrated, multidisciplinary paradigm that combines environmental management, behavioral psychology, and digital innovation. The results reveal growing theoretical pluralism, with frameworks such as the theory of planned behavior, stakeholder theory, and adaptive governance increasingly shaping the discourse. The identification of three thematic clusters organizes existing literature into coherent domains while exposing theoretical gaps related to technology-mediated behavior and social equity. This research supports a systems-based theoretical lens that emphasizes the interdependence between environmental, economic, and socio-psychological dimensions of ecotourism.

3.4 Practical Implications

The insights from this research offer strategic and actionable guidance for various stakeholders seeking to promote sustainable ecotourism. For policymakers and destination managers, the study highlights the necessity of embedding participatory governance in ecotourism management, moving decisively beyond traditional top-down approaches. Prioritizing equitable community involvement is essential for achieving sustainable outcomes and strengthening collaborative frameworks that ensure benefits are fairly distributed. It is also crucial to address negative side effects, such as rising income inequality, and to mitigate local tensions, including human-wildlife conflicts. Furthermore, destination management plans must explicitly integrate ecotourism with climate adaptation and biodiversity protection. This strategic alignment helps foster economic growth that is environmentally resilient and enhances local livelihoods, thus supporting key global Sustainable Development Goals. To ensure accountability, governments and industry bodies should champion and implement standardized certification schemes. This measure is vital for establishing credibility, strengthening environmental responsibility among operators, and actively combatting misleading practices often referred to as 'greenwashing'.

For businesses and ecotourism operators, the research emphasizes the potential of digital transformation for both engagement and environmental impact reduction. Operators should strategically leverage technologies like augmented reality and gamification to create immersive visitor experiences, improve destination branding, and actively stimulate pro-environmental intentions among tourists. The use of data analytics is also critical for effectively monitoring visitor dynamics and managing the environmental footprint of their operations. A strong emphasis should be placed on behavioral drivers and education. By investing in rich sustainability communication and biodiversity education, operators strengthen environmental citizenship and provide high-quality experiences that boost visitor satisfaction, cultivate loyalty, and increase customers' willingness to pay a premium for genuinely sustainable options. Finally, when planning new ventures, businesses should adopt a proactive approach by employing multi-criteria decision frameworks and economic valuation models. This ensures a holistic assessment of ecotourism suitability, guaranteeing that conservation needs are perfectly balanced with viable local economic returns right from the initial design phase.

3.5 Future Research Directions

The mapping of ecotourism research over the past decade reveals several promising avenues for future investigation, particularly those that address the field's shift toward an integrated, multidisciplinary paradigm.

Future research should expand the analysis of behavioral drivers in ecotourism. While recent studies has focused on visitor intention and satisfaction, a deeper understanding of the psychological mechanisms is needed. Specific directions include investigating the long-term impact of emerging technologies – such augmented reality, virtual reality, and gamification - on actual tourist behavior, pro-environmental intentions, and ethical consumption post-trip; this research must move beyond mere intention to measure sustained behavioral change.

Furthermore, researchers should explore the influence of emotional intelligence, biospheric values, and cultural dimensions on ecotourism motivations and responsible actions in diverse global contexts.

Studies on the socio-economic and governance aspects requires a stronger focus on implementation challenges and practical solutions. Scholars must develop and test adaptive governance frameworks designed to manage dynamic issues like climate-induced risks and human–wildlife conflicts, particularly in vulnerable areas. Crucially, research should propose reliable metrics to measure the actual success of collaborative and participatory management, moving beyond descriptive assessments. On the socio-economic front, conducting longitudinal analyses is necessary to assess the true impact of ecotourism on local livelihoods and income distribution, with a critical focus on investigating how to effectively mitigate income inequality and ensure equitable access to tourism benefits. Lastly, rigorous evaluation of ecotourism certification schemes in different regional contexts is needed to determine whether these systems genuinely translate into measurable environmental accountability and conservation outcomes.

The nexus between technology and resource management needs further exploration. Academics should explore the use of big data and machine learning to analyze visitor dynamics and environmental vulnerability in real-time, providing management frameworks with the capacity for proactive intervention rather than reactive measures. It is also vital to systematically test and validate the predictive power of methodological tools identified in the literature, such as GIS-based and fuzzy-analytic hierarchy process (F-AHP) models, to assess ecotourism suitability and carrying capacity in new, unexplored destinations. Finally, future studies should explicitly link ecotourism models and outcomes to specific indicators within the United Nations Sustainable Development Goals to provide clearer guidance for national and international policy reporting.

4. Conclusion

This study offers a comprehensive mapping of ecotourism research from 2015 to 2025, drawing on a systematic bibliometric analysis of 84 peer-reviewed articles indexed in the Web of Science. The findings reveal a clear evolution from descriptive analyses of conservation and community participation toward integrative approaches that combine governance, behavioral psychology, and digital transformation. Using co-occurrence and bibliographic coupling techniques, the study identifies three major thematic clusters defining the intellectual structure of the field.

The first cluster, Sustainable Ecotourism Strategies and Community Involvement, emphasizes governance, ecological protection, and community empowerment. The second, Technological Innovation, Marketing Strategies, and Behavioral Drivers in Ecotourism, reflects the influence of behavioral theories, sustainable marketing, and digital engagement in shaping pro-environmental behavior. The third, Ecotourism, Community Livelihoods, and Environmental Resilience, focuses on the balance between conservation, social equity, and adaptive capacity in climate-vulnerable contexts. Jointly, these clusters underscore the growing theoretical pluralism in ecotourism and its alignment with frameworks such as Stakeholder Theory, the Theory of Planned Behavior, and Social-Ecological Systems thinking. Although limited by database scope and keyword constraints, this study provides a rigorous and transparent overview of the field. It advances understanding of ecotourism's multidisciplinary nature and highlights future directions for integrating governance, technology, and behavioral insights to enhance sustainable tourism and community resilience.

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Ethics Declaration

This is an original work of authors. Ethical clearance was not required for the research.

AI Declaration

Minimal assistance from AI tools was utilized solely for language refinement, such as grammar and style corrections. The human authors confirm full and sole responsibility for the scientific content and conclusions of this manuscript.

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Blended Intensive Programmes as a Tool for Critical Tourism Education: Insights from Military Tourism in Portugal

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Abstract: This paper examines Erasmus+ Blended Intensive Programmes (BIPs) as both an educational format and a research platform for critical tourism education. Using a Lisbon-based BIP in which 21 Generation Z tourism students engaged with six Portuguese military-heritage sites, the study explores how they evaluate and reimagine the design of interpretation. An interpretivist qualitative approach combined non-participant observation, informal stakeholder mini-interviews, reflective journals, and student artefacts. Cross-case qualitative content analysis identified recurring expectations shaping Gen Z military-heritage engagement, leading to a four-pillar interpretation framework: (1) narrative-first technology; (2) multisensory and inclusive access; (3) community co-creation as authenticity; and (4) choice-based immersion and gamified edutainment. These pillars are synthesised into a concise Gen Z "signature" of visitor expectations and paired with low-, medium-, and high-resource recommendations for progressive implementation. The study demonstrates BIPs as living-lab settings that bridge classroom learning, applied research, and site-level innovation, while positioning student co-production as a legitimate route to context-sensitive and ethically alert interpretation practice.

Keywords: Military Tourism; Blended Intensive Programme; Generation Z; Tourism Education; Museums; Sustainable Visitation

1. Introduction

Niche tourism is expanding as destinations move beyond mass models to meet evolving visitor expectations (Novelli, 2005). Military tourism, spanning museums, battlefields, fortifications and memorial routes, shares interpretive terrain with dark tourism because it engages conflict and contested histories (Seaton, 1999; Lennon and Foley, 2000). Nevertheless, well-curated military heritage need not foreground morbidity; it can prioritise learning, plural remembrance and community narratives over spectacle (Venter, 2017).

Military attractions are adapting to digital-native audiences who value interactivity, inclusion and sustainability (Hooper-Greenhill, 2007; Gretzel et al., 2015; Francis and Hoefel, 2018). Generation Z (mid-1990s to early 2010s) often lacks direct memory anchors in military contexts and is sensitive to representation, accessibility, and emotional tone (Light, 2017). Empirical evidence on Gen Z perspectives in military heritage remains sparse (Kupczyk et al., 2021), risking either sensationalist framings or passive museology that underserves contemporary expectations.

Tourism education has likewise shifted towards experiential, reflective formats. Erasmus+ Blended Intensive Programmes combine online preparation with short intensive mobility and intercultural teamwork, with reported benefits for professional and sustainability competencies (Perfölz and López-Varela, 2022). This creates a timely opportunity to align pedagogic innovation with changing visitor markets.

1.1 Research Questions

1. RQ1: How can Erasmus+ BIPs function as mechanisms for experiential learning and critical reflection in tourism education?
2. RQ2: How do Gen Z tourism students assess the strengths and limitations of Portuguese military-heritage attractions?
3. RQ3: What actionable strategies follow from these assessments to support more inclusive, sustainable, and immersive visitor experiences?

This study contributes by (1) evidencing BIPs as dual teaching–research infrastructures that generate a structured qualitative corpus; (2) providing a cross-site Gen Z evaluation of military-heritage interpretation; and (3) translating these evaluations into a practice-ready four-pillar framework and Gen Z "signature", supported by feasibility-tiered recommendations.

2. Literature Review

2.1 Military Tourism

Military tourism includes museums, fortifications, re-enactments, battlefields and interpretation centres (Seaton, 1999; Dunkley et al., 2011). Its narratives intersect with national identity and politicised memory, making interpretive choices ethically charged (Winter, 2009; Knudsen, 2011). Curatorial stances range from reconciliation-oriented approaches to celebratory narratives of heroism and technological prowess (Hyde and Harman, 2011; Dunkley et al., 2011). Traditional object-led, chronological displays can disengage younger visitors (Slade, 2003), reinforcing calls for interpretation that integrates digital mediation, experiential design and ethical reflexivity (Light, 2017; Butler and Suntikul, 2013).

2.2 Dynamic Visitor Markets and the Rise of Generation Z

Shifting demographics and technologies have reset expectations for heritage experiences (Chon, Pizam and Mansfeld, 2012). Generation Z (c. 1995–2010) typically seeks: (1) interactive and personalised journeys, often mediated by mobile, AR/VR, and gamified tasks; (2) value-driven content emphasising sustainability, inclusivity, and ethical consumption; and (3) opportunities for co-creation and social meaning (Gretzel et al, 2015; Francis and Hoefel, 2018). As both current visitors and prospective industry professionals, Generation Z occupies a dual role, making their perspectives especially consequential for product design and education. In museums, this translates to a preference for multisensory engagement, choice-based depth, and explicit narrative scaffolding, rather than object-led didacticism (Hooper-Greenhill, 2007; Ratto and Boler, 2014). In military heritage specifically, Gen Z often lacks familial memory anchors and responds better when past conflicts are connected to current concerns—diversity, peace, social justice—and when multiple perspectives (civilians, opposing forces, local voices) are represented; attention to cognitive load (audio clarity, captioning, pacing) also matters (Light, 2017; Marwick and Boyd, 2014; Francis and Hoefel, 2018).

2.3 Tourism Education and BIPs

Alongside changes in visitor markets, higher education in tourism has undergone a significant transformation. Tourism education has shifted from transmission models towards experiential, critical, and reflective pedagogies that build professional competence and civic/ethical awareness (Tribe, 2002; Airey and Tribe, 2005; Dredge, Airey and Gross, 2014; Pritchard, Morgan and Ateljevic, 2011; Sotomayor, 2021). Erasmus+ BIPs combine pre-programme online preparation with short, intensive physical mobility to deliver project-based, intercultural teamwork, digital skills, and stakeholder engagement (European Commission, 2025). Reported benefits include improved learning outcomes, strengthened sustainability competencies, and the productive use of AR/VR within curricula (Finlay, Tinnion, and Simpson, 2021; Tomej et al, 2022; Shen et al, 2022; Perfölz and López-Varela, 2022). Crucially, BIPs can also act as research environments: site visits, informal stakeholder interviews, guided reflection, and student outputs yield qualitative data akin to focus groups and ethnographic fieldnotes, blurring teaching–research boundaries in productive ways (Fullagar and Wilson, 2012; Goh, 2011; Perfölz and López-Varela, 2022).

2.4 Synthesis and Identified Gap

Existing work shows (1) the interpretive complexity of military heritage; (2) Gen Z's preference for inclusive, interactive and plural narrative designs; and (3) the pedagogic value of blended experiential learning. What remains underdeveloped is their integration. Few studies explicitly use BIPs as empirical inquiry platforms, foreground Gen Z assessments of military heritage, and translate these assessments into operational design guidance. This study addresses that gap through a BIP-based, cross-case Gen Z evaluation yielding a transferable interpretation framework.

3. Methodology

3.1 Research Design

An interpretivist, relativist, and subjectivist stance guided the study, aligning with meaning-centred inquiry. The empirical context was an Erasmus+ BIP titled *Military tourism, re-enactment and immersive experiences: bringing history back to life*, held in Lisbon, Portugal (12–16 May 2025) with online sessions on 22 April and 27 May 2025. Participants were Generation Z tourism students (N = 21) from three universities in Belgium, Greece, and Portugal, randomly assigned to five mixed groups. The BIP integrated lectures, stakeholder engagement, field visits, and on-site exhibition tasks to elicit evidence-based insights on interpretation, inclusion, and sustainability.

3.2 Data Collection

Data were generated in three phases aligned with the BIP, combining preparatory inputs, in-situ activities, and post-hoc consolidation to enable triangulation. Specific case areas are listed in Section 3.3.

3.2.1 Pre-mobility

Online sessions introduced current debates in military heritage (interpretation, edutainment, accessibility, sustainability), ethical protocols, and the learner-observer role. This ensured students were mentally acquainted with the necessary framework before the field week started.

3.2.2 Field Week (on-site)

On the first day, students received further lectures, followed by discussions on what to look out for and how to collect the needed information. At multiple heritage settings (see 3.4), groups conducted (i) non-participant observation of guided interpretation, scenography, digital touchpoints, wayfinding, audio environments, and visitor behaviours; (ii) informal mini-interviews with available staff/guides using the topic guide; and (iii) brief time-boxed reflections on narrative stance, emotional load, and inclusivity. Artefacts comprised field notes, interview notes, photographs of interpretive elements (excluding identifiable visitors), screenshots/QR captures where permitted, and brief voice memos. Teams kept a daily log separating “low-cost/high-impact” from “investment-dependent” proposals.

3.2.3 Post-mobility Consolidation

On the final day of the BIP, the groups reconciled notes, cross-checked them against site materials, and produced a written brief for each case. A presentation was produced per group and presented to selected key local military tourism stakeholders. After the BIP, a virtual plenary session served as a member check to clarify ambiguities and align terminology. Materials were compiled into a BIP Mini-Guidebook, which served as the analytic corpus; only anonymised outputs were retained.

3.2.4 Data Characteristics and Quality

Multi-modal evidence (observation, interviews, reflections, artefacts) enabled source triangulation; mixed-national teams provided investigator triangulation. The standard instrument pack ensured cross-case consistency while allowing site-specific nuance. Terminology was standardised during consolidation to preserve comparability; data handling and anonymisation procedures are detailed in Section 3.4.

3.3 Case Studies

Six cases were selected to span urban, maritime and rural military heritage sites/experiences. Each illustrates distinct interpretive conditions and audiences. i. BOOST – Escape Game (Lisbon city centre): urban heritage storyline anchored in Lisbon’s history and landmarks (Boost Portugal, n.d.); ii. Navy Museum – Frigate D. Fernando II e Glória and Submarine Barracuda (Belém): Portuguese naval history across a 19th-century frigate and a Cold War submarine (Direção Cultural da Marinha, 2024); iii. Historical Route of the Lines of Torres (CIS Sobral; Forte do Alqueidão): Napoleonic-era defensive lines north of Lisbon, with associated fortifications and context (Rota Histórica das Linhas de Torres, n.d.); iv. Vimeiro Battle Interpretation Centre: the 1808 Peninsular War Battle of Vimeiro and its battlefield context (VisitPortugal, n.d.); v. Aljubarrota/CIBA and Batalha Monastery: the 1385 Battle of Aljubarrota and the commemorative Gothic monastery at Batalha (UNESCO World Heritage

Centre, n.d.a); vi. Convent of Christ, Tomar: A Templar and Order of Christ convent-fortress complex spanning the medieval and Manueline periods (UNESCO World Heritage Centre, n.d.b).

3.4 Data Analysis

The analytic corpus consisted of the Mini-Guidebook produced during and immediately after the field week. This corpus collated six case briefs (n = 6; one per site) and all supporting materials generated in the BIP: non-participant observation notes, individual reflective journals (n = 21), informal semi-structured mini-interviews with guides/staff (n = 7), group discussion notes and presentations, and related digital/visual artefacts (e.g., photographs, QR/web captures of interpretive content). All materials were anonymised before analysis; quotations are attributed by group number, and participation had no assessment consequences.

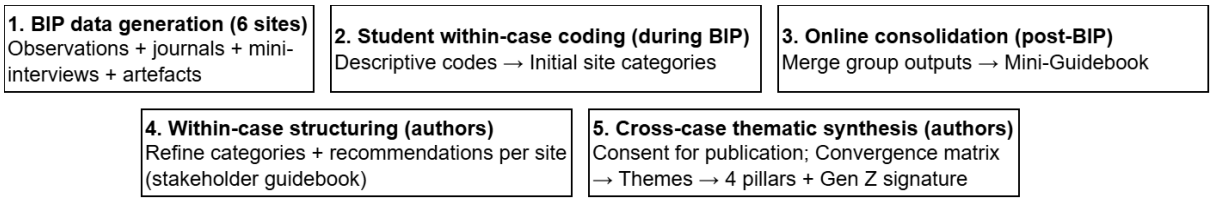


Figure 1: Pipeline explaining the data analysis process

Analysis followed a two-cycle qualitative content approach (see Figure 1), moving from within-case coding to cross-case synthesis. The first analytic cycle focused on producing robust within-site feedback. During the field week, each mixed-national student group compiled its site observations into a standardised case template and conducted descriptive, within-case coding of recurrent ideas in their written feedback. This group coding generated preliminary site-level categories capturing strengths and improvement needs. Two weeks after the BIP, an online consolidation meeting aligned terminology across groups and instructed students on how to merge each group's site feedback into a single, coherent case brief for each site, forming the Mini-Guidebook corpus. The researchers then conducted a further round of within-case coding on these consolidated briefs to structure and clarify the site feedback for stakeholders, refining categories and organising recommendations per site.

The second analytic cycle addressed cross-case interpretation. Once students had been informed of the intention to publish and had provided written consent for the use of their anonymised materials, the authors compared the consolidated, researcher-coded case outputs across all six sites. Pattern/thematic coding was used to cluster recurring categories into higher-order themes, supported by a cross-case convergence/divergence matrix as the principal synthesis instrument. Themes were retained as framework-relevant when they recurred across several cases (typically three or more) and/or were strongly emphasised within a case. At the same time, divergences were recorded to preserve contextual specificity. The resulting cross-case thematic set was abstracted into four interpretive pillars and a concise "signature" of Generation Z visitor expectations.

The cross-case themes and ensuing pillars were refined through iterative author comparison and discussed with participants during the post-mobility consolidation plenary.

3.5 Researcher Positionality and Reflexivity

The BIP was designed and facilitated by the authors, who therefore occupied a dual educator–researcher position. To limit social desirability effects, students were constantly encouraged to adopt a critical professional stance, were assured that participation and expressed views had no assessment consequences and worked in mixed-national teams. The student cohort also occupied a dual role as both visitors and emerging tourism professionals; this practice-aware lens is analytically valuable for interpretation design, but it also frames their evaluations toward feasibility, sustainability, and experience innovation. Finally, the inclusion of non-Portuguese participants provided reflective distance from local memory politics, supporting candid critique, while also implying that some perceptions may differ from those of locally embedded publics. These boundary conditions are considered when interpreting transferability.

4. Results and Discussion

This section synthesises qualitative findings from the BIP "Military Tourism, Re-enactment and Immersive Experiences: Bringing History Back to Life" to: (1) evidence the BIP as a platform for hands-on, reflective learning; (2) analyse Generation Z views on current military-heritage practice; and (3) derive strategies for sustainable, inclusive visitation. In doing so, it contributes to debates on pedagogic innovation, visitor engagement, and the ethical and interpretive renewal of military heritage, demonstrating the value of reflective, practice-based learning and how Generation Z translates it into concrete design choices across specific heritage contexts.

4.1 BIP as a Platform for Critical Reflection

The BIP combined online pre-visit preparation, intensive fieldwork, stakeholder engagement, and post-visit reflection. This sequence—observation, interpretation, co-creation—positioned students as emerging professionals who critically assessed practice. A shared Mini-Guidebook served both as a teaching tool and primary dataset, turning the programme into a living lab for critical tourism education and practical recommendation-building. This aligns with evidence that experiential, reflective pedagogies foster critical awareness and ethical sensitivity (Airey and Tribe, 2005; Pritchard, Morgan and Ateljevic, 2011) and shows that BIPs are structured contexts for qualitative inquiry that support both learning and research (Perfölz and López-Varela, 2022).

Student recommendations were self-reflective, treating technology as a means to strengthen narrative rather than an end in itself. They prioritised accessibility, community participation, and phased, low-cost steps alongside higher-investment upgrades—signalling a professional focus on feasibility, implementation order, and ethics over mere consumer appeal. This is consistent with findings that younger audiences value the added meaning that technology, when appropriately approached, can bring to heritage experiences (Gretzel et al., 2015) and with museum practice that emphasises dialogic engagement rather than instruction alone (Hooper-Greenhill, 2007).

4.2 Cross-site Gen Z Evaluations With Quotes

Across six cases, students showed a clear Generation Z mindset focused on interactive experiences, inclusive design, community involvement, and technology that enhances storytelling rather than overshadows it. These preferences support earlier studies on digital-native visitors' desire for interactivity and co-creation (Gretzel et al., 2015; Francis and Hoefel, 2018) and extend those findings to military heritage, seldom examined from this demographic viewpoint. The following synthesis provides detailed evidence, including direct quotes and group attribution, to illustrate this perspective.

4.2.1 BOOST (City Escape Game, Lisbon): Edutainment With Purpose and Closure

Students liked BOOST's fun format but wanted more historical detail and a clear ending. Group 4 said, "It would be great if the riddles gave a bit more background or historical context about the places visited." They also requested structured reflection: "A quick summary or short debrief at the end would be useful." Group 2 noted a market fit: "We liked that it was different from regular escape games. Maybe make the riddles more focused on facts or stories about Lisbon." These comments highlight Gen Z's desire for playful learning that deepens understanding and ends with a "closure" moment. This aligns with Ratto and Boler's (2014) view that playful learning fosters engagement when linked to historical context and reflection.

4.2.2 Museu de Marinha (Fragata D. Fernando II e Glória; Submarino Barracuda): From Static Display to Lived Environment

Inside the submarine, Group 2 wanted short explainers: "It would be cool to have short, modern info films… explain what daily life was like in a submarine." On the 19th-century frigate, they suggested replacing mannequins with movement: "Instead of the static mannequins… use animatronics to show sailors in action." Gen Z is not seeking spectacle but experiences that reveal routines, constraints and skills of maritime life. This supports Hooper-Greenhill's (2007) claim that visitors seek multisensory, embodied encounters with history and echoes Slade's (2003) critique of static, object-focused military displays.

4.2.3 Linhas de Torres (CIS Sobral de Monte Agraço; Forte do Alqueidão): Make the Landscape Legible, Then Layer Immersion

At the hilltop fort, Group 2 urged, "Trim the grass and clear overgrowth so visitors can better see and understand the terrain and strategic layout," and suggested "life-sized statues of soldiers" to enhance presence. They also proposed "an overnight experience where visitors can stay in the fort like Portuguese soldiers." Group 4 recommended AR overlays to visualise troop movements, while Group 3 suggested tablets or QR-unlocked 3D reconstructions to address "open" views. Group 1 proposed quizzes integrated into the existing QR system. This case illustrates a Gen Z approach: (i) clarify basics; (ii) add light digital elements; (iii) offer optional depth through living history and AR.

Community emerged as a key factor for authenticity. Group 4 proposed volunteer guides, school partnerships and community workshops to build local involvement and pride. These ideas suggest that, for Generation Z, value stems from human connections more than technology—supporting Light's (2017) call for a community-focused interpretation and redefining authenticity as co-creation rather than passive enjoyment.

4.2.4 Vimeiro Interpretation Centre and Battlefield: Multimodal Learning, Plural Narratives, and Load Management

Students praised the digital approach: "The QR codes… are great—more of this should be used to help visitors understand complex strategies," said Group 1. They wanted deeper immersion via virtual tours, quizzes, interactive battle maps, and AR/VR scenes. Group 3 sought a "more immersive" film with sound effects; Group 4 requested improved editing, synchronised subtitles and sign language. They also urged storytelling from multiple perspectives—those of civilians and opposing soldiers—to build empathy. Family ideas included paint-your-own figurines and a puppet show inspired by Karagiozis. Group 3 cautioned against "sensory overload" and advised more precise separation of audio, text and visuals. Finally, Group 5 envisioned a living-history camp with two-tier tickets, showing Gen Z's preference for choice and clear social guidelines. These insights reinforce Hooper-Greenhill's (2007) argument for inclusive accessibility and introduce a new focus on cognitive-load sensitivity, which is often overlooked in heritage research.

4.2.5 Aljubarrota/CIBA and the Monastery of Batalha: Design for Attention, Build a Night-time Offer, Widen Participation

Groups 2–4 prioritised audio clarity: "Switching to headphones or headsets would make the sound quality better… a small change that could make a big difference." They supported existing QR content linking battlefield and interpretation, and proposed family gamification and weekly late openings with light shows to boost a night-time cultural economy. Community engagement was central: discounted tickets, collaborations with local artists, and annual fairs to make the site a cultural hub rather than only historical. Gen Z's message: fix basics, diversify access and integrate heritage into everyday life. This aligns with Francis and Hoefel (2018) on Gen Z's social involvement and inclusivity, showing how such ideas can inform sustainable destination management.

4.2.6 Convento de Cristo, Tomar: Complex Heritage, Multi-voice Storytelling, and "AI as Helper, not Hero"

Students viewed the convent as a rich narrative space. Group 1 proposed video mapping to show architectural changes and AR views of rooms across eras. Group 2 advised changing films from promotional to explanatory content and adding interactive 3D projections. For participatory edutainment, they suggested escape experiences, historical fencing lessons and a Knight Experience Room. Comfort was emphasised—colour-coded routes, noise-cancelling headsets, night tours and quiet hours. Local voices mattered: staff and residents' personal stories, as well as children's recordings, brought history to life. Group 3 summarised: "Every place has so much to offer—that is why we have to build on it. We want to showcase the place with the help of AI, but we do not want AI to become the place." This encapsulates Gen Z's stance—use AI to tell the story, not replace it—echoing Light's (2017) concern that innovation must preserve interpretive authenticity while casting AI as facilitator rather than substitute.

4.3 The Four Pillars: a Cross-cutting Framework

The cross-site analysis yielded four interdependent pillars that translate Generation Z expectations into practical applications. Study sites evidence each pillar (see Table 1) and include indicative resource levels (low/medium/high).

Table 1: The four pillars for a cross-cutting framework

	Pillar 1: Narrative-first technology (digital as scaffold, not spectacle)	Pillar 2: Inclusive and multisensory access	Pillar 3: Community co-creation as authenticity in practice	Pillar 4: Choice-based immersion and gamified edutainment
Purpose	Use digital tools to clarify story, sequence, and "why it matters" rather than to overwhelm.	Make accessibility a baseline: clear audio, captioning, sign language options, tactile cues, and cognitive-load management.	Root heritage value in human relationships—local voices, schools, volunteers, and resident participation.	Offer layered paths from light-touch to deep immersion, preserving visitor autonomy.
Student Evidence	"Riddles should give more historical context." (BOOST, G4) | "Use AI to support, not become, the place." (Tomar, G3)	"Subtitle sync and sign language would improve accessibility." (Vimeiro, G4) | "Quiet hours for sensory-sensitive visitors." (Tomar, G4)	"Volunteer guides could involve local people." (Torres, G4) | "Locals' audio/video stories make it feel alive." (Tomar, G1)	"Offer different versions based on what people like." (BOOST, G4) | "Two ticket types: immersive and general." (Vimeiro, G5)
Examples	Animated glass panels showing troop movements at Vimeiro (medium); short, in-situ explainer films inside the Submarino Barracuda (low); video mapping to illustrate architectural transitions at the Convento de Cristo (high).	Headset audio with caption synchronisation at CIBA/Batalha (low); tactile replicas at Convento de Cristo (medium); quiet hours and noise-managed routes (low).	Volunteer guides and school partnerships at Linhas de Torres (low/medium); resident discounts and local-maker collaborations at CIBA/Batalha (low); micro-story pods recorded by staff and residents at Convento de Cristo (low)	QR-driven quizzes at Vimeiro (low); modular difficulty riddles + structured debrief at BOOST Escape Game, Lisbon (low); living-history / overnight soldier-life scenarios at Forte do Alqueidão (high); family packs and escape-style experiences at Convento de Cristo (medium).

Collectively, these pillars operationalise calls for inclusive interpretation (Hooper-Greenhill, 2007), reflexive pedagogy (Pritchard, Morgan and Ateljevic, 2011), and meaning-centred digital engagement (Gretzel et al., 2015). Operationalising these pillars on site lies beyond the scope of the present study and is identified as a direction for future research

4.4 Interpreting Generation Z's "Signature" Across Sites

Across escape games, vessels, fortifications, interpretation centres, and a convent complex, five preferences were consistent:

- **Meaning before media:** quick orientation (maps, timelines, stakes); digital is used to support story order and salience.
- **Autonomy with safe choice:** layered depth and clear intensity labels (e.g., Explore/Engage/Immerse) rather than fixed paths.
- **Diverse, dialogic voices:** civilian, local, and opposing perspectives alongside official narratives.
- **Cognitive-load management:** clean audio, captions, quiet hours, and single-task interactions to reduce overload.
- **Time-smart programming:** evening formats and late entries to spread demand and broaden audiences.

These signatures align with the four pillars (narrative-first technology, multisensory and inclusive access, community co-creation as authenticity, and choice-based immersion and gamified edutainment) and provide managers with a practical checklist. Conceptually, they also reposition military heritage beyond a narrow "dark tourism" focus on spectacle: Gen Z prioritises narrative clarity, plural voices, inclusion and community value—treating sites as dialogic spaces for learning, empathy and sustainable remembrance.

5. Conclusion

This study positions military heritage beyond a narrow "dark tourism" lens by showing how Generation Z engages most deeply with narratives that are clear, plural, and offer opportunities for safe, self-directed exploration. This study contributes by: (1) demonstrating that BIPs can operate as living-lab platforms that integrate experiential tourism education with structured qualitative research; (2) offering cross-site insight into how Gen Z tourism students assess military-heritage experiences and interpretive practices; and
(3) providing a practice-ready four-pillar interpretation framework and Generation Z "signature", supported by feasibility-tiered recommendations for implementation.

Synthesising cross-case findings, researchers offer a four-pillar framework—narrative-first technology, multisensory and inclusive access, community co-creation as authenticity, and choice-based immersion and gamified edutainment—plus a concise Gen Z signature (meaning before media, autonomy with safe choice, diverse voices, load management, and time-smart design). Together, these provide actionable guidance for museums and site managers seeking engagement with integrity and care.

The study is limited by its single-country setting, student cohort, and short intervention window. Future work should test the framework with broader audiences, track behavioural and learning outcomes longitudinally, and experiment with co-creation models and accessibility metrics across different heritage contexts. In doing so, the sector can move from spectacle to interpretation, and from commemoration as consumption to remembrance as shared civic learning.

Ethics Declaration

This study involved adult participants and was deemed minimal risk. Participation was voluntary, carried no academic consequences, and written informed consent was obtained. Data were reported in aggregate and handled in compliance with GDPR, with encrypted, access-restricted storage.

AI Declaration

The authors used ChatGPT and Grammarly for language editing, including grammar checks, transition checks, and suggestions for trimming text to meet the word limit. All revisions were reviewed and approved by the authors, who take responsibility for the content.

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Media and Tourism in Shaping Sacred Sites: Empirical Insights From African Pilgrimage Destinations

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Abstract: In the digital era, social media plays a crucial role in shaping tourist preferences and behaviours, particularly in pilgrimage tourism. Social media platforms shape destination selections and enrich the overall travel experience through user-generated content. This paper explores a shifting demand characteristic in pilgrimage tourism due to the rise of the experience economy and widespread social media use. It also examines the managerial implications and strategic use of social media marketing in promoting religious sites. A quantitative research design was employed, using numerical data to draw conclusions. Primary data was collected through a standardised questionnaire completed by 450 respondents, supplemented by interviews. Data was analysed using IBM SPSS Version 29, applying descriptive, bivariate, and multivariate methods. The findings were anticipated to highlight social media's significant impact on pilgrimage tourism, particularly in influencing destination image and motivating travel behaviour. The study adds to existing literature by focusing on sub-Saharan pilgrimage destinations, a region often underrepresented in tourism studies. It recommends leveraging social media tools as effective strategies for promoting pilgrimage destinations and engaging potential visitors.

Keywords: Social Media; Pilgrimage Tourism; Destination Image; Tourist Preference; Digital Era

1. Introduction

Religious tourism is a centuries-old phenomenon that attracts people from all walks of life and all around the world. It is an integral aspect of many people's life. Pilgrimage and spiritual tourism are frequently regarded as fundamental components of religious practice. The current environment, particularly due to the widespread use of technology, has significantly altered the pattern and process of religious tourism (George, 2025). Technology manages everything swiftly and efficiently, including pilgrims' oversight, ticket generation, the safety and security of pilgrims. The technology assists in premises, easing movement, maintaining the religious sites, limiting entry, educating pilgrims, and providing religious mementos (Hossain, 2025). Technology has made it possible for making journeys to religious tourism sites more convenient, accessible, and even pleasant.

Digital technologies have developed at a rapid pace, transforming the nature of tourism worldwide. The influence is special evident in the evolving relationship between media communication and tourist behaviours. In this emerging context, pilgrimage tourism is defined as travelling that is motivated by religious or spiritual motives-underwent a significant revolution. Whereas the basis of pilgrimage tours earlier was faith in sacred traditions, today's pilgrimage experiences are being intermediated by social media and other digital platforms. Pilgrims and tourists consume and co-create media, share their experiences online, and make decisions about travel based on digital interactions (Caidi et al., 2023). Media and tourism exert tremendous effects on pilgrimage destination journeys since they influence pilgrims' perceptions and experiences. Broadcast images of sacred sites, political personalities, and religious masses influence visitors' expectations and patterns, while the visual projection of religious offerings regulates their on-site experiences (Terzidou et al., 2018). This demonstrates the ability of media to mediate the relationship between pilgrims and destinations by influencing destination selection and the nature of the pilgrimage journey.

Pilgrimage destinations such as Ngome Marian Shrine in South Africa, the Kibeho Shrine in Rwanda, and Our Lady of Peace Basilica in Côte d'Ivoire attract both local and international pilgrims/ tourists because religious diversity and spirituality are an integral part of everyday cultural life. African pilgrimage destinations have remained relatively invisible in both media representation and tourism research. Social media offer these sacred sites a new opportunity to increase visibility, shape perceptions, and attract visitors through digital storytelling.

2. Problem Statement

Despite growing scholarly interest in social media and tourism, few studies have investigated the intersection of media communication and pilgrimage tourism. The study on pilgrimage tourism has focused on religious or anthropological approaches rather than communication and marketing perspectives (Al-Ajarma & Buitelaar, 2021). Moreover, most pilgrimage destinations do not have any mediated approaches to reach their audiences

using social media. In the absence of such an approach, these destinations are at the risk of remaining invisible to an increasingly digitally driven global tourism market. Understanding the influence of social media, therefore, can help pilgrims and managers of pilgrimage destinations in the design of communication approaches that attract visitors in a way that respects the spiritual integrity of the sacred sites.

3. Research Aim and Objectives of the Paper

This paper seeks to establish how social media and its related media communication practices influence pilgrimage destination journeys, through its effect on destination image formation, travel motivation and visitor engagement.

3.1 Objectives of the Paper

- To establish how social media-based communication influences the perception of African pilgrimage destinations within the study area.
- To determine the influences of social media-driven destination image on destination choice and travel behaviour of pilgrimage travellers.

3.2 Research Questions

What social media and related media communication practices influence pilgrimage destination journeys through their effect on destination image formation, travel motivation, and visitor engagement?

3.2.1 Subsidiary Questions

- How does social media communication influence the perception of African pilgrimage destinations in the study area?
- How can social media-driven destination images influence pilgrimage travellers' travel choices and behaviours?

4. Literature Review

The study explores on the complex relationship between pilgrimage experiences and the use of social media by pilgrims and tourists. When examining the influence of social media on pilgrims' experiences and spiritual development, it is critical to include the broader socio-political dimensions inherent in pilgrimage practices. The issues of power, authority, and representation all play a significant role in determining the dynamics of pilgrimage travel and pilgrim encounters. This study also seeks to investigate the shifting demand characteristic in pilgrimage tourism as a result of the emergence of the experience economy and broad social media use.

4.1 Social Media and Tourism Behaviour

Social media has transformed the way tourists' access, share, and evaluate information about travel. Choonhawong and Phumsathan (2022) indicate that social media influences subjective norms, perceived behavioural control, and intention to travel for tourists. According to Alghamdi & Abdulwahid (2024) show that social media marketing activities greatly influence the image of destinations, trust, and travel intentions in most tourism contexts. In this regard, social media has become a strong channel of communication that increases the interaction between a destination and its potential travellers, filling the gaps that traditional marketing could not achieve.

In Africa, this transformation has been accelerated by an increase in access to the internet through mobile. Digital platforms allow for the virtual promotion of culturally and spiritually significant for sacred sites through visual storytelling, expanding their potential market to global audiences (Aydogan & Talay, 2025). Pilgrimage destinations evolutions are crucial because, through social media visibility, credibility is created and user-generated narratives attract niche tourist segments.

4.2 Destination Image Formation via Social Media

Destination image is a composite tourist perception of a place, composed of both cognitive and affective elements. Social media has become central in the construction of this perception. According to Bonilla-Quijada et al. (2022), there is a strong positive relationship between social media engagement and the perceived

attractiveness of destinations. Other popular social media platforms, such as Instagram, YouTube, and TikTok, are also good at constructing aspirational images that manage to balance authenticity with aesthetic appeal (Suryana et al., 2023).

These visuals can powerfully influence the way in which pilgrimage destinations are perceived by potential pilgrimage tourism. For instance, imagery used to depict rituals, landscapes, and communal worship enhances an emotive connection even before one embarks on a journey. Social media facilitates the participatory nature in which pilgrims are able to co-create these images, individual experiences turning into the collective representation of faith.

4.3 Media and Pilgrimage Tourism in the Digital Era

In recent times, scholars have increasingly examined the role of media in mediating spiritual experiences. Caidi et al. (2023) coined the term "holy selfie" to describe how pilgrims document their journeys as acts of digital devotion and self-representation. According to Hussain et al (2023) a study on social media and the spiritual journey found that social media enriches pilgrimage experiences through real-time sharing, reflection, and community building.

Al-Ajarma & Buitelaar (2021) investigated the representation of the Mecca pilgrimage on social media, exposing how digital platforms have contested and reframed traditional religious stories. Such studies illustrate the fact that social media does not just record pilgrimage but changes the way pilgrims relate to the sacred. Pilgrimage is closely related to local culture and identity, understanding this digital mediation is crucial in promoting culturally sensitive communication strategies in the sacred sites.

4.4 Integrated Conceptual Framework for Media and Tourism Pilgrimage

Three approaches explain the media and tourism intersection in pilgrimage: the tech-behaviour, cultural-constructivist and socio-political perspective on mediator roles. Tech behaviour primarily focuses on theories based on behavioural intention and emphasises the role that social media plays as determinant in influencing these decisions based on perceptions of usefulness and information searching efforts on these platforms (Xiang & Gretzel, 2010; Muna & Jocobsen, 2014). The cultural constructivist perspective delves deeper into examining collective meaning and destination imaging constructions made on these platforms through stories, images and feelings associated with pilgrimage destinations and experiences (Mak, 2017; Hunter, 2016). Mediated representation theories relate to pilgrimage and online representation, and these mediations primarily focus on pointing toward determinations based on roles on power and control as they relate to pilgrimage destination representation on these platforms.

A comparison among these lenses reveals they offer insights into various aspects within the mediated pilgrimage phenomenon. Tech behaviouralist models emphasise reason and travel intention, while cultural constructivist lenses focus on the appeal of collective digital storytelling. Different lenses highlight that an integrative approach needs consideration of several variables interplaying within modern pilgrimage practices on the internet.

This study proposes conceptual framework, the mediated pilgrimage journeys' model, that integrates the three approaches to offer a more comprehensive understanding. This model considers pilgrimage as a multi-layered process involving digital hehavioural influence, cultural and symbolic co-creation and socio-political mediations. By incorporating all three streams, behaviour, culture and politics and considering pilgrimage as a multi-layered and more complex process involving decision making, emotion and representation. This integrated model recognises that pilgrimage today encompasses a process of decision making, an act of shared emotions, spiritual and a representation of process.

5. Research Methods and Design

This paper describes the methodological approaches and techniques used in the study. A quantitative research design was chosen, implying that techniques of research inquiry were applied during data collection, analysis, and interpretation (Leavy, 2022). This study employed a quantitative research design, based on numerical data and descriptive statistics for results. A quantitative approach to research design was used to determine the levels of relationship that exist between social media communication, destination image, and pilgrimage travel behaviour in order to draw conclusions. The design is excellent for gathering data on these topics: "To establish how social media-based communication influences the perception of African pilgrimage destinations within the study area." and "To determine the influence of social media-driven destination image on destination choice and

travel behaviour of pilgrimage travellers." The research objectives are addressed through observations and questionnaires of pilgrims/ tourists on organised religious journeys to sacred sites.

A convenience sampling technique and non-probability sampling was used to choose 450 respondents from various African pilgrimage destinations in KwaZulu-Natal (KZN), South Africa. For this study, a convenience sampling method which is a non-probability sampling design – non-random sampling was used to select the pilgrims as the respondents, municipal officials of the three district municipalities, one metropolitan municipality and church leaders. Convenience sampling was used in order to select participants that were readily and easily accessible and those perceived to be more knowledgeable about the subject of the research. The reason for using convenience sampling was that the researcher felt that it was simple, practical, economical, quick, and did not require an elaborate sampling frame, which was not available. Taherdoost (2016) advocates that convenience sampling often helps to overcome many of the limitations associated with research. The sample size was sufficient to accomplish the research objectives and draw conclusions (Pandey & Pandey, 2021). Data was gathered using a standard survey form. The instrument's questions were classified as category variables (responds profile).

Data collection was carried out through an online survey disseminated on social networking sites and religious networks. The survey was pretested for validity with a selection of established scales to measure social media engagement, cognitive and affective destination image, and behavioural intentions. IBM SPSS Version 29 was used for statistical analysis, focusing on descriptive, bivariate, and multivariate techniques-regression. Complementing the quantitative insights, 15–20 survey with pilgrims and destination managers was conducted to explore its perspectives. The quantitative approach ensures nuance in understanding how media communication shapes pilgrimage journeys. This paper explores a shifting demand characteristic in pilgrimage tourism due to the rise of the experience economy and widespread social media use.

Descriptive statistics were used to summarise the analysis of the sample in this study (Kim, Lee, & Kim 2017). Mann-Whitney U tests were employed in data analysis to seek for correlations between variables (Hodges et al., 2023). Variables such as age and gender were recoded into two distinct groups. In this study, descriptive statistics were employed to determine the frequency of respondents' profile (in percentages) and the mean scores of responses in the first step of data analysis. The intention of descriptive statistical analysis is to provide a comprehensive picture of a population's features (Chawla & Sondhi, 2011). It is the process of defining a population, evaluating each member of that population, and computing a summary value (such as mean scores or standard deviation). Descriptive statistics were employed to summarise information on the research sample in this study (Kim, Lee & Kim, 2017). For the purposes of data analysis, Mann-Whitney U tests were performed to check for correlations between variables (Bolboacă, Jäntschi, Sestraş, Sestraş & Pamfil, 2011). Variables such as respondents' age groups, level of education were recoded into two categories using Mann-Whitney U tests.

6. Findings

The section presents and analyses sociodemographic data before delving into respondents' traits and travel patterns. This was done primarily to examine and determine the demography of the research region. The study used analysis to determine which demographic categories played a significant role in survey completion and achieving study objectives (refer to Table 1). Socio-demographic factors for respondents include gender, age, marital status, and education level. Table 1 highlights the aforementioned characteristics.

Table 1: Respondents' profile (N=410)

Variable	Category	Frequency (%)
Gender	Male	46
	Female	54
Age	18-35	59
	36 and above	41
Marital status	Single	41
	Married	30
	Divorced	14
	Separated	9

Variable	Category	Frequency (%)
	Widowed	5
Level of education	No Western Education	15
	Primary	8
	Secondary	15
	Tertiary education (Diploma)	17
	Tertiary education (Degree)	46

Source: Own elaboration

According to the statistics presented in Table 1, 46% of respondents were males and 54% were females. The majority of pilgrims were female, which could explain the proportion. These findings were based on the fact that more females than males undertake religious pilgrimages in the study area. This also reflect that the females are more into social media than the males, so their decisions, could be influenced by social media platforms into choosing the pilgrimage destination of their choice. According to Nugraha and Widyaningsih (2021); Shuo, Ryan, & Liu (2009) female religious pilgrims account for a higher percentage. Approximately 59% were between the ages of 18 and 35, with 41% aged 36 to 56 or beyond. Youths composed the majority of respondents to the survey. Tiessen (2012) and Liro (2021) discovered that young people are more likely to visit religious pilgrimages than other age groups. The young generation in the study area takes an active role in local development, which might account for this trend, and they are also the content cocreators which could inform their decisions through the social media platforms.

The respondents were asked concerning their marital status. This was done to ascertain the number of married respondents that participated in the survey, as marriage is often associated with maturity. As seen in Table 1, approximately 41% of respondents in the study area were single, whereas 30% married. Divorced individuals accounted for 14%, separated for 9%, and widowed for 5%. Given the controversies surrounding religious tourism, it's worth investigating whether respondents' marital status influenced their responses to questionnaires. Dillman and Christian (2005) found that married respondents tend to provide more reliable data in study.

According to Aminrad et al. (2013), education, and social media platforms could boost awareness and knowledge of one's surroundings. Therefore, respondents' education levels were considered as a significant variable in this study. According to the statistics, 17% of respondents have earned tertiary degrees or diplomas. 46% of respondents held a tertiary education (degree), this group of respondents might have a great influence on social media platforms and at their level of study could also motivate into engaging more with different gadgets to alleviate the knowledge. The study revealed that the majority of respondents had post-matriculated education. 15% of respondents had only secondary education or no Western education in any form. Only around 8% of the respondents in the final group had finished primary school. The majority of respondents were youngsters who completed matric but did not pursue higher education. The education level of the respondents was crucial because the purpose of the survey was to give a meaningful insight into how respondents reflected on the influence of destination image, digital mediation, motivation, and behaviour about the pilgrimage destinations.

Respondents were asked about their perceptions on social media-based communication influences on pilgrimage destinations. Approximately 50% of all respondents said "yes," 38% said "no," and 12% said "not sure." The respondents' assertions are perhaps due to a lack of understanding the influences of social media in promoting media communication and the pilgrimage tourism in the African pilgrimage destinations. Fernandes et al. (2012) concluded that religious tourism accounts for an insignificant proportion of overall tourism.

Regardless of the nature of the data presented in Table 2, the ensuing in-depth responses might support the conclusion that there is a demand for tourism facilities and/or products in the study area.

Table 2: Influences of social media in religious Tourism sites _ Perceptions and meaning (N=410)

Statements	Category	Mean	Std. Dev.	Frequency (%)
Do you think social media have an influence on promoting the African pilgrimage destinations?	Yes	1.9488	1.64289	50
	No			38
	Not sure			12
Do you understand the concept 'pilgrimage'?	Yes	1.7049	.89455	55
	No			20
	Not sure			25
Do the local people of the pilgrimage destination perceive the contribution of social media in promoting the sacred sites as the mediation of tourism opportunities?	Yes	1.7878	.78889	40
	No			42
	Not sure			18
Are there any facilities and products that are promoted for tourists and pilgrims in the social media?	Yes	1.9707	.65533	22
	No			59
	Not sure			19
Would you regard the social media platform as a tool for promoting African pilgrimage destinations as a contributing factor to the economic development of the study area?	Yes	1.5640	.63503	51
	No			41
	Not sure			8

The objective of the study is to determine respondents' perception of social media as an influence of the tourism prospects presented by the pilgrimage places in the study area. The associated research question concerns whether locals Tourists to the pilgrimage site perceive the opportunities for tourism accessible through pilgrimages in the study area. The study presents data analysis and interpretation in the subsections that follow in order to achieve the study's objective. The data in Table 2 illustrate that there is no obvious promotion of accommodation facilities through the social media platform in the study area.

Table 2 indicates that the majority of respondents (55%) comprehend the term 'pilgrimage'. Those who stated that they were unsure about their knowledge of the concept under discussion accounted for 25% of all respondents. Approximately 20% of all respondents were unable to understand pilgrimage.

6.1 Perception on the Contribution of Social Media on the Tourism Opportunities

The study attempted to assess respondents' perceptions of (1) socioeconomic benefits that might be acquired through tourists' visits, e.g., multiplier impact, and (2) socioeconomic benefits that can be gained from religious-related activities, such as multiplier effect. Table 2 shows that local communities did not consider social media as having an impact on the tourism prospects available at pilgrimage destinations. The majority (42%) stated that they did not perceive social media's contribution to the socioeconomic opportunities that could be derived from visits to pilgrimage destinations, 40% said they perceived, and 18% said they were unsure whether there were socioeconomic opportunities that could be derived from traveling to pilgrimage destinations or not through the social media. Based to the findings, respondents were not convinced that social media might increase tourism opportunities resulting from pilgrimage destinations.

Based on the responses presented above, it is plausible to conclude that the pilgrims' lack of knowledge stems from their view that pilgrimage destinations are primarily for spiritual repair. This contradicts Rifai's (2015) argument that, in addition to spiritual services, religious tourism gives prospects for socioeconomic development. Nicolaides (2016; 2015) agrees that economic opportunities can be realised if pilgrimage destinations are well-developed and/or sustainably managed.

7. Influences of Destination Images

The Mann-Whitney U bivariate test was employed in this study to compare differences between independent variables (respondents' profile), which were recoded to nominal (2 groups), and dependent variables (influences of destination images in the African pilgrimage destinations), which were ordinal (Likert-scale). The results in

Table 3 reveal that some respondents' profiles differ in terms of the influences of destination image of African pilgrimage destinations.

Table 3: Reliability test and comparing respondents' perceptions on the influences of destination image of African pilgrimage destinations compared with respondents' socio-demographic variables – 'age and gender'

		Significant Results	
No.	**Statements**	**Actual Results**	**Explanation**
1	There is need for media influences in promoting African pilgrimage destinations in the study area.	N.S.	N.S.
2	The media platforms could elevate development of pilgrimage destinations could inspire and motivate respondents' engagement with the study area.	N.S.	N.S.
3	Social media have a potential for enhancing socio-economic status for the study area.	N.S.	N.S.
4	Pilgrimage destinations in the study area could enhance the socio-economic development.	Z = -2.064 $_P$ value = .039	*Age group 18 to 35 significantly agree more than Age group 36 and above.
5	Religious pilgrimages can be seen as place to be visited.	Z = -2.648 $_P$ value = .008	**Age group 18 to 35 significantly agree more than Age group 36 and above.
6	Involvement of local people might enhance the influences of promoting African pilgrimage destinations.	N.S.	N.S.
7	Availability of media platforms could increase the digital mediation of African pilgrimage destinations in the study area	Z = -2.513 $_P$ value = .012	*Females significantly agree more than males.

Note: [a] Questionnaire were itemised along a 5-point Likert-type scale ranging from 1, Strongly agree; 2, Agree; 3, Neutral; 4, Disagree; 5, Strongly disagree.

[b] Mann-Whitney U test significance: N.S, no significant results; *, $p < 0.05$; **, $p < 0.01$.

No socio-demographic influence regarding 'age' and 'gender'

Pilgrims and local communities were asked to indicate their perceptions of 'the need for media influences in promoting African pilgrimage destinations within the study area and these variables were compared with the respondents' profile (age and gender). The pilgrims and local communities' the media platforms could elevate development of pilgrimage destinations to inspire and motivate respondents' engagement within the study area' show no significant relationships with the following statements compared with the respondents' profile: 'there is need to develop pilgrimage destinations in the study area', 'pilgrimage destinations in the study area could enhance the socio-economic development, and 'social media platforms might enhance socio-economy of the study area'. However, those who are 18 to 35 years old significantly agree more than those who are 36 and above: Z = -2.064, $_P$ value = .039, with these statements: 'religious pilgrimages can be seen as place to be visited'. Again, those who are 18 to 35 years of age strongly agree more than those who are 36 and above: Z = -2.648, $_P$ value = .008, with this statement 'religious pilgrimages can be seen as socio-economic enhancement'. The results also indicate that the females significantly agree more than males: Z = -2.513, $_P$ value = .012, with this statement 'involvement of local people might enhance the influences of promoting African pilgrimage destinations.' Interestingly, this evidence suggests that pilgrims and local communities' perceptions of 'the enhancement of socio-economic development' has some relationship with the respondents' profile (age and gender). These results were supported by research findings of Sati (2018).

7.1 Multivariate Analysis

The reliability test (using Cronbach's Alpha) was used in the third stage of data analysis to check for the level of internal consistency of variables used to explain seven dimensional entrepreneur attributes (drive and enthusiasm, efficiency and effectiveness, innovation and networking, learning and resource acquisition, level of preparedness for risk taking, use of technology, and visionary and achievement motivation). Bryman & Cramer (1990) posit that the basic rationale for multivariate analysis is to allow the researcher to discount the alternative explanations of a relationship that can arise when a survey or correlational design has been employed. According to Ezeuduji, November & Haupt (2016), Cronbach's Alpha should be calculated as a reliability parameter to verify the internal consistency of the variables within a study. Cronbach's Alpha coefficients of 0.5 to 0.7 are acceptable in social science research to explain adequate variable consistency (Chawla & Sondh, 2011; George & Mallery, 2003). Low Cronbach's Alpha scores, according to Tavakol & Dennick (2011), might occur when there is a poor correlation among questionnaire variables used in the analysis, or when only a few variables are employed to explain a given factor.

8. Conclusion

Based on the study objectives, the researchers discovered that the concept of pilgrimage is not well understood in the studied area. It was also shown that respondents were unsure of the tourism opportunities that could arise from pilgrimages. The purpose was to find out whether pilgrims and destination managers consider these African religious pilgrimages as a sacred site to be promoted in the social media platforms. This study underlines the transformative role of media communication in developing pilgrimage tourism. Social media is not only a promotional channel but a participatory medium by which pilgrims create and share their experiences. On one hand, it can provide increased visibility and allow for cross-cultural exchange; on the other, it opens up ethical discussions related to authenticity, commercialisation, and the sacrality of pilgrimage.

The study finds that destination image plays a significant mediating role in social media engagement and travel behaviours. Therefore, media communication initiatives, which effectively blend spiritual authenticity with digital storytelling, could be meaningful investments for pilgrimage destinations aiming at increasing visitation. According to the study, pilgrimage destinations can boost the study area's facility status by promoting it on social media channels. The study also revealed that religious pilgrimages have economic benefits, which can alter attitudes of pilgrimage destinations. As a result, it is reasonable to conclude that pilgrimage destinations are perceived to have tourism potential in the communities under consideration.

9. Discussion

The findings of this study contribute to the broader theoretical debates on the mediatisation of religion and tourism. The growth of digital pilgrimage demonstrates how media can actively build, rather than simply represent, the sacred experience. Pilgrims' "holy selfies" and shared stories show how devotion and self-expression are intertwined in digital domains (Caidi et al., 2023). From the perspective of communication science, this is also a good example of the shift from traditional models of one-way communication-a destination-to-tourist direction-to more participatory and dialogical modes of meaning-making. Pilgrimage destinations have historically relied on word-of-mouth, social media now functions as a powerful equaliser, offering global visibility with minimal investment. However, the adoption of digital tools needs to be attuned to sociocultural sensitivities.

Al-Ajarma and Buitelaar in 2021 warn against reducing pilgrimage to spectacle, emphasising that media narratives should maintain sacred meaning. This paper further informs the knowledge of the "experience economy" (Pine and Gilmore, 1999) in which value resides in creating memorable and emotionally arousing experiences. Pilgrimage journeys, when communicated through digital media, are hybrid experiences in which spirituality merges with digital connectivity. From the point of view of communication scholars, this leads to a paradigm shift: media platforms are no longer peripheral to tourism but at the core of the co-creation of travel experiences. Ultimately, integrating media communication into pilgrimage tourism management offers a pathway for sustainable and inclusive development in sub-Saharan Africa. Digital storytelling can foster cultural understanding, invigorate local economies, and amplify community involvement, provided that communication strategies remain ethically based and context sensitive.

Ethics Declaration

The ethical clearance for this paper was obtained from the University of Zululand Research Ethics Committee: **UZREC 171110-030 PGD 2019/04.** All procedures performed in the study were in accordance with institutional ethical standards.

Artificial Intelligence Declaration

The authors declare that no generative artificial intelligence (AI) was used in conceptualizing, drafting, analysing data and writing this paper.

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The Influence of Formal Education and Business Networks on Women Entrepreneurship: The Case of Durban, Kwazulu-Natal

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Abstract: Entrepreneurship contributes significantly to every nation's socio-economic development, particularly through job creation, poverty alleviation, and innovation. Within developing countries such as South Africa, entrepreneurship has become an important driver of socio-economic development. Previous studies reveal that having adequate formal education and belonging to relevant business networks can be strong indicators of successful business development. However, existing literature also highlights that female-owned businesses often face more barriers to growth and sustainability than their male-owned counterparts, including unequal access to resources, skills development opportunities, and social capital. This study explored nuanced gender perceptions on the influences that formal education and business networks can have on tourism-related business operations in the Durban Central Business District, KwaZulu-Natal. A structured questionnaire survey was used to collect data from a purposively selected sample of 150 tourism-related entrepreneurs, comprising 75 females and 75 males. Descriptive, bivariate, and multivariate data analyses were employed to examine the relationships between gender, education, networking, and business performance. The study did not arrive at a conclusive finding that gender plays a decisive role in differentiating business success or performance, as is often perceived in entrepreneurial discourse. However, several patterns emerged: respondents with tertiary education reported stronger perceptions of business success compared to those without tertiary qualifications; male entrepreneurs expressed stronger agreement that formal education contributes to performance outcomes; and male entrepreneurs tended to be more actively involved in relevant business networks than their female counterparts. The study recommends that entrepreneurship training and mentorship programmes should emphasise the critical role of formal education (rather than gender) in supporting business success, while also creating targeted interventions to encourage greater female participation in business networks.

Keywords: Gender Nuances, Business Networks, Business Performance, Formal Education, Sub-Saharan Africa

1. Introduction

KwaZulu-Natal is one of South Africa's nine provinces. The tourism statistics extracted from the recent State of the Province Address show that tourism has a significant contribution to the KwaZulu-Natal local economy and continues to grow from a R10billion contribution to the Provincial Gross Domestic Product in 2018 to R24billion by 2022 (Tourism KwaZulu-Natal, 2023). According to Ezeuduji and Nkosi (2017), KwaZulu-Natal is well-known for its cultural experiences and heritage. Most visitors to the province of KwaZulu-Natal in South Africa are drawn by the warm weather, culture, nature, and beach experiences available in both its coastal and inland regions. Tourism in KwaZulu-Natal thrives on the number of visitors and the quality of tourists' experience. Therefore, there is no doubt that tourism-related entrepreneurship is critical in this province to serve both domestic and international tourists.

Entrepreneurship is the driving force behind every nation's economy. Developing countries are emphasising the importance of entrepreneurship in establishing a strong economy. South Africa, like any other developing country, created policies that place a high value on entrepreneurship (Meyer, 2019). Meanwhile, research by Iwu et al. (2016) shows that entrepreneurial activity in South Africa is extremely low. The South African government has identified tourism as a massive potential for economic growth (Tshabalala & Ezeuduji, 2016), therefore, entrepreneurship in the tourism industry is a welcome initiative. Sarfaraz et al. (2014) argue that women's active participation is essential for economic development. Unfortunately, the South African tourism industry has insufficient female participation. Studies shows that women in tourism and other sectors' businesses occupy low position (Tshabalala & Ezeuduji, 2016) and they have less opportunities for advanced career development in these businesses (Ferguson, 2011). This suggests that South African women may remain on the margins of economic development. Also, the performance of women-owned businesses has been reported to be lower and very constrained in comparison to men-owned businesses (Marlow & McAdam, 2013), as they are likely to close down and less likely to make profit (Fairlie & Robb, 2009).

Literature on women entrepreneurship reveal that there are certain challenges (such as lack of management capabilities, inadequate financial capital, unfavourable societal perception, weak entrepreneurial networking) faced by women with reference to starting and managing businesses in South Africa (Nzama & Ezeuduji, 2020a;

Nzama & Ezeuduji, 2020b; Tshabalala & Ezeuduji, 2016). It has also been reported for the entire Southern African Development Community (SADC) region, that management positions in tourism industry is dominated by males (Global Entrepreneurship Monitor (GEM), 2012; Nyaruwata & Nyaruwata, 2013). There has been a global call to empower women, and women entrepreneurship is socially and economically desirable (Kimbu et al., 2019), owing to its ability to create job opportunities, enhancewomen empowerment, and alleviate poverty (Mkhize & Cele, 2017), specifically in the tourism industry with its high potential for economic growth. Regarding entrepreneurial success, adequate formal education (Iwu et al., 2016; 2015; Jiyane et al., 2013; Ramadani, 2015) and formation of business networks (Alam et al., 2012; Greenberg & Mollick, 2017; Jha et al., 2018; Santos et al., 2019) have been earmarked as very important, among other factors, in driving business success. Much of the previous research focused on women entrepreneurs' challenges and perceptions of business operations, but it did not compare perceptions of both genders in the same study to identify significant differences. This study therefore explored nuanced gender perceptions on the influences that proposed business success factors, such as formal education and business networks can have on tourism-related business operations, using the case of Durban Central Business District, KwaZulu-Natal.

2. Overview of Literature

Okereke (2019) defines entrepreneurship as a dynamic process of vision, change, and venture creation that may necessitate specific information, knowledge, and skills in order to occur. Ramadani (2015) emphasises the importance of formal education in business management and problem solving. Educational factors are considered to be influential in entrepreneurial management because those who possess secondary and tertiary education background seem to have better access to information (Jiyane et al., 2013).). Tajeddin et al. (2017) suggest that education can help entrepreneurs, particularly females who may have less access to resources in starting their businesses, as education provides the necessary information (Zlatkiov, 2015). McGowan et al. (2015) argue that level of education does not determine entrepreneurial skills, however, education is related to knowledge and skills, self-confidence, problem solving, commitment and discipline (Ali, 2018), which are factors that contribute to entrepreneurial performance. Other authors in Africa (Iwu et al. 2016) also cited that formal education supports entrepreneurship process and development.

Lack of education in African countries has been labelled as one of the key challenges hindering the success of women entrepreneurs (Daniyan-Bagudu et al., 2016; Nsengimana et al. 2017). Compared to men, educational backgrounds of women entrepreneurs are reported to be generally weaker (Sudarmanti et al., 2013). It must be noted however that entrepreneurs in Africa are more likely to be pushed into entrepreneurship by the prevailing socio-economic factors, such as unemployment (Mersha & Sriram, 2019). It is therefore likely that such necessity entrepreneurs may not have the required skills to effectively develop and manage their enterprises. Chirwa (2008) posits that women lack business training skills and have less business experience than men. Kuada's (2009) study on gender and entrepreneurship in Ghana also indicate that male entrepreneurs have more university education compared to women entrepreneurs who have mostly high school education. Recent South African literature on entrepreneurship indicates that there is a lower level of education among women entrepreneurs. Nxopo and Iwu (2016) posit that women's level of education is relatively low: about 4% with diploma qualification, 56% with matric certificate (secondary school), and 26% with qualifications lower than matric. Jiyane et al. (2012) found that 62% of women entrepreneurs have primary education and 27% had no formal education. Compared to men, women form part of informal (family and friends) networks (Jha et al., 2018; Santos et al., 2019). Whereas men have a broader range of entrepreneurial mentors on their networks than women (Greenberg & Mollick, 2017). Family and friends are perceived as weak and powerless entrepreneurial network, since they are not very helpful in terms of business growth or strong start-up (Vossenberg, 2013), though they can provide emotional support (Welsh et al., 2017). However, having network of family and friends that are self-employed is very important (Alam et al., 2012).

3. Research Design and Methods

The study aimed to determine if gender differences among tourism entrepreneurs can negatively impact business performance. The emphasis is on formal education and business networks. Structured questionnaires were distributed through nonprobability purposive sampling. The study respondents were chosen based on their specific knowledge of tourism entrepreneurship and willingness to participate. We conducted a survey of 150 entrepreneurs (75 male and 75 female) in Durban Central Business District, KwaZulu-Natal, South Africa. Data was analysed with IBM's SPSS software (version 25). We used descriptive statistics, bivariate analyses, and multivariate analysis. The study used Mann-Whitney U tests to compare the means of responses from two

independent groups (demographic variables) to determine if they differed significantly due to non-normal population distributions of the ordinal variables used to assess business operation statements (perceptions). The study employed Spearman's correlation (two-tailed) test to analyse relationships between ranked or ordinal variables, identifying negative or positive correlations (Veal, 2011). Mann-Whitney U tests were used when dependent variables had an ordinal scale, independent variables had only two groups, and t-tests did not show normal distribution or homogeneity of variance (Veal, 2011).

Multivariate analysis (reliability tests) was employed by this study to check for the level of internal consistencies of variables used to describe factors influencing business operations (formal education, business networks). Researchers suggest that a Cronbach's alpha coefficient of between 0.5 and 0.7 is acceptable in social science research, to denote adequate consistency of variables used in measuring a factor or dimension (Chawla & Sondhi, 2011). Nonetheless, Tavakol and Dennick (2011) posit that a low Cronbach's alpha score may occur if there is a weak interrelationship between the variables used in the analysis, or if few variables are being used to depict a particular dimension or factor. From the reliability tests conducted on the two business operation dimensions: 'level of formal education' and 'ability to form business networks'; dimensions achieved above 0.5 Cronbach Alpha coefficient, hence this study finds the variables contained in these dimensions, internally consistent or related, to measure each of the dimensions. We present the results and discussion of findings in the next section.

4. Results and Discussion

4.1 Respondents' Profile

Table 1 shows that the majority of respondents are South Africans with less than six years of business experience. Nsengimana et al. (2017) suggest that business experience impacts entrepreneurial success. Entrepreneurs are more likely to start a business in response to an opportunity than those who start a business for survival purposes. Mersha and Sriram (2019) state that socio-economic factors, such as a lack of job opportunities, often drive entrepreneurship in African countries. However, this study found that a large proportion of respondents are "opportunity entrepreneurs". The survey results indicate that 57% of respondents consider themselves successful or very successful.

Table 1: Respondents' profile

Variable	Category	Frequency (%)
South African	Yes	88.7
	No	11.3
Gender	Male	50
	Female	50
Ethnic group	Black	52.7
	White	18.0
	Indian	22.0
	Coloured	7.3
Age group	Less than 40 years	61.3
	40 years and above	38.7
Business owner	Yes	63.3
	No	36.7
Business manager	Yes	58.7
	No	41.3
Motivation to start tourism business	Took opportunity	54.4
	Means of survival	45.6
Level of Education	Up to Secondary School (Matric)	44.0
	Tertiary Education	56.0

Variable	Category	Frequency (%)
Number of years in business	Up to 6 years	60.7
	7years and above	39.3
Type of Business	Accommodation	16.0
	Food and Beverage	26.7
	Events Management	10.0
	Tour Operation	3.3
	Travel Agency	4.7
	Tour Guide	2.7
	Car Rentals	7.3
	Resorts	2.0
	Consultancy	2.7
	Souvenir Shop	24.7

4.2 Business Operation Statements

This study's findings (Table 2) indicate that the respondents perceive formal education and training as an important asset in running a tourism business, as about 77% of respondents strongly agreed or agreed to: 'the manager's level of formal education is key to the performance of tourism businesses. Additionally, about 77% of the respondents strongly agreed or agreed with the statement that 'a business owner/manager should take a business training before starting a tourism business' and 80% of respondents strongly agreed or agreed with 'I believe that formal education has contributed in strengthening and developing my leadership skills'. Previous studies (such as Ramadani, 2015; Zlatkov, 2015) posit that entrepreneurs perceive education as one of the key components of entrepreneurial success. This position aligns with the results of this study. About 65% of respondents strongly disagreed or disagreed with the statement: 'male business owners are better trained than female business owners' and only 16% agreed or strongly agreed to this statement. Most of the respondents answered in affirmation that 'they have the ability to run a successful tourism business with their own knowledge' (about 84% of the respondents strongly agreed or agreed with this statement); which may also be attributed to the level of education evident among the respondents.

Table 2: Business operation statements (%)

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Level of Formal Education and Training					
The manager's level of formal education is key to the performance of tourism business	40.7	36.7	7.3	12.7	2.7
A business owner/manager should take a business training before starting a tourism business	44.0	32.7	11.3	12.0	0.0
I have the ability to run a successful tourism business with my own knowledge	33.3	51.3	7.3	7.3	0.7
I believe that formal education has contributed in strengthening and developing my leadership skills.	42.0	38.0	5.3	10.7	4.0
Male business owners are better trained than female business owners	10.0	6.0	18.7	51.3	14.0
*Reliability statistics (**Level of Formal Education and Training**): Cronbach's Alpha = .542, N of items = 5, Valid cases = 150 (100%), Excluded cases = 0 (0.0%), Total =150*					
Ability to form Business Networks					
I am an active member of a tourism business network (union)	23.3	22.7	8.7	33.3	12.0
There are no tourism business networks in my area	15.3	21.3	18.7	32.0	12.7

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I depend on other business owners in order to succeed in my business	16.7	48.0	12.0	14.7	8.7
There is no time for attending business network meetings	14.7	18.7	20.0	42.7	4.0
I can meet with other business owners at social gatherings	35.3	44.7	5.3	14.0	0.7
*Reliability statistics (**Ability to form Business Networks**): Cronbach's Alpha = .504, N of items = 5, Valid cases = 150 (100%), Excluded cases = 0 (0.0%), Total =150*					

Respondents were asked to indicate their level of agreement or disagreement towards variables or statements showing their 'ability to form business network'. Majority of the respondents agreed to the statement: 'I depend on other business owners in order to succeed in my business', as about 65% of the respondents strongly agreed or agreed with this statement. Results in this study present that about equal numbers of respondents participate or do not participate in entrepreneurial networking, as 46% strongly agreed or agreed with the statement: 'I am an active member of a tourism business network (union)'; and about 45% of respondents strongly disagreed or disagreed with this statement. About 37% of the respondents strongly agreed or agreed that 'there are no tourism business networks in my area', while about 45% strongly disagreed or agreed. Networking provides entrepreneurs with sources of information and means of promoting their businesses (Gidarakou, 2015; Rauch et al., 2016; Santos et al., 2019; Ezeuduji, Deen & Nzama, 2025). About 47% of the respondents strongly disagreed or disagreed with the statement: 'there is no time for attending business network meetings', while about 33% of respondents strongly agreed or agreed. These results show that entrepreneurs can make time for entrepreneurial networking, as they benefit from such platforms.

4.3 Correlating Perception of Entrepreneurial Success Level Versus Business Operation Statements

Spearman's Rank Correlation test was performed between respondents' responses to 'perception of entrepreneurial success level' and 'business operation statements. Based on the results in Table 3, it is evident that the gender specific variable: 'male business owners are better trained than female business owners' has no correlation with perceived entrepreneurial success level. There are variables / statements identified to positively correlate with business success in this study. These are statements related to managers' level and impact of formal education, prior business training, membership of business networks, and socialising with business networks. These point that adequate formal education, business training, and membership of business networks positively influence entrepreneurial success level.

Table 3: Correlating perception of entrepreneurial success level versus business operation statements

Statements[a]	Correlated with Perception of Entrepreneurial Success level[b]
Level of Formal Education and Training	
The manager's level of formal education is key to the performance of tourism business	*
A business owner/manager should take a business training before starting a tourism business	**
I have the ability to run a successful tourism business with my own knowledge	N.S
I believe that formal education has contributed in strengthening and developing my leadership skills.	*
Male business owners are better trained than female business owners	N.S
Ability to form Business Networks	
I am an active member of a tourism business network (union)	*
There are no tourism business networks in my area	N.S
I depend on other business owners in order to succeed in my business	N.S
There is no time for attending business network meetings	N.S

Statements[a]	Correlated with Perception of Entrepreneurial Success level[b]
I can meet with other business owners at social gatherings	*

[a]Questionnaire were itemised along a 5-point Likert-type scale (business operation statements): 1, Strongly agree; 2, Agree; 3, Neutral; 4, Disagree; 5, Strongly disagree.

Questionnaire were itemised along a 5-point Likert-type scale (perceptions of entrepreneurial success level): 1, Very successful; 2, Succesful; 3, Survivingl; 4, Struggling; 5, Unsuccessful.

[b]Spearman's Rank correlation (two-tailed) test significance: *, $_P < 0.05$; **, $_P < 0.01$; N.S., no significant result

4.4 Comparing Gender Identity With Business Operation Statements

The respondents were asked to indicate their level of agreement or disagreement towards business operations' variables; these responses were then compared with respondents' gender. This study employed Mann-Whitney U test to check if there are significant relationships between gender identity and the business operations variables. Results in Table 4 show that there are some significant differences between male and female mean scores regarding some of the variables used to describe business operations. Male respondents in this study agreed more than female respondents to the statements: 'the manager's level of formal education is key to the performance of tourism business', 'I am an active member of a tourism business network (union)', and 'I can meet with other business owners at social gatherings.

Table 4: Comparing gender identity with business operation statements

Statements[a]	Mean Score (Males)	Mean Score (Females)	Compared With Gender[b]
Level Of Formal Education and Training			
The manager's level of formal education is key to the performance of tourism business	1.80	2.20	* Males agree more
A business owner/manager should take a business training before starting a tourism business	1.89	1.93	N.S.
I have the ability to run a successful tourism business with my own knowledge	1.97	1.84	N.S.
I believe that formal education has contributed in strengthening and developing my leadership skills.	1.81	2.12	N.S.
Male business owners are better trained than female business owners	3.45	3.61	N.S.
Ability to form Business Networks			
I am an active member of a tourism business network (union)	2.57	3.19	** Males agree more
There are no tourism business networks in my area	3.09	3.01	N.S.
I depend on other business owners in order to succeed in my business	2.52	2.49	N.S.
There is no time for attending business network meetings	3.04	3.01	N.S.
I can meet with other business owners at social gatherings	1.80	2.20	* Males agree more

[a]Questionnaire were itemised along a 5-point Likert-type scale (business operation statements): 1, Strongly agree; 2, Agree; 3, Neutral; 4, Disagree; 5, Strongly disagree.

[b]Mann-Whitney U test significance: *, $_P < 0.05$; **, $_P < 0.01$; N.S., no significant results.

4.5 Comparing Gender Identity with Business Operation Statements

In this study, the demographic variables were further compared with business start-up motivation and perceptions of entrepreneurial success level (using Pearson's Chi-Square and Mann-Whitney U tests,

respectively). Results in Table 5 show that there is no significant relationship between 'gender', 'age group', and 'number of years in business' with 'business start-up motivation'. Based on the focus of this study, gender did not explain any choice between being 'opportunity' and 'survival' entrepreneur. Nationality and educational level were identified as the socio-demographic characteristics that have significant influence on the type of motivation to start a tourism business in this study. South Africans are more 'opportunity' entrepreneurs whereas non-South Africans are more 'survival' entrepreneurs. According to Mersha and Sriram (2019), majority of entrepreneurs in Africa are forced to start a business as a means of survival due to socio-economic challenges. In this case, non-South African entrepreneurs may struggle to find long-term resident permit in South Africa and may be discriminated against in the labour market. They may therefore end up starting a business to survive in South Africa.

Table 5: Comparing Demographic Variables with Business Start-up Motivation and Perceptions of Entrepreneurial Success

Statements		**Evidence From Analysis**	**Compared With Respondents' Demographic Variables [c]**
Motivation to Start Tourism Business [a, c]			
		Cross-tabulation Results	
Nationality	South Africans	Expected count for opportunity entrepreneurs = 71.8; Actual count = 79	** South Africans are more 'opportunity entrepreneurs', while Non South Africans are more 'survival' entrepreneurs
	Non South Africans	Expected count for survival entrepreneurs = 7.6; Actual count = 15	
Gender	Male		N.S.
	Female		
Age group	Less than 40 years		N.S
	40 years and above		
Level of Education	Up to Secondary School	Expected count for opportunity entrepreneurs = 45.1; Actual count = 52	* Respondents with tertiary education are more 'opportunity entrepreneurs' while respondents without tertiary education are more 'survival' entrepreneurs
	Tertiary education	Expected count for survival entrepreneurs = 29.7; Actual count = 37	
No. of years in business	Up to 6 years		N.S.
	7years and above		
	7years and above	2.46	
Perceptions of Entrepreneurial Success Level [b, d]			
		Mean Scores	
Nationality	South Africans	2.42	N.S.
	Non-South Africans	2.41	
Gender	Male	2.49	N.S.
	Female	2.35	
Age group	Less than 40 years	2.34	N.S.
	40 years and above	2.53	
Level of Education	Up to Secondary School	2.79	** Respondents with tertiary education agree to being more
	Tertiary education	2.12	
No. of years in business	Up to 6 years	2.39	N.S.
	7years and above	2.46	

[a]Questionnaire was itemised categorically: 1, Took opportunity; 2, Means of survival

[b]Questionnaire were recoded into 3 categories (perceptions of entrepreneurial success level): 1, Very successful and 2, Successful, were recoded to mean "Successful". 3, Surviving; to mean "Surviving". 4, Struggling and 5, Unsuccessful, to mean "Unsuccessful".

[c]Pearson's Chi-Square test significance: *, $_P < 0.05$; **, $_P < 0.01$; N.S., no significant results.

5. Conclusion

In this study, we explored nuanced gender perceptions on the influences that the level of formal education and belonging to business networks can have on tourism-related business operations, using the case of Durban Central Business District, KwaZulu-Natal. Firstly, we found that adequate formal education, business training, and membership of business networks positively influence entrepreneurial success level. Secondly, gender has no effect on business start-up motivation (becoming 'opportunity' or 'survival' entrepreneur). Thirdly, the only socio-demographic characteristic that has a significant influence on 'entrepreneurial success level' is the 'level of formal education'. Respondents with tertiary education perceived themselves more successful than those without tertiary education. Fourthly, male respondents agreed more than female respondents that they are active members of tourism business networks, and they also meet with other business owners at social gatherings. This study therefore recommends more entrepreneurship training and mentorship programmes in KwaZulu-Natal, South Africa; and these should emphasise that formal education (not gender) supports business success and encourage women entrepreneurs to be active members of relevant business networks, that support their business growth and development.

Ethics Declaration

Ethical clearance for this paper was obtained from the University of Zululand Research Ethics Committee (Reference: UZREC 17111-030). All procedures performed in this study were in accordance with institutional ethical standard.

AI Declaration

The authors declare that no generative artificial intelligence (AI) was used in conceptualising, drafting, analysing data and writing this paper.

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Tourism Through the 15-Minute Lens: Porto Case Study

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Abstract: The 15-minute city concept has become a cornerstone of modern urban planning. Despite its worldwide application, research has mostly focused on accessibility to essential services, while accessibility to tourism remains less explored. Tourism, key to urban identity, livability, and visitor management, needs to be considered within proximity planning. In this context, analysing travel times and accessibility to tourist locations across different travel modes represents a key opportunity to gain insight into how these shape cities. This study applies the 15-minute city framework to tourism, characterizing accessibility from a visitor's perspective. Porto, Portugal, a city facing the impacts of massive tourism, is used as a pilot area to measure access to touristic amenities. Using the Porto open data portal, we compiled 290 points of interest across eight tourism categories. For every Base Reference Geographical Information (BGRI) cell, the Portuguese census tracts, we computed the centroid and generated network-based travel times to each amenity for walking, cycling, and driving. From the origin-destination matrices, we derived a set of 15-minute city indicators, namely minimum travel time required to reach the amenities and counts and percentage of amenities reachable within 5/10/15 minutes. Results show how accessibility patterns vary by parishes and travel mode and offer a reproducible base for urban planning and destination management. The outcomes reveal that accessibility to tourism is strongly centre-weighted: the historic centre offers short walking times and high amenity variety, while the eastern and northern edges face slower access and fewer choices. Trips starting from two central parishes reach 43% of amenities within a 15-minute walk, while trips originating in peripheral parishes typically reach only 5% to 9%. Cycling enhances accessibility by making accessible a variety of amenities across most parishes within 10 minutes and nearly citywide by 15 minutes. This work reframes 15-minute accessibility around tourism, providing a multimodal transportation assessment, translating analytics into actionable indicators. The framework supports policymaker in diversifying attraction availability in underserved areas, distributing visitor flows, and aligning cultural-access goals with livability agendas, promoting smart cities' development.

Keywords: 15-minute City, Tourism, Multimodal Transportation, Urban Planning, Smart Cities, Sustainable Tourism

1. Introduction

Cities are attractive not only because they are places to live, but also because they are places to experience, and accessibility is central to both. Within the tourism context, accessibility was defined by Ghose & Johann (2018) as the ease with which desired destinations can be reached through the availability, affordability, and convenience of transport and information, or the geographic distribution of activities and destinations. As a key attribute of destination image, accessibility directly influences tourist satisfaction (Rajesh, 2013; Handayani, 2016). Castro et al. (2017) emphasised the crucial role of tourist accessibility in trip planning, as tourists require accurate and timely information about activities and sites. Taken together, these perspectives underscore the need for a proximity-oriented lens that links ease of reach, information, and network design to the tourists' experience of cities.

The 15-minute city (FMC) offers a guiding framework for urban planning, proposing that essential amenities should be reachable within a 15-minute walk or cycle, complemented by public transport for longer trips (Moreno *et al.*, 2021a). The FMC emphasises proximity, mixed use, and decentralised networks of daily-life amenities, showing through the experiences from Barcelona, Paris, and Milan, that proximity-oriented strategies can measurably improve livability and environmental performance (Moreno *et al.*, 2021b; Pozoukidou and Chatziyiannaki, 2021). Touristic sites are pivotal to urban identity and local quality of life, yet in high-demand contexts they can also produce congestion and uneven burdens on neighbourhoods. Thus, assessing accessibility in tourism through the FMC lens provides a basis for improved environmental policies and for evaluating how the city welcomes visitors to its touristic sites. Assessing tourism through the FMC framework can help planners assessing proximity patterns, identifying where targeted interventions could enhance tourist access while mitigating negative externalities. Even though the FMC framework presents strong potential for the tourism domain, only a limited number of studies have applied FMC-based analyses to assess tourism accessibility. While

some research has explored how this accessibility is conceptualised and measured, multimodal, time-dependent approaches remain underdeveloped (Moreno *et al.*, 2025).

To address this gap, this paper reframes the FMC for tourism, using Porto Municipality, Portugal, as a case study. This region is the second-largest urban centre in Portugal. It has an area of 41.42 km², comprising seven parishes and a total of 1,659 census tracts, with a total population of 248,769 inhabitants (estimate 2023) (*Portal do INE*, no date). Almost 30 years after being declared a World Heritage Site by UNESCO (1996), and positioned as a major European capital, the city suffers the impacts of massive tourism, with 1,137,756 yearly overstays in the Metropolitan Area of Porto during 2024 (*Portal do INE*, no date). In this context, the FMC framework offers a timely and relevant analytical lens. Its principles align with Porto's compact morphology, historic street fabric, and existing mixed-use patterns, especially in its central and intermediate neighbourhoods. This makes it particularly suited to inform more integrated mobility and land-use strategies that position accessibility as a key objective of tourism planning.

The study presents multimodal accessibility indicators to tourism amenities at the BGRI scale, allowing fine-grained analysis of how touristic opportunities are distributed in urban areas. By analysing tourism accessibility within the FMC framework, this study aims to demonstrate how this approach can generate valuable insights for the tourism domain. Specifically, it seeks to (1) propose a replicable set of FMC-based indicators to characterize urban accessibility to touristic amenities, (2) quantify the spatial distribution of accessibility across different areas of Porto Municipality, and (3) evaluate how accessibility varies by amenity type and travel mode, using location-based measures to compare outcomes across walking, cycling, and public transport. Altogether, this approach can turn into a dynamic tool for urban planners and policymakers to simulate the visitor experience through the FMC lens and to identify challenges and opportunities in areas of the city with varying levels of accessibility.

2. Related Work

How cities distribute opportunities and how networks stitch these together determines how far, how often, and by which modes people travel (Crane, 2000). This premise has shifted urban research and practice to an accessibility-first lens. The FMC, formalised by Moreno et al. (2021b), translates this paradigm into a planning framework, promoting compact, mixed-use neighbourhoods where essential services, such as work, education, healthcare, commerce, culture, and leisure are reachable within a short walk or cycle, complemented by public transport for longer trips (Moreno *et al.*, 2021a; Pozoukidou and Chatziyiannaki, 2021). Centred on proximity, diversity, and decentralisation, the FMC framework seeks to reduce car dependence and encourage active modes, linking accessibility to sustainability, social equity, and public health (Allam *et al.*, 2024; Moreno, 2024).

During the last years, a solid corpus of literature has explored how the FMC framework can assess and improve accessibility inequalities across a diverse set of use cases and urban context. In the local context of Porto, a set of studies have already operationalised the FMC principles, demonstrating its suitability for identifying accessibility patterns and inequalities for different types of amenities, transportation modes and population groups. Alves et al. (2021) developed a walkability index for the elderly within Porto historic centre, incorporating distance, steepness, safety, and land use. Guerreiro et al. (2026) expanded this analysis for Porto Municipality extension, focusing on a network-distance based approach. Using the same approach, Silva et al. (2023) analysed accessibility to general interest amenities in ten categories for Porto Metropolitan Area, categorizing the territory in different classes according to their walking accessibility. Fonseca et al. (2022) complemented these works by addressing walkability perception, developing a comparative study between Porto and Bologna through citizens questionnaires. Collectively, these studies demonstrate the suitability of the FMC framework for assessing equity and service accessibility in the geographic context of Porto. However, they remain narrowly focused on residential and daily-life functions, such as healthcare, commerce, and education, while overlooking tourism-related opportunities and experience, a key driver shaping the urban experience and mobility patterns in the city.

Within the tourism domain, accessibility has been mainly addressed in relation to transport efficiency or destination attractiveness, rather than proximity planning. Li et al. (2022) analysed accessibility of tourism attractions using real-time travel data and a modified gravity model, exploring the impact of transport infrastructure and destination attractiveness. Zhang et al. (2020) introduced a route-optimisation model considering travel time, inter-destination distance, and departure time. From a behavioural perspective, Kim et al. (2023) highlighted how tourists' valuation of time can lead to a Time-Use Rebound Effect, with new travel technologies inducing additional trips and activities. Although these approaches integrate multimodal and

temporal factors within tourism analysis, they fall short of developing frameworks for embedding accessibility within broader urban proximity approaches such as the FMC, where tourism is examined as part of a wider urban system.

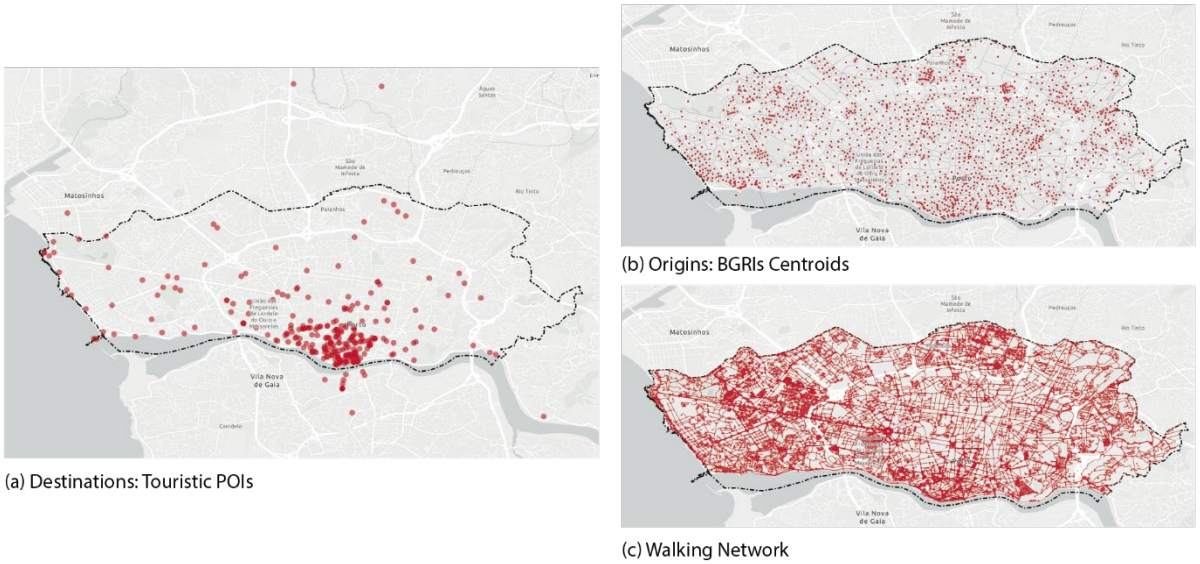
Scholars studying historic centres have stressed the increasing pressure of tourism on cultural assets and residential areas, underscoring the need to integrate tourism accessibility analysis into proximity planning (García-Hernández, De la Calle-Vaquero and Yubero, 2017). In the context of tourism, transport and accessibility are means to broader goals, such as equity, inclusion, sustainability, rather than ends in themselves (Allam *et al.*, 2022). Yet, existing FMC research rarely addresses tourism explicitly, and existing tourism accessibility studies scarcely adopt an accessibility–equity lens rooted in proximity planning. This need is further supported by recent work from Moreno et al. (2025), who calls for methods that make accessibility to tourism sites visible within proximity planning, rather than treating it as a by-product of general service accessibility.

Responding to this gap, the present study operationalises the FMC framework in the context of tourism accessibility, using Porto as a case study. It presents multimodal accessibility indicators to tourism amenities at the BGRI scale, allowing fine-grained analysis of how touristic opportunities are distributed in urban areas. By combining multimodal network analysis with spatial accessibility metrics, it examines how this distribution aligns, or conflicts, with FMC principles. This integration offers a methodological contribution towards bridging proximity-based urban planning and tourism studies, providing a replicable framework for assessing equitable and sustainable access to cultural and touristic amenities in historic urban settings.

3. Methodology

3.1 Origin and Destination Data

Running an accessibility analysis requires a set of origin points and destination points. For this project, the analysis was carried out at the spatial resolution of census tracts. Accordingly, the set of origins was defined by calculating the centroid for all census tracts within the Municipality of Porto, obtained from the official 2021 census geographical base provided by INE (*Portal do INE*, no date), comprising a total of 1659 origins.



(a) Destinations: Touristic POIs

(b) Origins: BGRIs Centroids

(c) Walking Network

Figure 1: Spatial datasets used for the travel distance and times calculation

The set of destination points was defined based on touristic attractions located in the Municipality of Porto and its surroundings. The data was retrieved from the Porto Open Data Portal (Município do Porto, no date) by selecting eight geospatial datasets containing information relevant to the tourism sector. Specifically, these datasets included information on cinemas, statues and sculptures, water fountains, art galleries, viewpoints, museums and thematic centres, concert halls, and theatres.

The selected datasets were merged, resulting in a dataset with 290 destinations. Pre-processing was then applied using Python to ensure that each amenity contained standardized attributes. Additionally, using a geospatial administrative dataset of Portugal, each point of interest (POI) was enriched with its corresponding

census tract (BGRI), Parish, Municipality, and District. Touristic destinations located outside the administrative limits of the Municipality of Porto were also retained in the dataset to minimize boundary effects (Griffith, 1983) (Figure 1).

3.2 Accessibility Modelling

For this work, we modelled multi-modal distance and time-based accessibility to cultural touristic Points of Interest (POIs) in eight categories, using census tracts centroids as origin points.

To retrieve routing information for the different transportation modes, namely walk, bike and drive, data from OpenStreetMaps was used. One network covering the analysis area was downloaded for each transportation mode, using the Python library OSMnx (Boeing, 2017). The library makes uses of the OSM tags to determine suitable segments for each mode, including directional restrictions attributes among others.

Based on this network, travel impedance was operationalized by inputting travel speed for each travel modality and network edge. For the driving network, the OSM native edge travel speeds were considered. In the case of the two other networks, a constant speed of 4 km/h for walking and 15 km/h for biking was manually input, following conservative average values considered in previous related studies (Schleinitz *et al.*, 2017; Hosford, Beairsto and Winters, 2022; Willberg, Fink and Toivonen, 2023). For each transportation mode, the shortest path in the network between each origin and destination point was retrieved using Python NetworkX library (Hagberg, Schult and Swart, 2008). Based on the length and speed attributes of the edges, the total trip distance and time was calculated.

The final results were appended to a single table containing, for each origin-destination pair, the distance, and travel time for each travel mode, in addition to the destination category.

3.3 15-Minute City Indicators

To implement the FMC lens for tourism, we computed three complementary, accessibility indicators from the results table described above. These indicators follow standard location-based approaches used to assess FMC compliance and related neighbourhood-scale accessibility (Kelobonye *et al.*, 2020), and they are reported for walking, cycling and driving, both across all amenities and by amenity category.

a. **Minimum travel time to the nearest amenity**: for each BGRI origin o and mode m, we take the minimum network travel time, min t, to any touristic amenity destination *d*:

$$T_m^{min}(o) = \min_{d \in D} t_m(o, d)$$

b. **Cumulative opportunities within time thresholds (5, 10, 15 min)**: for each BGRI origin o, mode m, and threshold $\tau \in \{5, 10, 15\}$ minutes, we count how many amenities are reachable within τ:

$$A_{m,\tau}(o) = \sum_{d \in D} 1\{t_m(o, d) \leq \tau\}$$

c. **Percentage of amenities reachable within time thresholds (5, 10, 15 min)**: for each parish p, mode m, and threshold τ, we calculate the proportion of touristic amenities that a trip originating in that parish can reach within τ:

$$P_{p,m,\tau}^{c} = \frac{\sum_{o \in O_p} A_{m,\tau}^{c}(o)}{D}$$

4. Results and Discussion

The accessibility results obtained through the operationalization of three defined 15-Minutes City indicators were visualized using choropleth maps, allowing a clear identification of unequal spatial accessibility patterns to touristic POIs in different areas of Porto municipality.

A mode-by-mode accessibility analysis exposes clear differences to the closest amenity between the three studied transportation means (Figure 2). When analysing the minimum time to reach the closest touristic POI by walking, it is possible to identify areas with poor accessibility at the east side of the city, on the periphery, especially in Campanhã parish. Contrary, the area with higher accessibility in tourism corresponds to the historic centre and along the Douro riverfront, reflecting a dense network of accessible touristic sites. When analysing

cycling accessibility, trips duration is reduced, with the average travel time to a touristic POI falling from 32 to 18 minutes, a reduction of 43% of the time. With this transportation mean, most of the city becomes a 10-minute city for at least one touristic option, and a 15 or 20-minute city for at least one touristic option for each category. By car, the average time to reach any touristic amenity is within a 5-minute ride.



Figure 2: Travel time (minutes) to the nearest touristic amenity by walking (left), cycling (centre), and driving (right). Red indicates lower accessibility; green indicates higher accessibility.

If focusing specifically on walking accessibility, the 5-minute walking map shows that only the inner-city parish achieves several amenities (10), with north and east parishes reaching very few to none (Figure 3). A 15-minute walking trip, the accessible belt widens and becomes continuous from the river upwards thı traditional central neighbourhoods. Yet, trips starting from outer belts remain achieving few touristic a This analysis highlights that, when studied from a touristic pedestrian-friendly perspective, the city clear inequalities, falling away from the FMC objectives mainly at peripherical areas.

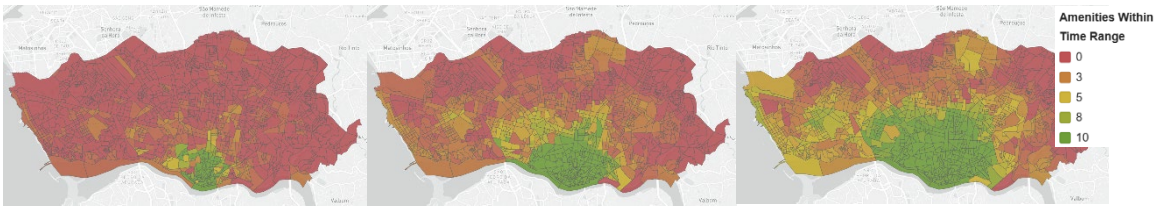


Figure 3: Number of touristic amenities reachable by a 5-minute (left), 10-minute (centre), and 15-minute (right) walk. Red indicates lower accessibility; green indicates higher accessibility.

Cycling reduces these gaps. The 5-minute biking map (Figure 4) reaches ≈94% (273) of amenities, similar to the results for a 15-minute walk trip, and 10 and 15 minutes by bike raise coverage to ≈96% (279) and ≈98% (284), respectively, with most areas attaining high choice. Driving, as expected, yields near-universal coverage even at 5 minutes (≈83–88% per parish) and becomes effectively complete by 10 minutes (100%, 290 amenities). By car, at least one touristic site of each category is accessible within a 5-minute trip.

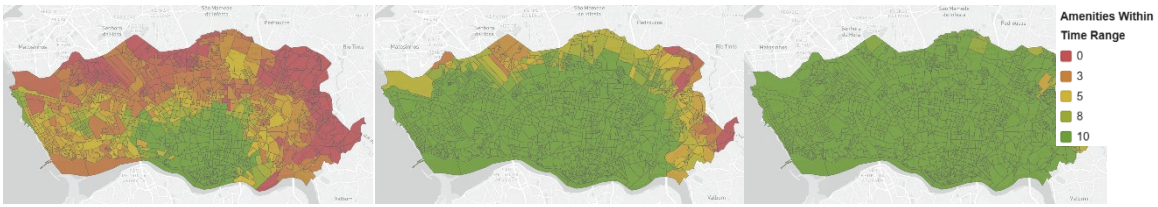


Figure 4: Number of touristic amenities reachable by a 5-minute (left), 10-minute (centre), and 15-minute (right) bike ride. Red indicates lower accessibility; green indicates higher accessibility.

The parish versus category matrices highlights origin-destination accessibility patterns. As expected, the walking trips that start from parishes in the historic centre, União de Freguesias (UF) de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória, are the ones having a higher percentage of amenities covered, followed by UF de Lordelo do Ouro e Massarelos. Peripheral parishes such as Campanhã, Ramalde, and Paranhos have only 5% to 9% of accessible touristic amenities for every amenity category, corroborating the maps' evidence of a persistent outer ring of low walking accessible tourist options. The statue or fountain, monument, museum and art gallery categories show a high walking accessibility rate for trips that start in the historic centre parish, which is expected since most of these touristic amenities are located in that parish. For all the other parishes and categories, the pedestrian accessibility to touristic amenities is low. These scarcities imply that beyond the historic core, many residents and visitors will not find touristic POIs within a walking distance.

Table 1: Percentage of accessible touristic amenities by a 15-minute walk, by parish and category.

Amenity Category	Bonfim	Campanhã	Paranhos	Ramalde	UF de Aldoar, Foz do Douro e Nevogilde	UF de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória	UF de Lordelo do Ouro e Massarelos	Total
Art Gallery	4%	1%	2%	2%	1%	13%	10%	**16%**
Cinema	1%	0%	0%	1%	0%	1%	1%	**2%**
Concert Venue	1%	0%	0%	0%	0%	2%	1%	**2%**
Monument	3%	1%	1%	2%	2%	17%	7%	**20%**
Museum	3%	2%	3%	2%	2%	12%	8%	**19%**
Statue or Fountain	8%	0%	1%	1%	3%	20%	9%	**23%**
Theatre	2%	0%	0%	0%	0%	3%	1%	**4%**
Viewpoint	1%	0%	0%	0%	1%	6%	3%	**8%**
Total	**22%**	**5%**	**8%**	**8%**	**9%**	**76%**	**38%**	**95%**

Cycling closes the accessibility gap showed on foot. Within a 10-minute bike ride, trips starting in outer parishes reach between 13% to 45% of city's touristic amenities, while trips starting in central parishes reach more than 80% of all touristic amenities. When increasing the maximum bike ride to 15-minutes, trips from every parish surpass 66% of covered touristic amenities, and trips from central parishes reach around 90% coverage. The only exception is UF de Aldoar, Foz do Douro e Nevogilde parish, who is isolated and whose accessibility do not increase as much as the others with the increase in maximum trip duration. Although accessibility increases in general for bike trips, accessibility to amenity categories with low density remains scarce.

Table 2: Percentage of accessible touristic amenities by a 10-minute bike ride, by parish and category.

Amenity Category	Bonfim	Campanhã	Paranhos	Ramalde	UF de Aldoar, Foz do Douro e Nevogilde	UF de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória	UF de Lordelo do Ouro e Massarelos	Total
Art Gallery	8%	4%	11%	10%	2%	15%	14%	**16%**
Cinema	1%	1%	2%	1%	1%	2%	2%	**2%**
Concert Venue	1%	1%	1%	1%	0%	2%	2%	**2%**
Monument	14%	4%	6%	4%	2%	18%	18%	**20%**
Museum	12%	5%	9%	7%	4%	18%	13%	**22%**
Statue or Fountain	19%	8%	13%	4%	2%	21%	20%	**22%**
Theatre	3%	2%	2%	1%	0%	4%	4%	**4%**
Viewpoint	4%	2%	1%	2%	1%	7%	7%	**8%**
Total	**62%**	**27%**	**45%**	**29%**	**13%**	**86%**	**79%**	**96%**

Table 3: Percentage of accessible touristic amenities by a 15-minute bike ride, by parish and category.

Amenity Category	Bonfim	Campanhã	Paranhos	Ramalde	UF de Aldoar, Foz do Douro e Nevogilde	UF de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória	UF de Lordelo do Ouro e Massarelos	Total
Art Gallery	14%	8%	15%	14%	5%	15%	15%	**16%**
Cinema	1%	1%	2%	1%	1%	2%	2%	**2%**
Concert Venue	2%	2%	2%	1%	0%	2%	2%	**2%**
Monument	17%	14%	17%	17%	4%	19%	19%	**20%**
Museum	18%	16%	17%	15%	6%	21%	19%	**23%**
Statue or Fountain	20%	19%	21%	19%	3%	22%	22%	**23%**
Theatre	3%	3%	4%	3%	1%	4%	4%	**4%**
Viewpoint	6%	4%	7%	6%	3%	7%	8%	**8%**
Total	**82%**	**67%**	**84%**	**77%**	**23%**	**91%**	**91%**	**98%**

The results suggest that cycling notably improves the accessibility to tourism POIs, with the capacity to convert Porto into a 15-minute tourism city. These findings highlight the need to bring attention to this active mode and increase the efforts to promote it, particularly for the tourism sector. A special attention is needed regarding UF de Aldoar, Foz do Douro e Nevogilde, which is segregated from the rest of the city in terms of tourism accessibility. Promoting cycling within Porto is crucial, according to Rocha & Ferreira (2025), only 2% of city trips are made by bike. This arises from Porto's challenging topography, characterized by hilly and narrow streets that complicate cycling infrastructure development (Silva, Altieri and Teixeira, 2023), and the absence of a cohesive active-mobility strategy. Metropolitan growth led mainly by private actors, without long-term mobility planning, has produced fragmented infrastructure that discourages active travel, particularly cycling (Serra, Gil and Pinho, 2017).

The fact that higher accessibility results are found at the historic centre, while areas with low accessibility are found on the outskirts is in line with findings from recent literature in other cities, even when analysing other type of amenities. A previous study by Guerreiro et al. (2026) in Porto showed similar spatial patters regarding general urban services concentration. The work findings highlighted the highest accessibility in the historic centre and lower in the periphery of the city, with particularly bad accessibility in the eastern parishes of the municipality. For Barcelona case, Ferrer-Ortiz et al (2022) found out that parcels with the best access cluster in the oldest areas, notably the historic centre and its surroundings, while periphery shows weaker accessibility. These outer zones suffer from low service coverage due to non-residential, mono-functional land uses that disrupt continuity and limit access.

The findings from this study are also in line with the previous analysis on Porto tourism concentration conducted by Municipio do Porto (2024), which identified the historic centre as an area of high tourist concentration, with uneven distribution of visitors across the municipality parishes. Building upon the re-distribution proposals made by the authors and considering that some categories will remain scarce by design in Porto, itinerant programmable cultural offers in the eastern and northern regions could raise the effective touristic POIs choice. This would help to redistribute visitors throughout the city without diluting the historic centre.

In summary, Porto functions as a 15-minute city for tourism on foot, in the historic centre, and by bicycle across almost the entire municipality. Prioritizing a connected cycling network and last-mile walking quality conditions would close the remaining accessibility gaps, particularly in Campanhã, Ramalde, and Paranhos. These efforts would turn today's uneven access into a richer set of choices for visitors.

5. Conclusions, Limitations and Future Work

This study analysed accessibility to tourism POIs in Porto, Portugal, through the FMC lens. It presents multimodal accessibility indicators to tourism amenities at the BGRI scale, allowing fine-grained analysis of how touristic opportunities are distributed in urban areas. By using proximity-based indicators at census tract scale, we show how these patterns vary by regions and travel mode, offering a reproducible base for urban planning and destination management. The results revealed unequal accessibility patterns, highlighting key challenges and opportunities to enhance sustainable tourism. The study concluded that accessibility to tourism is high on the historic centre, in part explained by the high density of touristic POIs and the city's compact morphology, exposing the periphery where tourism walking accessibility is much lower. The results show that shifting from walk to bike overcomes these gaps, having a high impact on accessibility to tourism and turning the periphery more connected.

Despite the insights regarding accessibility to tourism in Porto, it is important to acknowledge certain limitations inherent to the study's methodological framework. Specifically, the analysis focused exclusively on quantitative dimensions of distance-based travel time, excluding qualitative aspects such as perceived safety or user satisfaction. Furthermore, it lacked consideration of land-use characteristics at trip origins and destinations, and paths characteristics such as steepness and road type, factors that could influence travel duration and mode choice.

Regarding POIs, the analysis was focused solely on cultural amenities existing in Porto Open Data Portal. Future work could include other destinations of interest for tourists, such as bars and restaurants or public spaces, for better modelling tourism accessibility. The location of tourism accommodation, such as hotels and 'local accommodation' (AL) points, could also be added as a new analysis layer. In this sense, a foreseen research direction is to correlate accessibility results with tourism accommodation locations, to analyse the potential existence of spatial patterns. Adding a time dimension to the analysis, by incorporating POIs opening hours and schedules and fine-scale data regarding visitors' displacements, would also help deepen the understanding of these complex interactions, enhancing the development of tourism management decision support tools.

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Ethics Declaration

Ethical clearance was not required for the research.

AI Declaration

This paper was partially developed with the assistance of ChatGPT (OpenAI, GPT-5 model). The tool was used to support the drafting and refinement of text, including grammar checking, rephrasing for clarity, and generating structure suggestions. All ideas, analyses, and final interpretations are the author's own, and all outputs generated by AI were reviewed, edited, and validated by the author before inclusion.

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A Study on Pet-Friendly Resort Experience: Policies, Practices, and Guest Satisfaction

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Abstract: The rise of pet-friendly tourism has significantly transformed the hospitality landscape, driving resorts and accommodations to adjust their services to meet the needs of travellers who bring their pets. This study investigates the policies, operational practices, and guest satisfaction factors that shape the pet-friendly resort experience, using a systematic qualitative approach. A comprehensive literature review guided by the PRISMA framework was conducted to identify established policies, service models, and implementation gaps in pet-friendly accommodations. To complement the review, focus group interviews were carried out with ten stakeholders from pet-friendly resorts in Iloilo, Philippines—including resort managers, frontline staff, and pet-owning guests—selected through purposive sampling to ensure relevant and diverse insights. Thematic analysis using NVivo software was employed to analyse the collected data and extract key patterns related to service quality, guest expectations, policy clarity, and operational challenges. Findings reveal several critical drivers of guest satisfaction, including stringent cleanliness standards, availability of pet amenities, and measures that ensure pet safety and comfort. However, the study also identifies notable challenges that resorts commonly encounter, such as managing disruptive pet behaviour, addressing liability and safety concerns, and handling the increased maintenance demands associated with pet-friendly facilities. Successful strategies observed among well-performing establishments include clear and consistently enforced pet policies, designated pet-friendly areas, enhanced cleaning protocols, trained staff capable of addressing pet-related issues, and effective communication with guests before and during their stay. The study emphasises the need for standardised guidelines, transparent policy communication, and improved operational frameworks to create a balanced environment that accommodates both pet-owning guests and non-pet travelers. The insights generated offer practical recommendations for resorts seeking to strengthen their pet-friendly services and enhance overall guest experiences. Future studies are encouraged to explore the economic contributions of pet-friendly tourism, the integration of technology in pet-service management, and the long-term effects of pet-inclusive policies on guest loyalty within the evolving hospitality sector.

Keywords: Pet-Friendly Resorts, Guest Satisfaction, Hospitality Policies, Thematic Analysis, Sustainable Tourism

1. Introduction

The hospitality industry has seen a significant rise in pet-friendly tourism, reshaping service and operational practices as more pet owners choose to travel with their pets. Studies, such as those from the University of Surrey, note that the COVID-19 pandemic contributed to increased dog ownership, which in turn boosted demand for pet-inclusive accommodations. In response, many hotels now offer pet-friendly rooms, on-site pet services, and curated activities designed to enhance guest satisfaction and loyalty. This shift not only caters to the emotional needs of pet owners but also presents a strong business opportunity, with the global pet travel services market valued at $2 billion in 2023 and expected to grow to $4.6 billion by 2032. Despite this growth, comprehensive research on pet-friendly accommodation policies and their impact on guest satisfaction remains limited. Existing studies often examine individual aspects, such as economic benefits, but rarely explore the full guest experience or the operational challenges faced by resort managers. While some findings highlight financial advantages linked to adopting pet-friendly policies, they often overlook how guests perceive these services and how staff navigate daily challenges in maintaining pet-friendly environments. This lack of qualitative insight makes it difficult to establish standardised best practices or effective policies that address the needs of both guests and service providers. As a result, there is a clear need for studies that explore the lived experiences of pet-owning guests and the practical realities encountered by resort staff and managers. Such research would offer valuable guidance for improving service quality, shaping more consistent policies, and creating a more seamless and enjoyable experience for all stakeholders involved in pet-friendly hospitality.

Objectives of the Study:

1. To review and analyse the current policies and best practices that guide pet-friendly accommodations.
2. To explore guest experiences, expectations, and overall satisfaction with pet-friendly resorts through focus group discussions.
3. To identify the key challenges resort managers and staff face in implementing and maintaining pet-friendly policies.
4. To provide practical recommendations for improving pet-friendly services based on real-world experiences and industry insights.

1.1 Significance of the Study

This study is important because pet-friendly travel is rapidly growing, yet many resorts still struggle to balance guest needs, pet accommodations, and smooth operations. Understanding what pet owners expect and the challenges faced by resorts can help managers create clearer policies, improve services, and enhance guest satisfaction. It also guides pet owners in choosing genuinely pet-friendly resorts. For policymakers, the findings offer insights for developing standardised regulations to ensure quality and consistency across the industry. This research fills key gaps in pet-friendly hospitality and helps promote a more inclusive, enjoyable travel experience for both guests and their pets.

2. Literature Review and Systematic Review (PRISMA Approach)

2.1 Theoretical Framework

This study draws on two key theoretical frameworks: the Service Quality Model (SERVQUAL) and Expectation-Confirmation Theory (ECT). The SERVQUAL model, introduced by Parasuraman, Zeithaml, and Berry (1988), assesses customer satisfaction by examining the gap between expected and perceived service quality across five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Applied to pet-friendly resorts, it helps evaluate how well these establishments meet the specialised needs of pet owners and their pets. Meanwhile, Expectation-Confirmation Theory (Oliver, 1980) explains satisfaction as the result of how closely actual experiences match or exceed customer expectations. When a pet-friendly resort fulfils or surpasses what guests anticipate, satisfaction and loyalty are more likely to follow. Together, these frameworks offer a structured lens for understanding guest satisfaction and service quality in pet-inclusive accommodations.

2.2 Systematic Review Using PRISMA

This study uses the PRISMA framework to systematically and transparently review literature on pet-friendly resorts, policies, and guest experiences. The review includes peer-reviewed studies from the past ten years that examine policies, operational challenges, and customer satisfaction in pet-friendly accommodations, while excluding research that lacks empirical evidence or does not focus on pet-friendly hospitality. A comprehensive search was conducted in major databases such as Scopus, Web of Science, and Google Scholar using keywords related to pet-friendly resorts, hospitality policies, guest satisfaction, and pet-inclusive travel. Following the PRISMA flow process—identification, screening, eligibility, and inclusion (Page et al., 2021)—the study ensures that only high-quality and relevant sources are analysed. This approach provides a strong foundation for understanding best practices and ongoing challenges in the pet-friendly hospitality sector.

2.3 Key Themes Identified from Literature

Recent studies show that policies for pet-friendly accommodations are continually evolving and must clearly address pet fees, weight or breed limits, and designated pet areas. Buhalis and Chan (2023) emphasise the need for well-defined guidelines that support value co-creation between hotels and pet owners while ensuring safety and smooth operations. Best practices include providing pet-specific amenities, enforcing strict cleaning protocols, and maintaining dedicated relief areas. Their proposed service blueprint also helps managers coordinate policies and services across departments and partners to improve efficiency and guest satisfaction.
Guest satisfaction depends on clear communication of rules, pet-focused facilities, and a welcoming environment. However, challenges such as noise control, cleanliness, and balancing the needs of non-pet guests remain. Buhalis and Chan (2023) note that pet owners often anthropomorphise their pets, raising their service expectations. Addressing these concerns is essential for improving the guest experience and encouraging repeat stays in pet-friendly hospitality.

3. Methodology

3.1 PRISMA Framework

This study employed the PRISMA 2020 framework to conduct a systematic and transparent review of literature on pet-friendly resorts, operational policies, and guest satisfaction. The review focused on peer-reviewed journal articles published between 2014 and 2024 that examined pet-friendly accommodation practices, service quality,

operational challenges, or customer satisfaction outcomes. Studies not directly related to pet-inclusive hospitality or lacking empirical grounding were excluded.

A structured database search was conducted in Scopus, Web of Science, and Google Scholar using combinations of the keywords “pet-friendly resorts,” “pet-inclusive hospitality,” “hospitality policies,” “guest satisfaction,” and “pet travel.” The search initially yielded [insert number] records. After removing duplicates and screening titles and abstracts, sixty-seven articles were assessed for eligibility. A final set of twenty-three studies met the inclusion criteria.

The review followed four PRISMA stages: identification, screening, eligibility assessment, and final inclusion (Page et al., 2021). This systematic process enhanced transparency, reduced selection bias, and ensured that only relevant and high-quality studies informed the conceptual and analytical foundation of the research.

3.2 Focus Group Design

To complement the literature synthesis, a qualitative focus group component was conducted to capture practitioner and guest perspectives. A purposive sampling strategy was used to select participants with direct experience in pet-friendly resort operations and usage. The focus group consisted of ten participants: resort managers (n = 3), frontline staff (n = 3), and pet-owning guests (n = 4) from selected pet-friendly resorts in Iloilo Province.

The semi-structured discussion guide was developed based on themes identified in the PRISMA review, ensuring conceptual alignment between the literature findings and empirical inquiry. Questions explored policy clarity, operational implementation, guest expectations, service challenges, and sustainability practices.

The session lasted approximately 90 minutes and was conducted in a neutral setting to encourage open dialogue. Discussions were audio-recorded with informed consent and transcribed verbatim. Thematic analysis was performed using NVivo software. Coding was conducted inductively, with initial open codes grouped into higher-order themes. To enhance analytical rigour, codes were reviewed iteratively to ensure consistency and thematic coherence.

Data saturation was reached when no new themes emerged during analysis. The qualitative findings were subsequently integrated with the systematic review results during the interpretation stage to provide contextual validation and practical refinement of literature-derived themes.

4. Findings and Discussion

4.1 Themes from PRISMA Review

Table 1: Common policies and gaps in implementation.

Policy	Description	Gaps in Implementation	Citation
Pet Fees	Many hotels impose non-refundable pet fees, typically ranging from $25 to $150, to cover additional cleaning and maintenance costs.	Inconsistent fee structures and a lack of transparency can lead to guest dissatisfaction. Some hotels may not clearly communicate these fees during booking.	Weinhaus (2022)
Weight and Breed Restrictions	Hotels often enforce weight limits (For example, up to 40 pounds) and may restrict certain breeds considered aggressive.	These restrictions can exclude responsible pet owners with larger or specific breeds, limiting accessibility for some guests.	(Kim et al, 2025; Buhalis and Chan (2023)
Pet Supervision Requirements	Policies may require pets to be crated when left unattended or prohibit leaving pets alone in rooms.	Lack of clarity and consistency in these rules can cause confusion. Some guests may be unaware of such policies until arrival.	Buhalis and Chan (2023)
Designated Pet Areas	Provision of specific areas for pet relief and exercise.	Insufficient or poorly maintained pet areas can detract from the guest experience. Not all hotels provide adequate spaces.	Kim et al. (2025)
Documentation Requirements	Some hotels require proof of up-to-date vaccinations and flea treatments.	Inconsistent enforcement and communication of these requirements can lead to misunderstandings and potential health risks.	Buhalis and Chan (2023)

Table 1 outlines key pet-friendly resort policies and the gaps that undermine guest experience and operations. Pet fees are common, but inconsistent pricing and unclear communication cause frustration. Weight and breed limits aim to ensure safety but can exclude responsible owners. Supervision rules—like crating pets when unattended—are often vague, leaving guests unsure. Designated pet areas exist but are frequently poorly maintained. Vaccination and flea-treatment documentation is required but inconsistently checked, raising health concerns. Greater standardisation, clearer communication, and consistent enforcement would improve the overall pet-friendly hospitality experience.

4.2 Focus Group Interview

The following themes and quotations emerged directly from the focus group discussion and represent empirically derived insights from resort stakeholders.

Table 2: Themes from Focus Group Interview

Satisfaction Driver	Direct Quote	Interviewee Position
Cleanliness	*"Ensuring that rooms and common areas remain clean and allergen-free is essential in a dog-friendly hotel."*	Hotel Maintenance Specialist
Amenities	*"Providing pet amenities like pet beds, bowls, and treats, hotels can enhance the stay experience for guests."*	Hospitality Consultant
Pet Safety	*"Implementing rigorous cleaning protocols and providing designated pet relief areas are key to maintaining a safe environment for all guests."*	Hotel Operations Manager
Staff Training	*"Training staff to handle noise complaints effectively and diplomatically ensures that all guests feel valued and heard."*	Front Office Manager
Clear Policies	*"Establishing clear guidelines for pet behaviour, such as not leaving pets unattended in rooms, can minimise issues."*	Hotel Policy Analyst
Designated Pet Areas	*"Allocating specific rooms or floors for guests with pets helps manage interactions and ensures comfort for all."*	Hospitality Space Planner
Pet Services	*"Offering additional services such as pet grooming and pet-sitting creates multiple upsell opportunities."*	Revenue Manager
Guest Communication	*"Clearly outlining pet policies during the booking process ensures that all guests are aware of the hotel's guidelines."*	Guest Relations Officer
Allergen Management	*"Implementing air purification systems can help reduce airborne allergens, ensuring a comfortable environment."*	Environmental Health Specialist
Pet-Friendly Facilities	*"Investing in furniture and fixtures that can withstand wear and tear from pets reduces the need for frequent replacements."*	Interior Designer

Table 2 identifies the main factors that influence guest satisfaction in pet-friendly resorts. Cleanliness remains the top priority, ensuring allergen-free rooms and comfortable shared spaces. Providing basic pet amenities—such as beds, bowls, and treats—helps guests feel their pets are genuinely welcomed. Pet safety is supported through strict cleaning protocols and designated relief areas, while well-trained staff help manage noise and maintain a positive environment. Clear pet behaviour policies, including rules on leaving pets unattended, reduce misunderstandings. Designated pet-only rooms or floors also help manage interactions between guests with and without pets. Additional services like grooming and pet-sitting enhance guest convenience and create added revenue. Effective communication of policies before arrival minimises issues, and allergen management systems improve comfort for all guests. Finally, durable, pet-friendly furnishings help reduce maintenance costs while supporting a practical, guest-friendly environment.

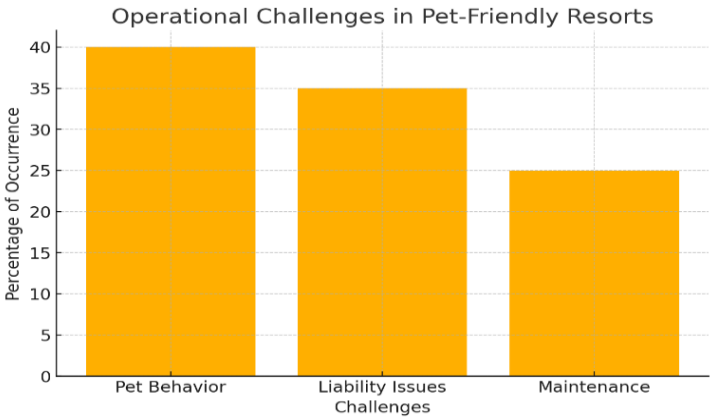


Figure 1: Operational challenges

Table 2 summarises key factors that influence satisfaction in pet-friendly resorts. Cleanliness is essential for guest comfort, and amenities like beds and bowls help guests feel welcomed. Safety is improved through proper cleaning and designated relief areas. Staff training is vital, especially for handling noise complaints. Clear behaviour rules, designated pet rooms or floors, and expanded services like grooming add value. Effective communication prevents misunderstandings, while allergen control and durable, pet-friendly furnishings enhance comfort and reduce maintenance.

4.3 Themes from Systematic Review



Figure 2: Successful strategies in handling pet-friendly services.

Figure 2 showcases key strategies for effective pet-friendly services. Central themes include dedicated pet areas, clear and consistent policies, trained staff, enhanced cleaning protocols, and flexible pet fees. The focus on behaviour management and allergen control reflects the industry's commitment to cleanliness and guest satisfaction. Additional approaches—such as pet welcome kits, noise control measures, pet-friendly dining options, and access to emergency pet care—further elevate service quality, helping resorts create a safe, comfortable, and well-managed environment for both pet owners and non-pet guests.

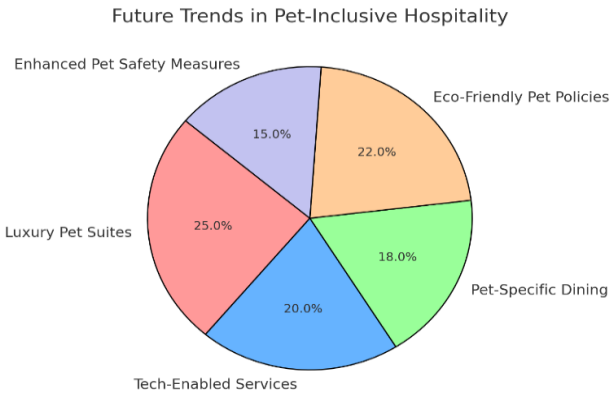


Figure 3: Future trends in pet-inclusive hospitality

Figure 3 highlights key emerging trends in pet-inclusive hospitality. Luxury pet suites (25%) lead the shift toward premium pet accommodations, while tech-enabled services (20%)—such as smart monitoring and automated check-ins—continue to expand. Pet-specific dining (18%), including customised menus and designated spaces, enhances guest experiences. Eco-friendly pet policies (22%), like biodegradable products and sustainable waste stations, reflect growing environmental priorities. Enhanced safety measures (15%), including improved security and emergency vet access, further support safer and more comfortable stays for pets.

4.4 Integrated Insights

The integration of the systematic review and focus group findings reveals strong convergence across key themes while providing contextual depth.

Cleanliness emerged as the most influential determinant of satisfaction in both data sources. The literature identifies hygiene and allergen management as essential operational standards in pet-friendly accommodations. Focus group participants reinforced this, describing cleanliness as the most visible indicator of professionalism and guest care. This suggests that hygiene functions not only as a service attribute but as a core driver of trust and perceived sustainability.

Pet safety and behaviour management were similarly consistent across sources. While the literature emphasises structured policies such as breed limits, supervision rules, and designated pet areas, practitioners highlighted the importance of consistent enforcement and staff confidence in managing guest compliance. The findings indicate that clearly defined policies must be supported by trained personnel to positively influence guest satisfaction.

Staff training and communication emerged as critical mediating factors. Although policy frameworks are central in the literature, focus group participants emphasises that guest perceptions are shaped largely through frontline interactions. Clear communication of pet policies during booking and check-in reduced misunderstandings and enhanced satisfaction.

Operational challenges identified in prior studies—including liability concerns, maintenance costs, and balancing pet and non-pet guest expectations—were validated by resort stakeholders. However, practitioners also identified adaptive strategies such as designated pet floors, durable furnishings, and enhanced cleaning routines, demonstrating practical alignment between theory and implementation.

Overall, the integrated findings indicate that successful pet-friendly resort management depends on the alignment of policy clarity, operational execution, and communication practices. Cleanliness, pet safety, and staff competence form the operational core influencing satisfaction, while visibility and consistency determine how sustainability practices are perceived.

This integration strengthens the study's contribution by demonstrating how service quality frameworks are operationalised within pet-inclusive hospitality settings.

5. Conclusion and Recommendations

This study highlights the rising demand for pet-friendly hospitality and the challenges resorts face in maintaining service quality. Guests value cleanliness, pet-specific amenities, and reliable safety measures, yet inconsistent policies—such as unclear fees, breed restrictions, and supervision rules—often create dissatisfaction. Resorts also encounter issues such as managing pet behaviour, addressing liability risks, and handling increased maintenance needs. Implementing best practices, including designated pet areas, well-trained staff, and strengthened cleaning protocols, can help resolve these concerns. Emerging trends such as luxury pet services, eco-friendly initiatives, and technology-supported pet care are reshaping pet-inclusive travel.

To enhance guest experiences, resorts should adopt clear, standardised policies, invest in staff training, and improve pet-friendly facilities. Effective communication of rules is essential for both pet and non-pet guests. Future research should explore economic impacts, technology's role in pet care, and how strong policies build long-term guest loyalty.

Ethics Declaration

This study involved focus group discussions with resort managers, staff, and pet-owning guests. The research protocol received approval from the West Visayas State University Research Ethics Committee. Participants were

informed of the study's purpose, procedures, voluntary participation, and right to withdraw. Written consent was obtained, and all personal information was anonymised.

AI Declaration

AI tools were used in this research only to refine grammar, improve formatting, and assist with paraphrasing for clarity and coherence. Their role was limited to enhancing writing structure, while all academic decisions, data interpretation, and analytical judgments were made solely by the researcher. AI was not used to generate findings, analyse data, fabricate results, or replace the researcher's critical thinking. All interpretations, conclusions, and insights presented in this study are entirely the researcher's original work.

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The Role of 4E Marketing Model - Experience, Everywhere, Evangelism, and Exchange - in Determining Café Experience Among Generation Z Tourists

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Abstract: This research explores the impact of the 4E marketing model- Experience, Everywhere, Evangelism, and Exchange - on Generation Z tourists' decisions to visit cafés in Bangkok. This study seeks to understand how the 4E factors influence their decision-making process in the context of café visits, providing valuable insights for businesses seeking to engage this influential group. A sample of 400 Generation Z tourists, aged 18-27, who had previously visited cafés in Bangkok, participated in the study. The research exploited a structured questionnaire to gather data on how these four factors affect their choices. The findings indicate that the "Experience" factor, particularly the appeal of Instagram-worthy settings and high-quality service, had the most significant influence on Generation Z's café selection. "Everywhere," which highlights the importance of both convenient physical locations and a robust online presence, also played a key role in their decision-making. "Evangelism," fueled by peer recommendations and social media reviews, further shaped their café preferences. Additionally, the "Exchange" factor, related to value-for-money, was crucial, as Generation Z showed a clear preference for loyalty programs and exclusive offers. The study concludes that café operators aiming to attract Generation Z should prioritize creating unique and memorable experiences, improving digital accessibility, leveraging social proof, and offering clear value for money. These insights provide practical strategies for businesses seeking to engage and retain Generation Z tourists in a competitive café market.

Keywords: Café, Generation Z, 4E, Marketing Model

1. Introduction

The 4E Marketing Model—Experience, Everywhere, Evangelism, and Exchange—helps businesses align with evolving consumer behaviors. By adopting the 4Es, businesses can foster deeper customer connections, improve satisfaction, and drive growth in a competitive market. Limna (2023) provides insights into the 4Es' Marketing Approach. He reveals that by focusing on Experience, businesses can create memorable interactions that drive customer loyalty through personalized services and tailored recommendations. The Everywhere factor emphasizes the importance of being accessible across both physical and digital platforms, allowing customers to shop seamlessly at any time. Evangelism focuses on building brand credibility and visibility through positive word-of-mouth, online reviews, and social media engagement, increasing the brand's reach. Lastly, Exchange builds trust by offering transparent pricing, easy product comparisons, and hassle-free returns, ensuring customers feel valued. These four elements help businesses enhance customer satisfaction, drive engagement, and maintain a competitive edge in the market.

In recent years, the café industry in Thailand has grown significantly, with cafés becoming destinations for social gatherings, relaxation, and lifestyle experiences (Rudakov, 2025). The rise of social media platforms like Instagram and Facebook has transformed cafés into "Instagrammable" locations where consumers share their experiences online, contributing to the café's visibility and attractiveness (Prasloranti & Hartati, 2024). This shift highlights the critical relationship between customer behavior and marketing models, as cafés must adapt to consumer preferences for unique, shareable experiences. By leveraging the 4E Marketing Model, businesses can effectively engage customers and enhance satisfaction, ensuring they remain competitive in a market.

Previous studies emphasize the significance of experience within the 4E model. The "Experience" factor underscores the importance of creating an immersive and memorable atmosphere that aligns with Gen Z's desire for unique and meaningful interactions (Almaz & Suryawardani, 2025). Whether it's the ambiance of a café, the quality of service, or the personalization of the offerings, these factors play a key role in determining whether Gen Z tourists return to a café or recommend it to others. Additionally, the "Everywhere" aspect, which focuses on brand accessibility across multiple platforms, is crucial for capturing the attention of a generation that spends a substantial amount of time online, frequently interacting with brands through social media, apps, and websites.

In terms of "Evangelism", Rudakov (2025) emphasized that generation Z values authenticity, personalization, and sustainability in the brands they engage with. Finally, the "Exchange" factor, which concerns the perceived value for money, is also essential for this price-conscious generation that seeks fair value in their transactions,

whether it be through promotions, loyalty programs, or the overall quality of the experience (Saputra, Mariam & Haeba, 2024).

The significance of this research lies in its exploration of how the 4E Marketing Model can be effectively applied within the café industry in Thailand, particularly in relation to Gen Z consumers. This study provides valuable insights into the evolving consumer behaviors of this generation. By understanding the importance of creating experiences, ensuring brand accessibility across multiple platforms, encouraging positive brand advocacy, and offering clear value propositions, businesses can adapt to Gen Z's preferences and expectations. The findings also help businesses refine their marketing strategies to attract and retain Generation Z customers.

2. Purpose of the Study

This research aims to investigate how the 4E marketing model—Experience, Everywhere, Evangelism, and Exchange—affect the decision-making process of Gen Z tourists when selecting cafés in Bangkok. The study examines the interplay of these factors, analyzing their influence on tourists' perceptions and behaviors regarding café visits.

2.1 Research Objectives

1. To examine the impact of the 4E marketing factors on Generation Z tourists' decisions to visit cafés in Bangkok.
2. To analyze how each of the 4E marketing factors influences café experience among Generation Z tourists.
3. To identify the relative importance of each of the 4E marketing factors in shaping Generation Z's café visitation decisions.

2.2 Research Questions

1. How do the 4E marketing factors influence Generation Z tourists' decisions to visit cafés in Bangkok?
2. To what extent do each of the 4E marketing factors influence customer experience among Generation Z tourists?
3. Which of the 4E marketing factors is considered the most influential in determining Generation Z's café experience?

3. Literature Review

The 4E Marketing Model, which includes the factors of Experience, Everywhere, Evangelism, and Exchange, has emerged as a significant model in contemporary marketing research. It is particularly relevant in understanding consumer behavior. Previous studies have explored how these four factors affect consumer decision-making and engagement in various industries, including food services like cafés. This literature explores existing research on the 4E model, particularly among Generation Z customers.

3.1 The 4E Marketing Model

The 4E marketing model — Experience, Everywhere, Evangelism, and Exchange — provides a comprehensive lens through which businesses can understand and cater to modern consumer preferences. It differs from traditional marketing models, such as the 4Ps (Product, Price, Place, and Promotion), by emphasizing customer-centric engagement rather than a product-focused approach (Mada, 2024).

3.1.1 Experience

This factor emphasizes creating unique, memorable interactions that go beyond the product, focusing on ambiance, personalization, and emotional connections. Generation Z values experiences over material possessions, often seeking those that align with their values like sustainability and social responsibility (Mada, 2024).

3.1.2 Everywhere

This factor ensures accessibility across digital and physical touchpoints. For Generation Z, digital platforms are crucial, with seamless Omni-channel experiences and social media engagement being key to discovering and interacting with brands (Darvidou, 2024). In the café industry, this means digital ordering systems, engaging social media, and easy location discovery.

3.1.3 Evangelism

This highlights the influence of word-of-mouth, peer recommendations, and online reviews in shaping consumer decisions. Generation Z trusts social validation and influencer endorsements more than traditional ads (Ridwan et al., 2025). For cafés, fostering positive reviews and collaborating with influencers can drive customer loyalty.

3.1.4 Exchange

This factor focuses on perceived value, where Generation Z seeks a balance between cost and experience, including factors like sustainability, personalization, and community involvement (Wang & Jiang, 2024). In cafés, offering ethical sourcing, customizable options, and loyalty programs can attract and retain this demographic.

In summary, the 4E marketing model offers a comprehensive understanding of Generation Z consumers' behavior when visiting cafés. The factors of Experience, Everywhere, Evangelism, and Exchange are crucial in shaping customer perceptions. As digital natives who value unique experiences, seamless accessibility, social validation, and fair exchanges, Generation Z presents both opportunities and challenges for café businesses seeking to cater to this demographic. Previous studies have shown that cafés that integrate these 4E elements into their marketing strategies are better positioned to attract and retain Generation Z tourists. Therefore, this research aims to further investigate how the 4E marketing model influences café experience among Generation Z tourists in Bangkok, providing valuable insights for businesses seeking to engage this influential group.

4. Research Methodology

This study adopted a quantitative research approach, utilizing a structured questionnaire to collect data from 400 Generation Z tourist, aged 18 to 27, who had previously visited cafés in Bangkok. Data were gathered through an onsite survey conducted at various cafés across the city. The questionnaire was specifically designed to assess the influence of the 4E factors—Experience, Everywhere, Evangelism, and Exchange—on café visitation decisions among Generation Z.

To ensure the reliability and validity of the findings, the questionnaire was structured to capture demographic information, as well as respondent’s behaviors and perceptions related to their café preferences. Descriptive statistics, including mean, standard deviation, and frequency distributions, were used to identify demographics and patterns in the behavior of Generation Z consumers. In the 4E factors section, regarding the decision-making process, respondents were asked to rate each factor on a scale from 1 to 5, where 5 represented the highest influence on their decision-making and 1 represented the lowest**.**

Additionally, inferential statistics, specifically multiple regression analysis, were used to examine the significance of each of the 4E factors on the decision-making process. The methodology incorporated a comprehensive review of relevant theories and prior studies, providing a robust theoretical framework. The research design aimed to offer reliable insights into the factors that shape Generation Z’s café experiences ensuring that the results contribute meaningfully to the existing body of knowledge in the field.

5. Research Results

5.1 Demographics of Respondents

The study reveals that the majority of respondents were female (43%), followed by male (32.8%) and other (24.2%). In terms of age, most respondents were between 25 and 27 years old (47.5%), followed by aged between 22 and 24 years (36.3%), and 16.2% were between 18 and 21 years. Regarding education, the majority held a bachelor's degree (68%), followed by those with postgraduate education (19.3%), and those with education below a bachelor's degree (12.7%) respectively.

When considering occupation, most respondents were employed in private companies (39%), followed by students and entrepreneurs (15.8% each), and government employees (13.3%). In terms of income, the highest

group earned between 20,001–30,000 THB per month (38%), followed by those with 10,001–20,000 THB income (31.8%), and those earning more than 30,000 THB (17.5%) respectively.

The frequency of café visits showed that the majority visited cafés once a week (23.5%), followed by those who visited once a month (20%) and those with other frequency preferences (21.0%). The majority spent less than 100 THB per visit (33%), followed by 101–200 THB (29.5%) and 201–300 THB (22.3%).

Regarding the time spent at cafés, most respondents visited during the evening (after 6 P.M.) (37.0%), followed by between 2 P.M.- 6 P.M. (29.8%), and 10 A.M.–2 P.M. (22.0%). Instagram was the most common source of information about cafés (30.3%), followed by word-of-mouth (22.8%) respectively.

When considering factors influencing café visits, respondents identified themselves as the most influential decision-maker (42.3%), followed by partners (26.5%) and work colleagues (21.3%).

5.2 4E Marketing Model Results

The 4E marketing model was employed to understand how each factor influences Generation Z's decision-making when choosing a café.

Table 1: The results of the mean score and standard deviation of the 4E factors

4E Factors	Description	Mean	S.D.	Meaning
Experience (E1)	Instagram-worthy settings (visually appealing drinks, food, and spaces for photography comfort)	4.26	.777	Highest
	Service quality (friendly and engaging staff)	4.12	.656	High
	Café ambiance (décor, lighting, seating)	4.00	.645	High
Everywhere (E2)	Accessibility (cafés easily accessible by public transport or located in popular areas)	4.18	.825	High
	Online ordering and delivery services	4.07	.614	High
	Strong online presence (active on Instagram, Facebook, etc.)	4.04	.721	High
Evangelism (E3)	Peer influence (positive reviews or recommendations from friends or influencers)	4.27	.757	Highest
	Social proof (decisions based on others' experiences online like Instagram, TikTok, YouTube)	4.18	.635	High
	Café's online reputation (endorsements from influencers or peers)	4.18	.635	High
Exchange (E4)	Loyalty programs and promotions (discounts for repeat customers or reward points)	4.27	.752	Highest
	Exclusive menu offerings (limited-time drinks or special snacks)	4.06	.693	High
	Value for money (price-to-quality ratio)	4.04	.663	High

Table 1 displays the results of a survey evaluating the 4E's marketing factors. Below is an explanation of the table's content: **Experience (E1):** Instagram-worthy settings, preferring cafés with visually appealing drinks, food, and spaces for photography was identified the major determinant in decision-making. The results showed that respondents rated Instagram-worthy settings the highest with a mean score of 4.26 and a standard deviation of .777. Showing that this is crucial for customers. The service quality from staff, earning a mean score of 4.12 and a standard deviation of .656, which is important for ensuring customer satisfaction. Additionally, the decoration of the café is beautiful and interesting, with respondents rating it highly, achieving a mean score of 4.00 and a standard deviation of .645. This indicates that most customers found the café's décor aesthetically pleasing and engaging.

Everywhere (E2): Accessibility and convenience were also highly significant with a mean score of 4.18 and standard deviation of .825. The results showed that most of the respondents preferred cafés that were easily

accessible by public transport or located in popular, easily reachable areas. Furthermore, some of the respondents rated the importance of online ordering and delivery services, and café's strong online presence as high level with a mean score of 4.07 and 4.04 with standard deviation .614 and .721 respectively.**Evangelism (E3):** Peer influence and word-of-mouth marketing were crucial in shaping Generation Z's decisions. The results showed that this factor received the highest rating, with a mean score of 4.27 and a standard deviation of .757. This indicates that respondents were more likely to visit a café if they saw positive reviews or recommendations from friends or influencers they followed on social media. Additionally, many respondents made decisions based on experiences shared by others online, such as Instagram posts, TikTok videos, or YouTube reviews, illustrating the significant impact of social proof on purchasing behavior. Cafés with strong, positive online reputations—particularly those endorsed by influencers or peers—had a notable influence on Generation Z's decision to visit, both receiving an equal score of 4.18 and a standard deviation of .635.**Exchange (E4):** Loyalty programs and promotions received the highest rating in this factor, with a mean score of 4.27 and a standard deviation of .752, indicating that these were considered key drivers for revisiting a café. Additionally, some respondents valued exclusive menu offerings, such as limited-time drinks or special snacks, as important factors that enhanced the perceived value of their café experience, with a mean score of 4.06. The value-for-money aspect was also deemed crucial, with a mean score of 4.04, reflecting a high level of importance placed on the price-to-quality ratio when choosing a café.**Table 2**: **The results of the multiple regression analysis testing the 4E marketing factors that influence the decision to visit a café**

4E Factors	B	Beta	t	Sig	Collinearity Statistics	
					Tolerance	VIF
Experience	.126	.124	2.622	.009*	.557	1.794
Everywhere	2.57	.274	5.761	.000**	.548	1.823
Evangelism	.117	.108	2.151	.032	.494	2.026
Exchange	.346	.340	6.686	.000**	.480	2.082

Note**:** Adjusted R 2 = 0.283, F = 30.872, p 0.000 < 0.05 / The asterisk (*, **) = p< 0.05

Table 2 presents the results of a multiple regression analysis examining the impact of the 4E's marketing factors on the decision to visit a café, focusing on the Experience, Everywhere, Evangelism, and Exchange factors. The analysis indicated that several factors in 4E's marketing model had a statistically significant impact on the decision to choose a café. Key factors identified with high significance include:

- Experience ($p < 0.009$): The creation of a good customer experience strongly influenced the decision to visit cafés.
- Everywhere ($p < 0.000$): The accessibility and convenience of café locations strongly influenced the decision to visit cafés.
- Evangelism ($p < 0.032$): Relationship-building, through recommendations and word-of-mouth, had a moderate but significant impact.
- Exchange ($p < 0.000$): The perceived value for money strongly influenced the decision to visit cafés.

6. Discussion

This section discusses how the findings align with existing literature and how they expand the understanding of marketing strategies in the café industry.

6.1 Experience (E1) and the Need for Unique Experiences

The "Experience" factor emerged as the most significant driver in Generation Z's café decision-making. This aligns with Rudakov (2025), who claims that modern consumers, particularly younger generations, are increasingly drawn to experiential consumption—a preference for experiences over mere product acquisition. Generation Z, being digitally native, places high value on Instagrammable and visually appealing settings, which is supported by Prasanna and Priyanka (2024) who found that social media plays a critical role in shaping consumer behavior. The study confirmed that ambiance, Instagram-worthy aesthetics, and service quality were key influences on Generation Z's café choices, aligning with Holt's (2002) notions that memorable brand experiences are vital for customer engagement.

Moreover, the desire for unique experiences aligns with Kim et al. (2012) argument that hedonic experiences (those linked to pleasure and emotional satisfaction) are central to Generation Z's consumption patterns. The shift toward experiential marketing in the hospitality sector, as highlighted by Prasloranti and Hartati (2024), mirrors Generation Z's preferences for distinct and engaging café experiences.

6.2 Everywhere (E2) and Digital Accessibility

The "Everywhere" element highlights the significance of accessibility, both physical and digital. These findings align with Verhoef et al. (2015), who emphasize the importance of multichannel experiences for engaging modern consumers. In this study, Generation Z tourists in Bangkok preferred cafés that were not only physically accessible but also had a strong online presence. Rudakov (2025) suggests that online visibility, through social media and online reviews, plays a significant role in shaping young consumers' decision-making processes.

Furthermore, mobile technology was pivotal in facilitating decisions, with participants frequently consulting social media and reviews before visiting a café. This finding reflects Rudakov (2025), who observed that social media reviews significantly influence young adults' purchasing behavior in the food and beverage industry.

6.3 Evangelism (E3) and Social Influence

The "Evangelism" factor emphasizes the influence of word-of-mouth and social proof, especially through social media. This study revealed that peer recommendations and influencer marketing were critical in shaping Generation Z's café decisions. Brown et al. (2013) noted that online reviews, recommendations, and social media sharing significantly impact consumer decision-making, particularly for younger consumers who value the opinions of their social network more than traditional advertising. The findings that 70% of respondents were more likely to visit cafés with positive social media reviews.

Generation Z's reliance on peer reviews is also supported by Salam and Pratiwi (2024) who found that user-generated content, such as Instagram posts or YouTube reviews, significantly impacts consumer choices, making them valuable tools for marketers targeting this demographic.

6.4 Exchange (E4) and Value for Money

The "Exchange" factor underscores the perceived value customers receive in relation to their expenditure. This finding supports Zeithaml's (1988) concept of value-based pricing, where consumers evaluate a product or service's worth through their cost-benefit analysis. The study found that Generation Z participants were highly focused on the price-to-quality ratio, expecting value for their money. Kalyva, Kosma, and Skalkos (2024) suggested that price sensitivity is significant for young consumers, though they are also willing to pay a premium for higher-quality experiences. This study confirms that 56% of respondents highlighted value for money when choosing a café, while many were also willing to pay more for exclusive experiences, indicating the trade-off between cost and experience this generation is willing to make.

Additionally, loyalty programs and special promotions were cited as key factors in driving repeat visits, aligning with Aboalganam, Alfraihat, and Tarabieh (2025) research that loyalty programs create emotional connections, increasing the likelihood of repeat patronage.

Also, the results from the multiple regression analysis shed light on the significant marketing factors influencing Generation Z tourists' decisions to visit cafés in Bangkok. The findings suggest that several of these factors have a statistically significant impact on the decision to visit cafés, confirming the relevance of these marketing strategies.

Experience emerged as a key factor in influencing café visits ($p = 0.009$). This indicates that creating a positive and memorable experience in the café, such as an appealing ambiance or excellent service, significantly increases the likelihood of customers returning. This finding aligns with previous research by Meeprom and Kokkhangplu (2025) emphasizing the importance of customer experience in consumer decision-making.

Everywhere, representing the accessibility and convenience of café locations, was identified as the most significant factor with a very strong p-value (< 0.000). The finding indicates that Generation Z values the ease of accessing cafés, underscoring the importance of strategically located cafés that are convenient for customers. This is consistent with current trends where convenience plays a critical role in consumers' choices, especially among younger generations who are accustomed to ease and quick access in their fast-paced lifestyles (Budiman & Radyan, 2021).

Evangelism, referring to the influence of relationship-building and word-of-mouth recommendations, was also significant ($p = 0.032$), albeit with a moderate effect. This indicates that while relationship-building and positive reviews are important, they are secondary to factors like accessibility and value for money. However, the role of social media and personal recommendations in shaping café choices, supported by the study of Riorini and Widayat, (2015) cannot be underestimated, especially for Generation Z, who are highly active on digital platforms.

Exchange, related to the perceived value for money, also emerged as a highly significant predictor ($p < 0.000$). This suggests that Generation Z tourists are highly sensitive to the value they receive in return for the price they pay. This finding aligns with Jiang and Hong (2021) showing that it is particularly important for café operators who need to balance quality with pricing to ensure customers feel they are getting their money's worth. Offering promotions, loyalty programs, or competitive pricing strategies could be effective in attracting this demographic.

These findings collectively suggest that café operators should adopt a comprehensive approach to marketing, focusing not only on the product but also on the overall customer experience, convenience, perceived value, and relationship-building efforts. Generation Z tourists are highly discerning consumers who seek convenience, value, and positive experiences, and their decisions are influenced by both tangible factors (such as price and accessibility) and intangible factors (such as atmosphere and social recommendations).

Furthermore, the findings highlight the growing importance of creating a unique, customer-focused experience in the highly competitive café market. Operators who can effectively combine these factors will be better positioned to attract and retain Generation Z customers, ensuring long-term success in this dynamic market.

The current study addresses factors influencing Generation Z's café visitation decisions, but customer loyalty is not explicitly measured**.** Loyalty could be inferred through behaviors like repeat visits, recommendations, and participation in loyalty programs**.** Evangelism plays a role in fostering loyalty via social media engagement and peer recommendations, while Experience influences loyalty through memorable, positive café experiences**.** To clarify, loyalty could be linked to behaviors such as repeated visits or engagement in promotional activities, offering a clearer connection to the findings**.**

In short, the contribution of this research lies in its exploration of how the 4E Marketing Model—Experience, Everywhere, Evangelism, and Exchange—shapes Generation Z tourists' decisions to choose cafés in Bangkok**.** The study provides actionable insights into how cafés can engage this demographic by focusing on Instagram-worthy experiences and value for money**.** It highlights the importance of being accessible across both physical and digital platforms and leveraging social media to drive customer loyalty**.** This research also contributes to the understanding of how experience-driven decisions and social validation influence Generation Z, offering valuable marketing strategies for businesses in a competitive, experience-driven market**.**

7. Implications of the Study

The findings of this study offer several actionable insights for café operators, marketers, and hospitality industry professionals seeking to attract and retain Generation Z consumers.

7.1 Enhanced Customer Experience

Café managers should prioritize the enhancement of the customer experience by creating aesthetically appealing, Instagram-worthy spaces and offering high-quality, unique products that encourage word-of-mouth promotion. Investment in immersive environments, including innovative décor and personalized services, could significantly increase customer engagement and foster repeat visits.

7.2 Leveraging Social Media

Given the pivotal role of social media in Generation Z's decision-making, cafés should emphasize digital marketing strategies that integrate influencer partnerships, user-generated content, and active engagement on platforms like Instagram, TikTok, and Facebook. Incentivizing customers to share their experiences online can further increase visibility and attract new clientele, tapping into the power of social proof.

7.3 Pricing and Value Perception

To cater to Generation Z's price sensitivity, cafés must deliver an exceptional price-to-quality ratio. Striking a balance between premium pricing and value-driven marketing is essential, ensuring customers feel their

spending is justified by the overall experience. Additionally, implementing loyalty programs and promotions can incentivize repeat visits and foster long-term brand loyalty.

8. Limitations of the Study

While this study provides valuable insights, there are several limitations that must be considered when interpreting the results:

8.1 Sample Limitations

The study focused on a sample of Generation Z tourists residing in Bangkok, which may limit the generalizability of the findings. Preferences and behaviors of Generation Z consumers could vary considerably in different regions or cultural contexts. Future studies should expand the sample to include Generation Z consumers from diverse geographical locations and cultural backgrounds to enable a more comprehensive comparison of behaviors across different settings.

8.2 Cross-Sectional Nature of the Study

This research utilized a cross-sectional design, capturing data at a single point in time. As such, the study cannot provide insights into how consumer behavior may evolve over time. Generation Z's preferences and decision-making processes are dynamic and could change rapidly, particularly with the emergence of new trends. Longitudinal studies would offer deeper insights into the long-term effects of the 4E marketing mix on café visitation behavior.

8.3 Lack of Experimental Approach

The study did not incorporate an experimental design, meaning that causality between the 4E marketing factors and café visitation cannot be definitively established. Future research could benefit from experimental or quasi-experimental designs to provide a more robust understanding of how the 4E factors directly influence consumer behavior in real-world settings.

Ethical and AI Declaration

The IRB, under approval number SIU/FOM 099-2025, granted a waiver of written consent for this minimal-risk, anonymous survey, with informed consent being implied by proceeding past the information page. The authors employed ChatGPT to summarize their personal reading notes and filter articles from Google Scholar for study. All text in the submitted manuscript was written and verified by the authors, with any AI-generated content being thoroughly revised and fact-checked by humans before inclusion.

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Travelling of Generation Z: Theoretical Shift in Tourism and the Need for Strategic Adaptation

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Abstract: The aim of this review paper is to critically analyze and compare traditional and emerging theoretical approaches to the travel behavior of Generation Z as the most recent tourist segment. The analysis will focus on five key domains: motivation, accommodation, marketing communication, values (sustainability), and technological integration. The comparative framework highlights the gap between the product-oriented model (e.g., standardized hotels, mass advertising) and the demand for experiential, ethical, and digitally seamless offerings. The synthesis of findings will result in a proposal for transforming CR from a 'product seller' to an 'experience curator'. This new role requires the implementation of a model based on the experience economy and connectivity (eWOM), which effectively targets the search for authenticity and social validation among young travelers (D'Acunto et al. (2025). The study identifies key directions for future research and recommendations for practice to address this dominant and formative group of travelers.

Keywords: Gen Z; Sustainable Tourism, Attitude-Behavior Gap, Tourism, Digital Natives, Accommodation, Gastronomy, Transportation.

1. Introduction

Since the beginning of the 21st century, tourism has been undergoing a dynamic transformation, driven primarily by digital innovations and the emergence of new generations of consumers. While older tourism models were based on mass production of tours, standardized services, and one-way marketing communication (Buhalis, 2003), the current environment requires personalization, connectivity, and ethical responsibility. This shift creates a significant gap between traditional theoretical approaches and the actual behavior of key consumer groups. Specifically, the behavior of Generation Z (Gen Z), which makes up an increasing share of global travelers, fundamentally undermines the validity of existing tourism management and marketing theories. The need for revision is therefore crucial to ensure the future relevance and sustainability of the entire sector.

2. Purpose and Contribution of the Article

The main objective of the article is to analyze, systematize, and critically evaluate the specific requirements, preferences, and behavior of Gen Z in the context of tourism and, where appropriate, identify contradictions between individual sources of information.

The aims of the study include:

- Defining and characterizing Generation Z based on theoretical approaches in the context of consumer behavior in tourism.
- Systematically analyze the specific requirements of Gen Z for key tourism products and propose their further development for entrepreneurs and destination managers.
- Analyze the suitability of traditional marketing approaches for communicating with Gen Z.
- Identify opportunities for further development of tourism in the context of Gen Z requirements.

3. Methodology

The methodology is based on a systematic review and synthesis of relevant academic literature without generating primary data. First, the research design was developed, and the review approach was chosen, focusing on a theoretical and analytical synthesis of knowledge from the fields of marketing, tourism management, and purchasing behavior.

Secondary data were obtained from relevant, internationally recognized academic databases: Scopus, Web of Science, EBSCOhost (especially Business Source Complete and Hospitality & Tourism Complete), and ProQuest. A combination of keywords and phrases was used for the search, including: "Generation Z," "sustainable

tourism," "attitude-behavior gap," "low-cost carriers," and "digital natives." The study primarily included peer-reviewed academic articles, chapters in edited books, and relevant theoretical works (e.g., Generational Theory) published between 2018 and 2025, reflecting the current characteristics and entry of Gen Z into the market.

Thematic analysis and synthesis were used, with relevant literature first grouped into thematic units (accommodation, food, transportation) based on the key requirements of Gen Z. Subsequently, a critical analysis of contradictions (e.g., the environmental gap paradox and the choice of LCC) was conducted.

The output of the study is a conceptual framework of Gen Z behavior in tourism, identification of the main barriers (price, comfort, influence of social media), and recommendations for practice and identification of theoretical gaps that serve as suggestions for future academic research.

4. Outputs

4.1 The Importance of Researching Generational Differences

Understanding the differences between generations is an important task for analyzing consumer behavior in tourism. The results of these analyses then represent an important strategic tool for the development of the entire sector (Dolnicar, 2012). In the context of a dynamically changing market and technological progress, it is necessary to segment the market with regard to the demographic and psychosocial characteristics of demand in order to properly understand customers and target the right products. Kotler et al. (2019) deal with segmentation and its impact on marketing, including individual segmentation criteria Other authors differ slightly in their perception (eg., Wedel & Kamakura, 2000; Jobber & Ellis-Chadwick, 2020).

In addition to the above-mentioned, theoretical approaches use segmentation criteria that reflect fundamental social and cultural shifts (Gursoy et al., 2008). It is common to differentiate according to customer generations. Generational Theory (Strauss & Howe, 1991) is considered the basic theory that analyzes these shifts. This theory is often referred to as the theoretical basis for most generation-based marketing. In the context of tourism, the work of Gursoy et al. (2008) examine the differences between Baby Boomers, Gen X, and Millennials in tourism. Prensky (2001) also presents a generational divide and introduces a key distinction between Digital Natives and Digital Immigrants. The significance of this theory lies in understanding how technology divides younger and older generations and what consequences this division has for marketing and tourism in general. A frequently cited source for classifying generations by year of birth is the standardized and widely accepted definition of segmentation variables by the Pew Research Center (2018), which is often adopted by marketing and sociological research (e.g. Bhardwaj et al., 2020;, Cennamo & Slatten, 2019). Distinguishing consumers based on generations is justified by the assumption that individuals share a consistent set of values, attitudes, and consumer preferences (Schewe & Meredith, 2004).

Generational segmentation can provide deeper insights into consumer behavior, travel motivation, destination selection, preferred booking channels, and expected services, enabling businesses to create targeted and relevant products (Reisenwitz & Iyer, 2009). Currently, researchers' attention is shifting to the youngest adult generation entering the labor market and becoming financially independent: Generation Z (Gen Z). Its growing economic power and unique characteristics, influenced by the digital era, necessitate a detailed study of its specific demands on tourism. The above-mentioned Pew Research Center (2018) classification is the basis for one of the influential studies focused directly on Generation Z, which deals with the fact that Gen Z perceives sustainability and future trends in tourism (Williams et al., 2019). Varies in preferring booking platforms and expectations of hospitality services and influence of the digital environment on its decision-making process (Kaur & Gurbuz, 2020) and in their behaviour and attitude to sustainable travel and ethical consumption (Bolton et al., 2020).

4.2 Analysis of the Specific Characteristics and Behavior of Generation Z in the Context of Tourism

For the purposes of this article, it is necessary to define the specifics of the generations likely to significantly change the market in the future, as observed in the authors' practical experience. Generation Y are customers born approximately between 1980 and 1995. They are characterized by early adoption of digital technologies (Tóth-Kaszás, 2018), an emphasis on experiences (Gopaldas, 2018), including those less common for earlier generations (Marton et al., 2020), and the development of the sharing economy (Pine & Gilmore, 1999; Botsman & Rogers, 2010). Travel is a means of self-realization and a desire for a flexible lifestyle. 1999; Botsman & Rogers, 2010). Travel is a means of self-realization and a desire for a flexible lifestyle. Generation Z are customers born

approximately before (Prensky, 2001). The same author adds that the primary feature of this generation is that it is the first generation of digital natives, having grown up with extensive access to the internet, mobile devices, and social media. This generation is characterized by value-oriented travel, strong environmental and social awareness, and a high dependence on user-generated content when making decisions (Pew Research Center, 2018).

4.3 Gen Z Approaches to Travel and Tourism

Gen Z does not separate the digital and physical worlds, which fundamentally influences the entire travel cycle from inspiration to sharing. Destination selection is strongly influenced by visual platforms such as Instagram and TikTok rather than traditional text searches (Bhardwaj et al., 2020). They often perceive travel as a form of social capital, with the goal of gaining experiences "worth sharing" (Seemiller & Grace, 2016). Constant and fast Wi-Fi/mobile connectivity and a digital booking process are a must (Kaur & Gurbuz, 2020). Gen Z puts greater emphasis on reviews, videos from real travelers, and recommendations from influencers. Traditional promotional materials are less important.

Compared to millennials, Gen Z is considered more pragmatic and financially cautious, often seeking discounts and optimizing costs (Jobber & Ellis-Chadwick, 2020). They often choose cheaper forms of accommodation (hostels, shared accommodation such as Airbnb), which also offer them social interaction and authenticity. They prefer functionality and design over traditional luxury (Kaur & Gurbuz, 2020) and see travel as an investment in experiences and personal development, rather than rest or luxury (Gopaldas, 2018). For that reason this generation may prefer lesser-known destinations or parts of them (Williams et al., 2019). Their attitude shows increased sensitivity to the sustainability and ethical behavior of entrepreneurs (Halibas et al., 2025) but with a discrepancy between declared attitudes and actual behavior (Bolton et al., 2020). Their high price sensitivity may force them to choose cheaper, less sustainable options (e.g., low-cost airlines).

4.4 Specifics of Gen Z's Accommodation Requirements

Gen Z perceives accommodation as part of the experience. It is typical for them to seek unique, often authentic accommodation (Wang & Yotsui, 2021), which is more desirable than the standardized luxury of multinational hotel chains (Kim & Ritchie, 2014) with predictable comfort, greater number of passive services and requiring reservation systems and reception (Pesonen et al., 2015; Horváth et al., 2025) . For these consumers, alternative accommodation (Airbnb, hostels, Couchsurfing, glamping) and seamless digital processes (booking, check-in, check-out) are adequate (Botsman & Rogers, 2010) . Wi-Fi connection is a matter of course, and its absence is unacceptable (Ding et al., 2023). Alternative accommodation offers Gen Z members the opportunity to achieve affordability, engage in social interaction, and access local knowledge (Guttentag, 2019). Ensuring digital accessibility is not an additional service, but an integral part of the experience (Gretzel, 2018). Accommodation serves as an entry point into the local culture (Petruzzi et al., 2023). When staying in hotels, they look for spaces to socialize and work, turning the hotel into a community hub (Wang & Yotsui, 2021).

To succeed with Gen Z, enterpreneurs must transform their product by converting their common areas (e.g., lobbies) into flexible, community, and co-working zones with perfect connectivity, which is essential. The offer should shift from accommodation to an experience package with seamless digital ordering. It is necessary to invest in technologies such as mobile check-in, communication via apps, and personalized digital guides. It is important to create "Instagrammable" places and details in the accommodation. Accommodation operators should make their space aesthetically appealing and shareable.

Tourist destinations need a fundamental review of investment, marketing, and legislative approaches, particularly in the area of the massive increase in short-term rentals, which can lead to housing affordability issues and disruption to local communities (Guttentag, 2019). DMOs can propose legislative integration of the sharing economy into the tourism ecosystem rather than simply suppressing it. Given Gen Z's preferences, destination organizations should not only promote luxury resorts, but also unique, local, and themed accommodation options.

4.5 Specifics of Gen Z's Dietary Requirements

Gen Z customers perceive dining as a key part of an authentic experience, shifting it from a necessity to a cultural and ethical experience (Kim & Ritchie, 2014). There is a clear shift away from eating in hotels and a preference for street food and local markets. Gastronomy is a way to learn about local culture (Kolar & Zabkar, 2010).

They actively avoid tourist traps and international chains, preferring authentic family businesses, local markets, and street food, and experiencing real local culture (Sheoran, 2025). The search for authentic dishes is one of the key manifestations of their demand (Kılıç et al., 2021). Taste alone is no longer enough; customers demand knowledge of the origin of ingredients, food preparation technology, and the story behind the dish (Nurhasanah et al, 2025); Li et al., 2017).

Gen Z customers are increasingly demanding vegan/vegetarian dishes and are interested in the local origin of ingredients (Souto-Moutinho et al., 2020), often for ethical or health reasons (Bobe et al. , 2025). Theyhave high environmental and social awareness and require businesses to demonstrate a commitment to sustainability (Agrawal et al, 2023). The dish must be aesthetically appealing (i.e., "Instagrammable" or "TikTokable"). The plating of the dish and the atmosphere of the establishment are as important as its taste. The dish is key content for sharing and eWOM, which have become the main source of inspiration for choosing a place (Langaro et al., 2018b).

These customers expect seamless digital experiences—from fast and intuitive online reservations to digital menus and easy mobile payments (Ozdemir-Guzel & Bas, 2021). They also prefer flexible delivery and takeaway options that they can easily integrate into their non-linear lifestyle (Arunan & Crawford, 2021). Gen Z trusts reviews, recommendations from friends, and influencers on social media more than traditional marketing communications. Visual inspiration from TikTok and Instagram can often be the trigger for visiting a particular establishment. A new business development opportunity is the certification of food establishments not only for product quality but also for local and sustainable certifications (Wearing, 2018).

Destination management may focus on actively promoting authentic, non-touristy dining spots (such as markets and small family businesses) rather than supporting international chains, as Gen Z perceives local businesses as key to a destination's authentic image (Jiang et al., 2025; Zaim et al., 2024).

4.6 Specifics of Gen Z's Transportation Requirements

Gen Z actively considers the environmental and social impact of their transportation instead of speed and luxury (Ma et al., 2024). Their demand for transportation is complex and involves a compromise between three conflicting pressures: ethics, price, and digital fluidity. Although they are willing to pay prime for experiences, regarding transportation, they are often price-sensitive and prefer smart solutions (Robinson & Schänzel, 2019). Sustainability and social impact are two of the main factors in choosing a mode of transport and often a carrier (Souto-Moutinho et al., 2020), leading to higher demand for rail and bus transport (Dolnicar & Grün, 2008). This idea is also supported by the literature-defined shift of Gen Z away from car ownership and significant use of the sharing economy (Botsman & Rogers, 2010). When traveling within a destination, especially in cities, they use micro-mobility options (shared bikes, electric scooters, public transport) perceiving them environmentally friendly and flexible (Kolar & Zabkar, 2010).

Gen Z's high digital autonomy enables dynamic and non-linear transportation decisions and last-minute bookings using mobile apps (Tien et al., 2021). They use apps for last-minute planning and dynamic route management (Tien et al., 2021). Customers expect to be able to purchase mobile tickets, check in digitally, and make contactless payments (Chourasia, 2024). During their journey, they require Wi-Fi and real-time information about delays, routes, and transfers to be available on their mobile phones. The absence of connectivity during travel is considered unacceptable (Tien et al., 2021). They also clearly prefer ground transportation over short and medium-haul flights (Souto-Moutinho et al., 2020). Despite ethical reservations, low-cost airlines remain popular with Gen Z due to their affordability. However, the choice is often influenced by overall value and convenience (e.g., flexibility to change dates), not just price. This phenomenon has been addressed by numerous authors, e.g., Chowdhury, Ahmed & Sreejesh (2024), García, Jiménez & Osorio (2022), Kossyva et al. (2024), Teng et al. (2022).

Carriers can respond to Gen Z behavior with transparent communication and activities that lead to carbon footprint compensation (CSR activities) (Souto-Moutinho et al., 2020; Wearing, 2018)). Transport operators' communication should be digital and take place via social media through short dynamic videos (Langaro et al., 2018a) emphasizing the environmental benefits of traveling by train or bus. As Gen Z expects seamless digital processes from transport (Trihas et al., 2023). It is therefore necessary to invest in digitalization, online booking, mobile tickets and train staff in the use of digital tools.

DMOs need to support investment in infrastructure development and to communicate rail and bus networks as attractive and environmentally friendly alternatives to air or individual transport. At the same time, support for

micromobility (shared bikes, scooters) in cities is also relevant. The transportation must be easy to plan and dynamic. Destinations, cities and municipalities must support unified applications that offer public transportation, car-sharing, and shared scooters on a single platform (Salsabila & Prasetya (2023).

4.7 Specifics of Marketing Product Management for Gen Z

Traditional marketing and segmentation models (4Ps by McCarthy, 1960, extended by Booms & Bitner, 1981 for service sector), although theoretically consistent, fail to grasp the complex motivations and non-linear purchasing process of the younger generation. focuses on control over the product and other traditional parts of the marketing mix. In this approach, the customer is a passive recipient of the offer (Kotler, 2017).

Gen Z customers perceive their participation in tourism as a project of self-realization (Tussanee & Yutana, 2014), not just a product and rely on new forms of communication and sharing, such as eWOM and UGC, which makes the traditional marketing concept debatable (Chung & Koo, 2015). Lack of connectivity is considered unacceptable, underscoring the finding of the need for of the fully digital integration of the traditional marketing (Gretzel, 2018).

Traditional segmentation models are often narrowed down to demographic segmentation (age, income), but Gen Z is primarily driven by values such as environmental and social impact. This generation is price-sensitive, but paradoxically willing to pay extra for a unique and valuable experience (Tie et al., 2021), which disrupts basic segmentation models (e.g.Loureiro et al., 2021;Souto-Moutinho et al., 2020).

5. Conclusions

The theoretical foundations for understanding Gen Z travel are rooted in models that emphasise experience, community, and digital connectivity. A comparative analysis has confirmed that key traditional theoretical approaches to tourism management (TM), which were dominant in the pre-2000 era , are failing in the Gen Z era. There is a strong shift from services to experiences. Travel is becoming an opportunity for personal growth. The future lies in the demand for authentic, meaningful experiences and for immersion in local culture. Young travelers actively seek out activities with a "wow" effect and photogenic potential, necessary for sharing and social validation (Schmitt, 2003). A significant use of the sharing economy with an emphasis on collaboration, trust, and efficient use of resources through platforms (e.g., Airbnb, Couchsurfing) allows them to reject standardized hotels and all-inclusive resorts and is a direct consequence of their preference for experiences and authenticity over conventional luxury . A theoretical transformation of the role of the provider from a "product seller" to an "experience seller" is essential for future success in tourism. This means selling authentic and local experiences , using the sharing economy to promote interaction, communicating sustainability transparently, and creating conditions that automatically generate high-quality and shareable content.

An analysis of the literature reveals a discrepancy between opinions on ideal travel and the reality that often stems from a lack of finances, especially in the area of transportation. This fact is referred to in theory as the environmental gap (Ștefănică et al., 2023), which already appeared among Millenials (Sherrington, 2023) D'Acunto and Filieri (2021) examined Gen Z's behavior on the internet and found that elements of sustainability appear less than expected in their online discussions. Hult et al. (2025) also agree with this view.

although Gen Z's environmental values are high, direct behavior (e.g., choosing eco-friendly transportation and accommodation) is often blocked by low perceived control (García, 2022), i.e., the feeling that their efforts will not make a difference, or a lack of available and affordable sustainable options. The biggest barriers are price and lack of information about sustainable alternatives (Kossyva, 2024) . Gen Z has strong *intentions* to travel sustainably, but these intentions often fail due to practical/financial constraints. Although social media can increase environmental awareness, the pressure to share and the "Instagrammability" of travel can lead to the choice of less sustainable yet visually appealing experiences, thereby widening the gap (Simao & Al-Nahyan, 2022).

These theses are also supported by the work of Chowdhury et al. (2024), which addresses the paradox of *flygskam* (flight shame) among Gen Z in relation to environmental issues: Low-cost airlines minimize guilt by offering the perceived "cheapest available" option, which helps Gen Z justify their choice despite environmental concerns. Joshi and Singh (2023) confirmed the significant gap: low-cost airlines remain preferred because they are perceived as the only affordable option for gaining travel experiences shared on social media. Comfort and low price are strong barriers to the intention to travel sustainably (Teng et al., 2022).

The key identified causes of the gap in tourism stem from the discrepancy between Gen Z's attitudes and behavior, primarily caused by a combination of several factors: (1)price sensitivity, where it was found that for Gen Z, price (cheap tickets, cheap accommodation) is often a more important factor than the sustainability of the destination or transport; (2) sustainable travel is often more time-consuming and less comfortable, which Gen Z, with their limited time and desire for flexibility, does not prefer ; (3) the desire to travel for social media content outweighs environmental concerns, leading to overtourism and fast travel .

Based on the findings, the following directions for future academic research are proposed:

1. Focus on quantifying authenticity and developing a reliable scale for measuring Immersion Score, which would allow businesses to standardize the measurement of experience value beyond mere service satisfaction.
2. Research the effectiveness and profitability of hybrid accommodation models (a combination of hostels, co-working zones, and hotel rooms) that Gen Z seeks. Based on the results, it should be possible to determine the optimal ratio between private and community spaces to maximize their satisfaction and the financial sustainability of accommodation facilities.
3. Segmentation based on the Traveler's Ethical Code (TEC): Move away from segmentation based solely on demographics (age/income) to a new segmentation model based on the traveler's ethical code (e.g., low vs. high willingness to offset CO2, preference for local vs. mass tourism)4. Conducting an empirical study quantifying the direct influence of TikTok and Instagram content on destination choice.
4. Measuring the willingness of the younger generation to pay a premium price for demonstrably sustainable services.
5. Using advanced structural modeling methods to quantify how strongly variables such as "perceived behavioral control" and "sharing pressure" moderate or mediate the relationship between environmental attitudes and actual sustainable behavior 7. Potential for positive use of social media pressure - verifying the degree of influence of users' sustainable choices on perceived social validation.
6. Geographical and cultural comparison: Comparative studies of Gen Z behavior in emerging markets with different economic barriers, family influences, and different approaches to digital platforms, are needed.

Given the identified gap, it is particularly appropriate to address the following research opportunities.

1. To model and quantify, using advanced methods, Gen Z's willingness to pay for specific sustainable attributes and to determine how strongly social validation pressure and perceived behavioral control moderate the relationship between environmental attitudes and the choice of, for example, a low-cost carrier.
2. To design and experimentally test the impact of changes in the digital environment (e.g., booking platforms). Specifically, it should be verified whether setting sustainable choices as the default/standard option can effectively overcome Gen Z's price sensitivity and comfort barrier when deciding on transportation and accommodation.
3. Comparative studies across different cultural regions to reveal how different economic and social factors influence the justification of choosing less sustainable options and how Gen Z's internal mechanisms for minimizing guilt differ in different market environments.

Ethics Declaration

The ethical clearance was not required for the research.

AI Declaration

Generative AI tools were not used to generate the text of this article.

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Leveraging European Health Data Space (EHDS) for Safer and Smarter European Travel

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Abstract: Health tourism is rapidly expanding, driven by the demand for high-quality medical and wellness services across borders. This growth introduces complex challenges related to data security, interoperability, and trust. The European Health Data Space (EHDS) aims to create a unified framework for secure health data exchange within the EU, offering significant potential to enhance safe and smart health tourism. This study develops a theoretical foundation through a multi-case approach (three cases) to examine how EHDS can be leveraged in this context. Data were collected through document analysis, semi-structured interviews, and participant observation. Qualitative content analysis and triangulation were used to ensure reliability. The findings highlight that technical interoperability alone is insufficient; robust cybersecurity and continuous professional education are essential for building trust and resilience. Furthermore, innovation clusters emerge as key enablers, fostering collaboration between healthcare providers, technology firms, and educational institutions. The study concludes by identifying research gaps and proposing future directions, including empirical evaluation of EHDS implementation, IoMT security and the impact of competence development initiatives. By integrating technology, policy and education, Europe can establish a secure and patient-centric digital health ecosystem that supports sustainable growth in health tourism.

Keywords: European Health Data Space, XiA Project, Digital Health, Traveler Trust, Health Tourism, Case Study

1. Introduction

The European Health Data Space (EHDS) aims to create a unified and secure health data ecosystem that supports cross-border care and the development of digital health services (Marcus *et al.*, 2022). At the same time, health tourism is growing at over 10% per year from 2023 to 2032 (Allied Market Research, 2023), increasing the need for seamless data exchange and strong cybersecurity (Rajamäki *et al.*, 2025). Technological solutions such as the Apotti–Maisa–Kanta systems and IoMT devices offer new opportunities, but their effective and secure use requires competence development and user-centered practices (Valvira, 2025). The XiA project addresses this need by developing microcredential-based training solutions that support EHDS implementation (XiA, 2025).

This multi-case study examines how EHDS can be leveraged to promote safe and smart health tourism and explores the role of clusters and competence development in this transformation through three complementary cases that offer different perspectives. The research questions (RQ) are: *'How can the European Health Data Space (EHDS) be leveraged to promote safe and smart health tourism? How is the role of clusters, ecosystems, and competence development conceptualized within this transformation?*

2. Theoretical Framework Through Literature Review

This literature review constitutes the first phase of the multi-case study, aimed at developing a theoretical framework (develop theory) to understand the phenomena under investigation. The review synthesizes key concepts related to the European Health Data Space (EHDS), health tourism, digital health technologies, cybersecurity, competence development and the role of clusters in digital health ecosystems. This theoretical foundation guides the subsequent case analysis and explains why the selected research questions are relevant.

2.1 Health Tourism and Cybersecurity

Health tourism has emerged as one of the fastest-growing segments of the global tourism industry, combining medical and wellness services with travel experiences. It encompasses both medical tourism—focused on clinical interventions such as surgeries, diagnostics and fertility treatments—and wellness tourism, which emphasizes holistic well-being through activities such as spa therapies, yoga and nature retreats (Carrera and Bridges, 2006; Dini and Pencarelli, 2022). The increasing digitalization of health services and the need for cross-border data exchange have become central to the development of health tourism. However, these advancements introduce significant cybersecurity challenges that must be addressed to ensure patient safety and customer trust (Huang *et al.*, 2023; Selvakumar & Lokesh, 2024).

Health tourism operates at the intersection of healthcare and travel, creating complex data flows that involve sensitive personal and medical information. The integration of Electronic Health Records (EHR) and Internet of Medical Things (IoMT) devices enhances continuity of care and patient experience, but simultaneously expands the attack surface for cyber threats (Stainton, 2022; Global Wellness Institute, 2024). Cybersecurity is, therefore, a critical enabler of trust in health tourism. According to López (2024), the primary risks include: 1) Data breaches and leaks, which can lead to identity theft and financial fraud. 2) Ransomware attacks, where critical health data is encrypted and held for ransom. 3) IoMT vulnerabilities, as connected medical devices transmit real-time health data and are susceptible to hacking and interception.

General Data Protection Regulation (GDPR) imposes strict requirements for data protection. It requires secure communication channels, encryption and harmonized consent management to safeguard patient privacy (Bradford, Aboy and Liddell, 2020). Building trust in health tourism requires a multi-layered approach that combines technical measures—such as advanced encryption and secure data transfer—with organizational strategies, including staff training and comprehensive cybersecurity policies aligned with international standards.

2.2 EHDS and Cross-border Healthcare

The European Health Data Space (EHDS) was established to create a secure and unified framework for the use of health data across the European Union. Its primary objectives include enabling individuals to access and manage their electronic health data, supporting continuity of care across borders and fostering secondary uses of health data for research, innovation and public health preparedness (European Commission, 2025b). EHDS aims to strengthen the EU's internal market by harmonizing legal and technical requirements for electronic health record (EHR) systems (European Parliament, 2025). This directly supports cross-border healthcare and health tourism by ensuring that patient summaries and prescriptions are accessible in other EU member states (European Commission, 2025a).

EHDS operates within a broader regulatory ecosystem that establishes the legal and technical foundations for secure health data exchange across the EU. Its key component is GDPR, which governs the protection of personal data and significantly influences cross-border data transfers (EDPS, 2025). The electronic identification and trust services (eIDAS) Regulation, as a complement to GDPR, ensures secure electronic identification and trust services, enabling reliable authentication in health data transactions. MyHealth@EU represents the first practical implementation of EHDS principles, providing essential services such as electronic prescriptions and patient summaries to support continuity of care across borders (European Commission, 2025b).

Interoperability constitutes a cornerstone of EHDS implementation. Within this framework, the European Electronic Health Record Exchange Format (EEHRxF) plays a central role, incorporating recommended standards such as Health Level Seven (HL7) Fast Healthcare Interoperability Resources (FHIR) and Integrating Healthcare Enterprise (IHE) profiles to enable secure and seamless cross-border health data exchange ('EHDS - HL7 Europe', 2024). Given the sensitivity of health data, EHDS emphasizes robust cybersecurity measures and ethical principles to maintain trust among stakeholders (European Parliament, 2025). This is particularly relevant for health tourism and the use of Internet of Medical Things (IoMT) devices, where secure data flows are essential for patient safety.

EHDS harmonizes consent management across member states in compliance with GDPR. Patients must have transparent control over their data, including the ability to grant or revoke consent for secondary uses. Despite its benefits, EHDS faces challenges such as linguistic diversity, varying national legislation, and technological disparities. However, it also presents opportunities to enhance travel safety, support service innovation, and improve healthcare continuity for mobile EU citizens.

The Xt-EHR (Extended EHR@EU Data Space for Primary Use) project lays the foundation for implementing the European Health Data Space (EHDS), particularly for the primary use of health data (Xt-EHR, 2025). The primary objective of the project is to ensure that EU citizens can securely and seamlessly access and utilize their electronic health records across different Member States, thereby supporting the vision of EHDS and promoting the development of digital health in the EU. Table 1 contains excerpts from definitions produced by the project, intended to promote shared understanding.

Table 1: General definitions (Carradinha, *et al.*, 2025)

Term	Definition
Cross-border eHealth services	Cross-border eHealth services refer to the services that can be exchanged through the MyHealth@EU infrastructure, which in 2024 supports the Electronic Prescription and Dispensation, and Patient Summary. The next services planned to become available include: Laboratory Results Report, Medical imaging studies and reports and Hospital Discharge Report.
Cross-border healthcare	Healthcare provided or prescribed in a Member State (MS) other than the MS of affiliation.
Cross-border Telemedicine	Refers the delivery of health care services using Information and Communication Technologies (ICT), where patients and health providers are located in two different countries.
Teleconsultation	A form of remote medical consultation in which health professionals use ICT to provide clinical advice, diagnosis, or treatment to patients or other healthcare providers at a distance. This can include real-time (synchronous) consultations using video or audio links or store-and-forward (asynchronous) methods, where medical data, such as images or patient records, are shared for later review and response.
Electronic Prescription (eP)	Electronic health data constituting a prescription for a medicinal product. A prescription means a prescription for a medicinal product or for a medical device issued by a member of a regulated health profession within the meaning of Article 3(1)(a) of Directive 2005/36/EC who is legally entitled to do so in the MS in which the prescription is issued.
MyHealth@EU	MyHealth@EU is a common EU digital infrastructure designed to ensure secure and efficient connectivity and interoperability among MSs to support crossborder healthcare. Therefore, it enables natural persons to share their personal electronic health data with healthcare providers while traveling abroad, ensuring continuity of care.
Interoperability	Ability of organisations as well as software applications or devices from the same manufacturer or different manufacturers, to interact through the processes they support, involving the exchange of information and knowledge, without changing the content of the data, between these organisations, software applications or devices.

The successful implementation of EHDS and the secure integration of digital health technologies in health tourism depend not only on technical interoperability but also on the development of human competencies. Digital transformation in healthcare introduces complex socio-technical challenges that require multidisciplinary expertise. Professionals must navigate regulatory frameworks such as GDPR and EHDS, implement secure data exchange protocols, and manage emerging technologies like IoMT and AI-driven diagnostics. These demands necessitate continuous professional development and flexible learning pathways tailored to diverse roles, including clinicians, IT managers, and administrative staff (Tavares, Sousa and Proença, 2024). From the perspective of the tourism business, the secondary use of health data can provide significant added value in several ways, provided that it is carried out in accordance with the EU's EHDS framework and data protection legislation (Vovk *et al.*, 2025).

2.3 Clusters and Digital Health Ecosystems

The concept of clusters, popularized by Porter (1998), refers to geographically proximate groups of interconnected companies, institutions and organizations operating within a specific field. Clusters enhance productivity, stimulate innovation and facilitate new business formation through localized externalities such as knowledge spillovers, shared infrastructure and specialized labor pools (Andersson *et al.*, 2004). Building on Porter's (1998) framework, contemporary cluster theory emphasizes systemic interaction among multiple actors—industry, government, academia and civil society—captured in the Quadruple Helix model (Carayannis, Barth and Campbell, 2012). This model extends the traditional Triple Helix (university–industry–government) by incorporating citizens and end-users as active participants in innovation processes. In digital health ecosystems, this inclusion is critical for ensuring patient-centric solutions and fostering trust in technologies such as EHDS and IoMT. However, clusters are not static entities; they evolve through life cycles encompassing embryonic, growth, maturity, and transformation stages (Teräs, 2008). Their sustainability depends on adaptability, critical mass and openness to global knowledge flows—concepts equally relevant to health data ecosystems that must integrate cross-border interoperability and cybersecurity standards.

Clusters function as innovation orchestrators, aligning technological development with educational initiatives and service delivery. Teräs (2008) highlights that successful clusters exhibit strong leadership, social capital and strategic management, enabling them to mobilize resources and coordinate diverse actors. Digital health must be examined through a sociomaterial approach, in which technology and social practices are seen as inseparably intertwined (Marent and Henwood, 2023). These attributes translate into: 1) Innovation: Development of secure

EHR systems, IoMT devices, and AI-driven diagnostics. 2) Education: Competence-building through modular learning frameworks such as XiA's Micro-Content Learning Blocks (MCLBs), aligned with EQF and ECSF standards. 3) Service Development: Integration of health tourism offerings with digital health infrastructures, ensuring continuity of care and data security across borders. The interplay between these dimensions creates a socio-technical ecosystem where technology and human capacity co-evolve. Clusters provide the structural conditions for this convergence by facilitating partnerships among healthcare providers, technology firms, universities and policy-makers.

2.4 Theoretical Synthesis

EHDS serves as a cornerstone for secure and interoperable health data exchange across borders, yet its successful implementation requires a multidimensional approach that goes beyond technical compliance. While interoperability standards provide the structural basis for cross-border care, they cannot alone guarantee trust or resilience in digital health ecosystems. Cybersecurity must be embedded as a systemic prerequisite, ensuring that sensitive health data remains protected throughout increasingly complex care pathways. Equally critical is competence development, which functions as a strategic enabler for sustainable transformation. Furthermore, innovation clusters act as systemic facilitators, orchestrating collaboration among healthcare providers, technology firms and educational institutions to accelerate the integration of EHDS principles into practice. Examples include Nordic Health Cluster and European Connected Health Alliance, which leverage the Quadruple Helix model to foster co-creation and knowledge exchange (Carayannis, *et al.*, 2012). By aligning technology, policy and education, Europe can establish a secure, patient-centric digital health ecosystem that supports the growth of health tourism while safeguarding trust and compliance.

3. Applied Multi-Case Study Approach

This study employs a multiple case study methodology with abductive reasoning, as illustrated in Figure 1.

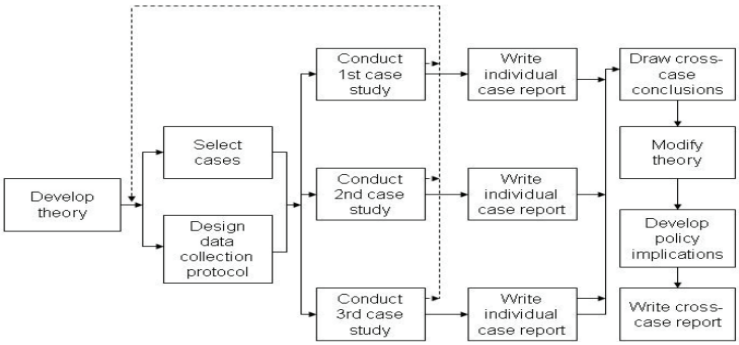


Figure 1: Case study method of this study (adopted from Yin, 2018).

3.1 Justification for Case Selection

The selection of cases is based on the research objectives, the theoretical framework, and Yin's (2018) logic for multiple case studies. The main goal of this study is to examine how Finland's digital health ecosystem supports cross-border care pathways from the perspective of the European Health Data Space (EHDS) and cybersecurity. The chosen cases represent key dimensions of the ecosystem and provide complementary perspectives:

- Case 1 'Health tourism to Finland and the importance of cybersecurity': Finland is an attractive destination for health tourism, which creates a need to examine patient data transfer, IoMT technologies, and cybersecurity. This case was chosen because it combines healthcare and tourism perspectives and highlights the role of cybersecurity in building trust.
- Case 2 'The Apotti–Maisa–Kanta ecosystem and continuity of care for Finnish travelers': This case focuses on the technical infrastructure and its role in cross-border data exchange. It was selected because Apotti–Maisa–Kanta forms the core of Finland's digital health ecosystem, and its interoperability with EHDS is critical for travel safety and continuity of care.
- Case 3 'The role of the XiA project in developing skills and interoperability': The XiA project was selected because it provides a strategic perspective on harmonizing education and skills at the EU level. The project supports EHDS implementation and cross-border data exchange by developing

microcredential-based training modules.

The selected cases follow Yin's (2018) principle of theoretical replication: they are not random but chosen to offer different yet complementary perspectives on the research problem. This approach enables the use of pattern matching, explanation building and cross-case synthesis methods, thereby strengthening the validity of the study.

3.2 Units of Analysis

Before proceeding to the case study analysis, it is necessary to clarify which phenomena are examined in this research. According to Yin (2018), the selection of an appropriate unit of analysis derives from accurately formulated research questions. In this study, the unit of analysis is Finland's digital health ecosystem within the context of health tourism. This ecosystem comprises several interconnected elements: the Apotti system (social and healthcare information system), the Maisa portal (customer interface and consent management), the Kanta services (national health data management and EU integration), health tourism practices in Finland (medical and wellness tourism), cybersecurity solutions (including EHR, IoMT, and data transfer), and XiA's training strategies for competence development in EHDS implementation. The unit of analysis is not a single system, such as Apotti, but rather an integrated whole where technical infrastructure, services and the operational environment converge. This approach enables a multidimensional examination encompassing technology, data protection, cybersecurity and education; situates the analysis within a cross-border context through EHDS integration and travel safety; and provides practical insights by positioning Finland's model as an example for EU-level implementation.

3.3 Sources of Evidence and Analysis Methodology

Yin (2018) identifies six key sources of evidence for case studies: documents, archival records, interviews, direct observation, participant observation and physical artefacts. He emphasizes the importance of using multiple sources to achieve triangulation. In this study, data were collected and analysed partly through different methods across the cases (see Table 2). However, these methods complement each other: documentary sources formed the primary basis, which was supplemented in various ways in each case, and the documentary material consisted mainly of sources from 2025.

Table 2: Case Studies' Methods and Data Sources

Case	Objective and Method	Data Collection	Analysis Methods	Justification
Case 1: Ensuring cybersecurity in Finland's health tourism	Integrating cybersecurity into health tourism education in multidisciplinary higher education; focus on practical solutions	Individual case report available: Rajamäki, J. et al. (2025)		Multidisciplinary perspective and triangulation ensure reliability
Case 2: Apotti–Maisa–Kanta ecosystem as a model for cross-border interoperability	Examining how the ecosystem supports continuity of care for Finnish travelers abroad via EHDS	*Documents*: Official documentation of Apotti, Maisa, and Kanta (integration architecture, FHIR standards, MyHealth@EU): EHDS guidelines and EU interoperability standards: GDPR and eIDAS requirements *Direct observations:* author's experience in SOTE IT integrations	*Pattern matching*: EHDS objectives vs. current state *Explanation building:* technical solutions (FHIR, eIDAS, Kanta) *Triangulation*: documents + expert observations	Feasible within timeline; leverages existing documentation and expert knowledge
Case 3: XiA Project and its role in Finland's digital health ecosystem within the context of health tourism	Strategic perspective on harmonizing EHDS-related education and skills at the EU level	*Documents*: XiA project deliverables (WP3 Skills Gap, WP4 pedagogical models, WP5 content) *Interviews/discussions:* XiA WP leaders *Participant observation:* Consortium meetings and workshops, in which the first author has actively participated. *Direct observations* during curriculum development	*Pattern matching:* XiA solutions vs. EU competence frameworks (ECSF, EQF) *Explanation building:* modular model (MCLB + microcredentials) *Triangulation*: documents + observations + interviews	Author's access to XiA documentation and participation in meetings enable in-depth contextual analysis

4. Empirical Context and Cases

This section presents the case studies, each examining a distinct dimension of the phenomenon under study. First, the study examines Finland's health tourism and its cybersecurity challenges. The next case focuses on the Helsinki metropolitan area's solution for cross-border health data. The third case explores in greater detail the competence and skills gap among professionals identified in the first case. In all cases, the Unit of Analysis (UoA) is Finland's digital health ecosystem within the context of health tourism.

4.1 Case 1: Ensuring Cybersecurity in Finland's Health Tourism

Finland's health tourism is rooted in a long spa tradition and a strong wellness culture. Wellness tourism leverages the country's natural resources—clean environment, forests, lakes, sauna culture and seasonal lightoffering visitors holistic experiences (Lehto, 2021). Medical tourism, on the other hand, attracts international patients with high-quality healthcare services, quick access to treatment and specialized clinics such as Docrates Cancer Center and Orton Oy. The Medical Tourism Association Finland aims to position Finland as the leading medical tourism destination in the Nordic region (Medical Tourism Association Finland, 2025).

Finland's strengths include high-quality care, safety and reliability. However, challenges persist in terms of cost levels, limited accessibility and the need for more effective international marketing. Family-friendly services and nature-based destinations are key target segments, and social media plays a significant role in influencing destination choices (Lehto, 2021). The future of Finland's health tourism depends on its ability to combine strong wellness offerings with top-tier medical services cost-effectively and securely. Investments in technology, staff training and comprehensive cybersecurity policies are essential. In addition, international marketing and improved accessibility can further strengthen Finland's position in global health tourism.

As noted in section 2.1, digitalization is a central factor in the development of health tourism. Finland's digital health ecosystem plays a crucial role in supporting health tourism by ensuring secure and efficient healthcare services for international patients. At its core lies the Kanta system, which guarantees data security and interoperability for patient records, including those transferred from abroad. Advanced technologies such as Electronic Health Records (EHR) and the Internet of Medical Things (IoMT) enable real-time monitoring, personalized care and seamless integration with Finland's robust healthcare infrastructure.

Finland also strictly adheres to EU regulations such as GDPR and EHDS, making it a trusted destination for health tourism. Cross-border patient data transfer requires strong encryption, secure communication channels and interoperable systems. IoMT device security is critical, as these devices collect sensitive health data. Cyberattacks can compromise patient safety, so device protection and compliance with international standards are essential. Cybersecurity is therefore a critical component of the ecosystem, addressing challenges in cross-border data exchange, IoMT device security, and compliance with stringent regulations such as GDPR. Finland's emphasis on data protection, trust, and regulatory rigor enhances its attractiveness as a health tourism destination. Together with a strong digital infrastructure and robust cybersecurity practices, these factors position Finland as a reliable and competitive player in the global health tourism market.

Case 1, highlights a skills gap: many healthcare professionals lack adequate cybersecurity training, increasing vulnerability to data breaches and ransomware attacks. To address this, Finland needs multidisciplinary cybersecurity education initiatives.

4.2 Case 2: Apotti–Maisa–Kanta Ecosystem as a Model for Cross-border Interoperability

Apotti is a comprehensive social and healthcare information system applied in the Helsinki metropolitan area, covering about one-third of Finland's population. It consolidates patient and client data into a unified platform, facilitating integrated service delivery across multiple providers. Its design leverages international interoperability standards, such as HL7 FHIR, which form the foundation for cross-border data exchange within the European Health Data Space (EHDS) framework (Apotti, 2025b). Maisa serves as the citizen-facing interface for Apotti, providing functionalities such as secure communication with healthcare professionals, appointment scheduling and access to personal health records. A critical feature of Maisa is its support for electronic consent management, which aligns with EHDS principles and GDPR requirements by empowering patients to control the sharing of their health data across borders (Apotti, 2025a)

Kanta operates as Finland's national health data repository and acts as the primary integration point for cross-border interoperability (KELA, 2025).Through standardized interfaces and harmonized consent mechanisms,

Kanta enables Finnish travelers to authorize the use of their health data in other EU member states. Furthermore, Kanta is integrated into MyHealth@EU, the first operational implementation of EHDS, which supports services such as electronic prescriptions and patient summaries for continuity of care across borders (European Commission, 2025a).

The Apotti–Maisa–Kanta ecosystem exemplifies how national infrastructures can operationalize EHDS objectives by combining technical interoperability with patient-centric design. Its reliance on HL7 FHIR and the upcoming European Electronic Health Record Exchange Format (EEHRxF) ensures compliance with EU standards for secure and seamless data exchange (EDPS, 2025). However, technical interoperability alone is insufficient. Effective implementation requires robust cybersecurity measures, multilingual user interfaces and harmonized consent management to address the complexities of cross-border healthcare. These elements are essential for safeguarding patient privacy and fostering trust in digital health services (Rajamäki *et al.*, 2025). The ecosystem's strategic importance lies in its ability to serve as a model for other EU member states. By integrating secure infrastructure with user-friendly interfaces and regulatory compliance, Apotti–Maisa–Kanta demonstrates how national systems can contribute to the broader vision of EHDS, creating a unified, secure and patient-centric digital health environment across Europe.

4.3 Case 3: XiA Project and its Role in Finland's Digital Health Ecosystem Within the Context of Health Tourism

The XiA Project (Xpanding Innovative Alliance) is a European development initiative funded by the Erasmus+ program. Its primary goal is to support the implementation of the European Health Data Space (EHDS) by strengthening competencies in interoperability, cybersecurity and digital health. The project addresses existing skill gaps among healthcare professionals, technology providers, and citizens, leveraging the Quadruple Helix model, which fosters collaboration between public and private sectors, academia and civil society. XiA introduces Micro-Content Learning Blocks (MCLBs)—short, targeted learning units aligned with EQF levels 5–7. These blocks enable microcredentialing and digital badges, offering flexible and customizable learning pathways. Each block typically represents 0.1–0.2 ECTS credits and can be combined into larger qualifications, supporting lifelong learning and professional mobility (XiA, 2025).

Cybersecurity is a core theme integrated across multiple learning families. The Security & Privacy family covers GDPR compliance, anonymization techniques, secure data exchange and privacy-preserving interoperability. Additional modules address data quality, EHR systems and ethical and legal frameworks, including the AI Act and EHDS regulations. Learners acquire practical skills such as implementing security protocols, managing audit trails, and applying privacy-preserving techniques in cross-border data exchange.

XiA demonstrates that technical interoperability alone is insufficient for successful EHDS implementation; competence development and education are equally critical. The project supports the Apotti–Maisa–Kanta ecosystem, enhancing the ability of professionals and citizens to use EHDS services securely. Training modules include GDPR-compliant consent management, secure data transfer and FHIR-based interoperability. Through persona analysis, XiA ensures that content is tailored to diverse user groups needing access to health data abroad. EU-wide localization strategies make materials culturally and linguistically appropriate, fostering usability and trust. For example, Finnish travelers using the Maisa portal abroad could benefit from multilingual guidance on granting EHDS-compliant consent in emergencies.

5. Cross Case Analysis and Findings

All cases emphasize the importance of technical interoperability for achieving EHDS objectives. Apotti–Maisa–Kanta demonstrates practical implementation through FHIR standards and MyHealth@EU integration, while XiA addresses interoperability from a competence perspective, ensuring that professionals understand and apply these standards effectively. Also, cybersecurity emerges as a critical success factor in every case. Health tourism relies on secure EHR systems and IoMT devices to maintain patient trust (Selvakumar & Lokesh, 2024; Huang et al., 2023), while XiA incorporates cybersecurity training into its microcredential framework to strengthen user confidence in cross-border data exchange. Both Apotti–Maisa–Kanta and XiA highlight the role of user-friendly interfaces and multilingual support for consent management. This is essential for travelers navigating EHDS-compliant processes abroad, reinforcing patient autonomy and GDPR compliance. XiA's focus on modular learning and microcredentials complements the technical infrastructure provided by Apotti–Maisa–Kanta. Together, they create a socio-technical ecosystem where technology and human competence evolve in tandem.

The cases collectively illustrate that technical solutions alone cannot guarantee EHDS success. Interoperability must be supported by robust cybersecurity and continuous competence development. For Finland, this integrated approach positions the country as a model for EHDS implementation, combining: 1) Secure infrastructure (Apotti–Maisa–Kanta), 2) Service innovation in health tourism (leveraging EHR and IoMT), 3) Human capacity building (XiA's modular training and microcredentials). These synergies suggest a roadmap for scaling EHDS adoption across Europe: align technical standards, embed cybersecurity in all layers of service delivery, and institutionalize competence development through EU-wide educational frameworks.

Innovation clusters play a central role in accelerating the transformation of digital healthcare, as they foster collaboration between academia, industry, the public sector, and end-users. Clusters provide a structural and relational framework for integrating various initiatives—such as educational projects, service innovations, and regulatory infrastructures. The following examines how clusters act as a connecting mechanism for three interrelated cases: First, health tourism in Finland benefits from cluster-based synergies among healthcare providers, technology companies, and research institutions. Clusters enable the integration of advanced digital solutions—such as telemedicine, AI-assisted diagnostics, and secure data transfer—into patient pathways, enhancing the attractiveness and competitiveness of Finnish healthcare services in international markets. Second, the implementation of the EHDS and national platforms such as Kanta, Apotti, and Maisa illustrates the regulatory and infrastructural dimensions of cluster ecosystems. Clusters act as intermediaries that translate policy frameworks into operational solutions, ensuring interoperability, data security, and patient-centered services. Through shared governance, clusters help align local innovations with European standards, creating scalable models for cross-border health data exchange. Third, the XiA project demonstrates cluster-driven capacity building through the Quadruple Helix model, enabling cross-sectoral learning and interoperability in digital healthcare. Leveraging cluster networks promotes knowledge exchange and co-creation, ensuring that educational content meets technological and regulatory requirements. In summary, clusters serve as orchestrators of innovation, connecting educational initiatives, service development and regulatory compliance. Their integrative capacity makes systemic transformation in digital healthcare possible.

6. Conclusions

The study demonstrates that the successful implementation of EHDS in the context of health tourism requires more than technical interoperability—it demands a holistic approach that integrates secure infrastructure, robust cybersecurity and continuous competence development. As an answer to the main research question, '*How can the European Health Data Space (EHDS) be leveraged to promote safe and smart health tourism, and what role do clusters and competence development play in this transformation?*', the cross-case analysis of Finland's digital health ecosystem, health tourism practices and the XiA project reveals three critical insights:

1. Interoperability as a foundation for cross-border care: systems like Apotti, Maisa and Kanta illustrate how standardized frameworks (e.g., HL7 FHIR, MyHealth@EU) enable seamless data exchange across borders. However, technical solutions alone cannot guarantee continuity of care without harmonized consent management and multilingual user interfaces.
2. Cybersecurity as a Prerequisite for Trust: Health tourism introduces complex data flows involving Electronic Health Records (EHR) and Internet of Medical Things (IoMT) devices. These technologies enhance patient experience but also increase exposure to cyber threats such as ransomware and phishing. Ensuring trust requires advanced encryption, secure communication channels, and compliance with GDPR and EHDS regulations.
3. Competence Development as a Strategic Enabler: The XiA project highlights the importance of education and capacity building through modular learning and microcredentials. Embedding cybersecurity and interoperability training into higher education curricula and professional development programs ensures that healthcare professionals, tourism operators, and ICT specialists can operate confidently in a cross-border digital health environment.

This study highlights several areas that warrant further investigation to strengthen the integration of the European Health Data Space (EHDS) into health tourism. First, empirical research is needed on the practical implementation of EHDS in cross-border care pathways, including user experience and consent management in multilingual contexts. Second, the cybersecurity of IoMT devices and real-time data exchange remains an underexplored domain, requiring advanced risk assessment methodologies and harmonized standards. Third, future studies should examine user-centric design and cultural adaptation of EHDS interfaces, as these factors significantly influence trust and adoption. Fourth, the role of innovation clusters in digital health ecosystems deserves deeper analysis to understand how collaborative networks accelerate interoperability, education, and

service innovation. Fifth, there is a need to evaluate the impact of competence development initiatives, such as XiA and CyberSecPro, on workforce readiness and EHDS adoption across member states. Finally, emerging topics such as AI-driven cybersecurity solutions and their ethical implications in health tourism should be explored to ensure resilience against evolving threats. Addressing these research gaps will provide actionable insights for policymakers, educators and industry stakeholders, fostering a secure and patient-centric digital health environment in Europe.

Ethics Declaration

Ethical clearance was not required.

AI Declaration

Artificial intelligence was utilized in the writing process to support literature review synthesis, facilitate comparative analysis between findings and previous research, and assist in the formulation and translation of academic text. AI tools such as Keenious and Copilot enabled efficient information retrieval, structured drafting, and linguistic refinement, thereby enhancing the clarity, coherence, and overall quality of the manuscript. While all conceptual contributions and interpretations remain the responsibility of the authors.

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Exploring the Secondary Use of Health Data for Tourism and Travel Safety

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Abstract: This exploratory case study examines the opportunities and challenges associated with the secondary use of health data in the context of health tourism and travel safety, with a particular focus on the European Health Data Space (EHDS) initiative. Using the ManagiDiTH master's programme as a case-based analytical framework, the study investigates the competencies, technological prerequisites and ecosystem structures required to enable responsible secondary data use in health tourism. Rather than evaluating outcomes, the study maps opportunities, challenges, and mechanisms through which interoperable health data could enhance personalization, safety, and cross-border care continuity. The findings demonstrate that competent professionals, interoperable technologies, and robust ecosystem structures are essential for realizing the benefits of secondary health data use in tourism and travel safety. The study advances multidisciplinary digital health education by highlighting the competencies required at the intersection of health, technology and tourism, and it provides insights for future research and practice in health tourism.

Keywords: Exploratory Study; Secondary use of Health Data; IoT; IoMT; Interoperability; Health Tourism; Travel Safety; EHDS; ManagiDiTH.

1. Introduction

The European Health Data Space (EHDS) is a strategic EU initiative designed to create a common and secure ecosystem for the primary and secondary use of health data (Kotsareli and Tsachouridis, 2023). Primary use relates to patient care, while secondary use enables the utilization of data for research, innovation development, policy planning, and the creation of new service models (van Drumpt *et al.*, 2025). EHDS seeks to break down data silos, harmonize standards such as Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT) and Health Level Seven – Fast Healthcare Interoperability Resources (HL7 FHIR), and ensure data protection by complying with the General Data Protection Regulation (GDPR) and implementing pseudonymization (Chatterjee, Pahari and Prinz, 2022). The ManagiDiTH (Managing Digital Transformation in the Health Sector) project and master's program are the result of international collaboration, designed to lead the digitalization of health services and to promote the utilization of data analytics and information systems for the development of innovations (Rajamäki *et al.*, 2024). At the same time, medical, health and wellness tourism is experiencing rapid growth (Zhong *et al.*, 2021). Travelers seek treatments, rehabilitation, and wellness services abroad for reasons such as cost-effectiveness, access to specialized services, and holistic well-being experiences (Jalali *et al.*, 2025). This development creates a need for seamless data exchange and strong cybersecurity (Rajamäki *et al.*, 2025).

Innovations often emerge at the intersections of different fields, where new combinations of knowledge and technologies create opportunities for disruption and creative destruction (Schumpeter, 1934; Christensen, 1997). Multidisciplinary higher education institutions provide particularly fertile environments for such cross-disciplinary innovation. This study examines innovation opportunities at the interface of healthcare, digitalization, and tourism. By focusing on these intersections, the study highlights how cross-sectoral collaboration and digital transformation can generate new solutions and value creation in health tourism and travel safety. This study aims to examine how the secondary use of health data within the EHDS framework can create added value for the tourism industry, particularly in the context of health tourism. The study explores what business opportunities the utilization of anonymized health data offers for the development of tourism services, how secondary use can improve customer experience, safety, and service personalization, and what competence and infrastructure requirements this sets for both the tourism and health sectors.

This paper is structured as follows. First, the literature review explores the prerequisites, opportunities, and challenges related to the secondary use of health data, the role of IoT and IoMT technologies, and the development of health and smart tourism and their technologies, privacy and trust. Next, the methodology section describes the case study approach and multidisciplinary perspective adopted in the research, as well as the data sources and analysis methods. The findings section presents the results of the ManagiDiTH programme analysis, focusing on the competencies, technologies, and ecosystem requirements for the secondary use of

health data in health tourism and travel safety. Finally, the discussion section compares the findings with previous research, and the conclusions section highlights the implications for education and practice, and outlines directions for future research and development in the field.

2. Literature Review

2.1 Secondary use of Health Data

The content of this section is based on an expert workshop held in November 2023, which focused on the business opportunities, challenges, and solutions related to the secondary use of health data. The workshop brought together researchers and practitioners from various organizations, and its discussions, presentations, and analyses have been compiled and reported in the article of Kilgus *et al.* (2024). This section presents the key findings and conclusions of the workshop as they relate to the topics addressed in this paper, providing timely and diverse perspectives on business opportunities and future directions in the secondary use of health data.

2.1.1 Business Opportunities from Secondary use of Health Data

The secondary use of health data refers to the utilization of data for purposes other than its original intent, such as research, innovation, and policy-making. In recent years, this topic has garnered increasing attention in both research and practice, particularly due to the widespread adoption of electronic health records (EHRs) and the growing volume of patient-generated data from mobile devices and sensors. The European Commission has recognized both the opportunities and challenges of secondary use of health data. It has initiated the development of EHDS, which aims to create a unified European health data ecosystem that enables the secure and efficient sharing of data for both primary and secondary use. This initiative seeks to reduce healthcare costs, improve the quality of care, and promote research and innovation. (Kilgus *et al.*, 2024).

Data quality (DQ) is a fundamental prerequisite for secondary use. DQ is defined as the "fitness for use" and consists of both technical and contextual dimensions. Technical dimensions, such as accuracy and completeness, are objective, whereas contextual dimensions relate to the context of use and the needs of the data consumer. In secondary use, contextual dimensions are particularly emphasized, as data is often repurposed for uses different from those for which it was originally collected. Assessing and ensuring data quality is challenging, as requirements may vary depending on the context of use. For example, the relevance and trustworthiness of data may depend on the user's expertise and the provenance of the information. Furthermore, data quality assessment often requires manual work and a deep understanding of the data generation process. (Kilgus *et al.*, 2024).

Interoperability and standards are another key prerequisite for secondary use. The adoption of international standards, such as HL7 FHIR, enables the integration of data from different sources and systems. A lack of interoperability complicates the integration and analysis of data, thus limiting the potential for secondary use. However, the development and implementation of standards is challenging, and existing solutions often focus on technical aspects, even though organizational and semantic differences should also be addressed. The ecosystem of secondary use involves several key actors: patients (as data providers and consent granters), physicians (as data collectors), authorities (as regulators), and organizations (as data users). Collaboration and clarity of roles among these actors are essential for realizing the value of data securely and effectively. (Kilgus *et al.*, 2024).

In addition to data quality and interoperability, key challenges include patient consent, data protection, anonymization/pseudonymization, and the valuation of data. For example, anonymization enables broader use of data, but it is essential to ensure that patient privacy is maintained and that data cannot be re-identified. Proposed solutions include the adoption of international standards, comprehensive metadata documentation, multidisciplinary collaboration, and clear regulatory and governance models. Continuous quality monitoring and improvement, as well as the involvement of patients and other stakeholders in data governance and use, are also emphasized. The secondary use offers significant opportunities for the development of healthcare, research, and innovation. Successful secondary use requires high-quality and interoperable data, clear regulatory and governance models, and collaboration among stakeholders. European initiatives such as the EHDS aim to create the conditions for the secure and effective use of data for the benefit of society as a whole. (Kilgus *et al.*, 2024).

2.1.2 IoT and IoMT Technologies as Secondary Sources of Health Data

The Internet of Medical Things (IoMT) signifies a major leap forward in the healthcare sector, enabling interconnected medical devices to transmit real-time data and enhance patient care (Vishnu, Ramson and Jegan, 2020). Combining medical devices with the Internet of Things (IoT), IoMT systems represent the future of healthcare, where every device is connected and monitored online by healthcare professionals. This advancement promises faster and more affordable healthcare (Razdan and Sharma, 2022). This vision is already a reality, with wearable IoMT devices like smartwatches and patches becoming essential for managing chronic diseases, remote monitoring, and predicting health issues. These advancements enable quicker patient care and can potentially save lives (Kamalov *et al.*, 2023).

This data is valuable not only for supporting individualized care and diagnostics but also for secondary uses, including research, service development, and healthcare innovation. The effective secondary use of IoT/IoMT data requires high data quality, interoperability, and adherence to established standards. International and European standards, such as HL7 FHIR, enable the integration of data from different systems and countries. At the same time, challenges related to data protection, anonymization, and ethical considerations must be addressed to ensure responsible use. (Kilgus et al., 2024).

Secondary use of IoT/IoMT data enables, for example:

1. Large-scale research datasets and real-time public health monitoring,
2. AI-based analyses and predictive modeling,
3. The development of new services and business models (e.g., remote monitoring, wellness services), and
4. Personalized care pathways and risk management.

In practice, leveraging IoT/IoMT data for secondary purposes requires multidisciplinary collaboration between technology, healthcare, and service design professionals. Furthermore, clear regulatory and governance frameworks are needed to ensure the secure and ethical use of such data for secondary purposes.

2.2 Health Tourism

Health tourism is a rapidly expanding sector in the global tourism industry, driven by individuals seeking non-emergency, high-quality healthcare services abroad (Jalali *et al.*, 2025). Motivations include lower costs, access to specialized care, and reduced waiting times. The growth of health tourism brings economic benefits, such as increased revenue and foreign exchange, but faces significant challenges. Key factors influencing health tourism include infrastructure, human resources, financial considerations, service quality, marketing, stakeholder cooperation, legal frameworks, and international relations. Barriers such as inadequate transportation, outdated medical equipment, and weak insurance systems can limit access for international patients. Conversely, internationally accredited hospitals, strong transport links, and attractive cultural resources enhance a destination's appeal.

Communication and human resources are critical. Language barriers, shortages of specialized staff, and insufficient communication skills can undermine patient experiences. Solutions include language training, international recruitment, and professional development for healthcare staff. Financial aspects also play a major role. High treatment costs and limited government support can deter patients, while affordable services and public investment can stimulate growth. Service quality is essential; lack of international certification, poor follow-up care, and limited translator access are common obstacles. Improvements in quality standards, technology adoption, and comprehensive service packages are effective facilitators. Effective marketing and information dissemination are also vital. Poor visibility, lack of information in foreign languages, and weak branding can hinder growth. Digital platforms, international exhibitions, and strong branding strategies help attract health tourists. Stakeholder cooperation is often hampered by poor coordination between healthcare and tourism providers and unclear responsibilities. Enhanced collaboration, research, and integration of services improve patient experiences. (Jalali *et al.*, 2025).

Legal and governmental barriers, such as complex regulations and visa issues, can impede growth, while supportive policies and clear frameworks facilitate it. International relations and security concerns, including political instability and disease outbreaks, can affect patient flows. Bilateral agreements and improved security measures are important for building trust. Digitalization and information management are increasingly important, enabling better access to information, service personalization, and risk management. Secure data exchange and interoperability are essential for safe, high-quality cross-border care. The development of health

tourism requires addressing infrastructural, human, financial, service, marketing, legal, and international challenges. Digital solutions and effective information management further support accessibility, quality, and safety, enabling new business models and international cooperation in the sector. (Jalali *et al.*, 2025).

2.3 Smart Tourism Technologies, Privacy and Trust

Smart tourism technologies (STTs)—including mobile payment systems, IoT-enabled services, AR/VR applications and destination apps—form an increasingly integral part of the contemporary travel experience. Their value lies in providing personalized, data-driven services, yet this same reliance on personal data raises significant privacy and trust concerns among travelers. According to Ivars-Baidal et al. (2023), the relationship between tourism governance and smart city initiatives needs to be redefined to achieve synergies that increase the inclusiveness and efficiency of urban tourism policies.

Ngan, Eddy and Fong (2025) demonstrate that travelers' reactions to STTs can be explained through Protection Motivation Theory (PMT). Privacy concerns arise from travelers' assessments of the severity and likelihood of data breaches, while their willingness to engage with STTs depends on their perceived ability to manage privacy settings and the effectiveness of available protection measures. Crucially, trust in technology providers reduces perceived susceptibility to privacy threats and strengthens coping appraisals, thereby enhancing technology acceptance (Ngan, et al., 2025).

Privacy evaluations also have clear implications for tourism outcomes. Higher privacy concerns reduce traveler satisfaction and destination loyalty, whereas proactive privacy-protection behaviors—such as configuring privacy settings—can enhance both. Ioannou, Tussyadiah and Miller (2021) argue that travelers' privacy concerns are multidimensional: they include both self-privacy concerns (fears of losing control over one's own data) and normative privacy concerns (beliefs about how companies should handle personal information). These concerns shape trust and perceived risk, with higher privacy concerns lowering trust in travel service providers and increasing perceived risk associated with data disclosure. Since trust is a key precondition for travelers' willingness to share personal information weak trust can amplify the negative effects of privacy concerns on satisfaction and loyalty (Ioannou, et al., 2021).

In the context of health tourism, travelers' privacy concerns are amplified because they involve highly sensitive information (e.g., medical history, biometric identifiers, IoT/IoMT-generated health signals). Research also shows that privacy concerns consist of both personal fears of losing control over one's data and normative expectations about how organizations should manage sensitive health information (Ioannou, et al., 2021). These concerns shape trust and perceived risk, which in turn determine whether travelers are willing to disclose the health data required for personalized treatments, cross-border care continuity and safe travel. Consequently, effective data governance and transparent privacy practices are essential for enabling travelers to confidently share health information and for ensuring that secondary use of health data genuinely enhances quality, safety and satisfaction in health tourism.

3. Methodology

This study employs Yin's (2018) case study research method and adopts a multidisciplinary approach, integrating perspectives from healthcare, tourism, information systems, cybersecurity, and education. The primary research material consists of the educational content and learning objectives developed within the ('ManagiDiTH – Master of Managing Digital Transformation in the Health Sector', 2025) project, which encompasses digital health competencies, information systems, data analytics, interoperability, data protection, and ethical considerations. Document analysis and observation are applied as research methods. Qualitative content analysis and triangulation are employed in the data analysis. The research examines how the secondary use of health data can be implemented and developed in the context of health tourism, as well as the competency, technology, and ecosystem requirements this entails from the perspectives of digital healthcare and related fields.

3.1 Case Context and Selection

The case is the ManagiDiTH project and master's programme that represents an international collaboration between ISCTE – University Institute of Lisbon, Laurea University of Applied Sciences, and Aristotle University of Thessaloniki. This fully online master's programme is specifically designed for future professionals, leaders, and change-makers in the social and health care sector. The programme aims to lead the digital transformation of

health services and to promote the adoption of data science and information systems for the development of innovative clinical approaches, service models, and process reorganization. The curriculum of the ManagiDiTH master's programme comprises three main components: health sector skills, societal skills, and digital skills. Within the digital skills component, students may choose between two specialization tracks—Data Science or Interoperability—according to their interests and prior experience.

The programme was purposively selected for three reasons:

1. It explicitly targets digital health competencies (data analytics, interoperability, regulation, ethics) that are prerequisites for secondary health data use;
2. It operates across national contexts, aligning with cross-border data exchange scenarios central to tourism and travel safety; and
3. It provides comprehensive curricular artefacts and practice-oriented learning outcomes that can be systematically analyzed.

3.2 Unit of Analysis and Research Question

The Unit of Analysis (UoA) is: Secondary use of health data in health tourism and travel safety – specifically, the utilization of data produced by IoT and IoMT technologies to improve traveler safety, service quality, and the overall travel experience in international travel, in which individuals seek health services, treatments, or wellness services abroad. UoA is observed and evaluated from the perspectives of education, service development, and practical implementation.

The study addresses the following research question: How can the ManagiDiTH programme enhance the secondary use of health data in health tourism and travel safety?

4. Findings

4.1 Secondary use of Health Data in the ManagiDiTH Program

ManagiDiTH addresses the secondary use of health data as a core theme, explored from technical, ethical, and regulatory perspectives. Students gain competencies that enable the utilization of health data for research, development, and service improvement. Key course components include:

- *MD10 Health Data and Information Systems*: This course covers health data collection, analysis, and reporting, as well as the impact of information systems on care quality, safety, and cost-effectiveness. It also addresses data usage and analytics, which are directly linked to secondary use.
- *OD11 Data Analytics and Machine Learning*: Students learn to leverage health data through machine learning and analytics, essential for advancing diagnostics, treatment, and service development.
- *OD13 Technologies in Interoperable Ecosystems in Health:* The course focuses on interoperability, standards, and data exchange, which are prerequisites for secondary use across systems and organizations.
- *OH04 Regulation, Legislation and Structures in Health* examines the EU regulatory framework for digital health and well-being (including EHDS), which enables and governs the secondary use of health data.

The curriculum emphasizes practical experience in data collection, analysis, and reporting, while fostering an understanding of data's role in improving care quality, safety, and cost-efficiency. Secondary use of health data—such as for research, analytics, service development, and data exchange—is integrated into the program's learning objectives. Opportunities beyond healthcare include: 1) insurance and risk management services, 2) business and ecosystem development, 3) education and skills enhancement (e.g., cybersecurity, data analytics, service innovation), and 4) societal decision-making and regulation (e.g., privacy practices, international data exchange). Through this approach, ManagiDiTH provides comprehensive expertise to support the responsible and multidisciplinary secondary use of health data.

4.2 IoT and IoMT Technologies as Health Data Sources

OD16 Sensors for Medical Instrumentation and Signal Processing Course emphasizes the role of the Internet of Things (IoT) and the Internet of MedicTal Things (IoMT) in healthcare. These technologies generate vast amounts of sensor data, which can be utilized not only for primary patient care but also for secondary purposes such as research, service development, and innovation. The course highlights competencies in collecting, processing, analyzing, and securely managing health data. These skills are essential for leveraging health information in secondary use cases, including service improvement, quality enhancement, and the development of new solutions. The course addresses standards for biosignal acquisition and sensor networks, as well as national and European regulations and certifications. Mastery of interoperability and standards enables the secondary use of health data across organizational and national boundaries.

When evaluating this course unit, Rajamäki and Postolache (2025) underscore the importance of multidisciplinary collaboration—such as trialogical learning and academia-industry partnerships—as prerequisites for secondary use of health data in developing new services, products, and solutions. Innovations often emerge at the intersections of technology, healthcare, and service design. Students learn to select and implement sensor technologies and biosignal processing methods that enable comprehensive health data collection and utilization. Applications include public health monitoring, diagnostics, personalized services, and enhanced safety.

OD16 Course relates to the secondary use of health data primarily through competencies in managing, analyzing, and utilizing data produced by IoT/IoMT technologies. It emphasizes multidisciplinary collaboration, the significance of standards and interoperability, and the emergence of innovations at cross-disciplinary interfaces—all of which are critical enablers for secondary use in research, service development, and even areas such as travel safety.

4.3 Health Tourism

ManagiDiTH addresses the needs of health tourism by educating professionals who integrate digital infrastructure, health data management, and international collaboration. The program's contributions can be categorized into the areas shown in Table 1. ManagiDiTH produces professionals capable of developing and managing digital, international, and customer-centric solutions for health tourism. These competencies enhance service quality, safety, and accessibility while creating new business opportunities.

Table 1: Barriers and facilitators in health tourism development

Focus Area	Description of Contribution
Development of digital services	The program equips students to design and implement solutions such as secure cross-border patient data transfer systems, teleconsultation platforms, and digital appointment scheduling. These technologies streamline care pathways and enhance patient experience in cross-border healthcare.
Utilization of health data for personalization	Applying data analytics and artificial intelligence enables the creation of individualized treatment packages and risk management strategies. IoT and IoMT devices generate health data that supports the monitoring and personalization of services for travelers. Secondary use of health data can also improve travel safety and epidemic management.
Interoperability and international data exchange	Interoperability is a critical prerequisite for cross-border patient data exchange. International standards (HL7 FHIR) ensure secure information sharing and continuity of care.
Security and ethical considerations	Cybersecurity, data protection, and crisis management are essential for mitigating risks in health tourism. The program also addresses ethical and legal aspects related to data usage and patient rights.
Business competence and innovation	ManagiDiTH fosters capabilities to develop new service concepts and digital platforms that integrate healthcare, tourism, and security solutions. This supports ecosystem building and multidisciplinary collaboration.

The findings indicate a coherent mechanism through which the secondary use of health data can generate value for tourism through emotion monitoring and travel safety particularly for user with chronical impairements. First, data generation via IoT/IoMT wearables and sensor platforms produces continuous, traveler-centric signals on health status and risk exposure. Second, data processing and interoperability—grounded in standards such as HL7 FHIR and supported by competent professionals—enable secure aggregation across providers and

jurisdictions, which is a prerequisite for cross-border care continuity. Third, analytics-enabled personalization translates interoperable datasets into adaptive service pathways (e.g., tailored pre-travel screenings, medication adherence reminders, and dynamic access to local care resources), improving traveler experience and reducing uncertainty. Finally, operational integration with tourism service providers (destinations, accommodation, insurance, platform operators) supports preparedness (e.g., surge capacity planning), incident response (e.g., rapid referral protocols), and post-incident learning. Taken together, these mechanisms show how the ManagiDiTH-derived competencies (data management, interoperability, regulation, cybersecurity) are not merely technical capabilities but actionable enablers for data-driven travel safety and quality of service in real tourism contexts.

5. Discussion

The findings from the ManagiDiTH programme highlight the prerequisites for the secondary use of health data, including technical expertise, ethical considerations, and regulatory knowledge. These results are consistent with the literature review (section 2.1.1), which emphasizes the importance of data quality, interoperability, and clearly defined stakeholder roles in secondary data use. The programme's focus on practical skills in data collection and analytics aligns with proposed solutions in the literature, such as the adoption of international standards, multidisciplinary collaboration, and continuous quality monitoring.

Results regarding IoT and IoMT technologies reinforce the perspectives presented in the literature review (section 2.1.2), which identifies sensor technologies and the data they generate as central sources for secondary health data use. The programme emphasizes competencies in data acquisition, analysis, and secure management, directly addressing challenges highlighted in the literature, such as data quality, interoperability, and ethical concerns. Furthermore, the programme's emphasis on multidisciplinary collaboration and standards management supports the literature's call for responsible and effective utilization of health data.

The findings of the ManagiDiTH programme demonstrate that the development of digital services, the use of health data for personalization, and international data exchange are key drivers for advancing health tourism. This is in accordance with the literature review (section 2.2), which stresses the significance of infrastructure, expertise, service quality, and digital solutions for the growth and safety of health tourism. The programme's focus on cybersecurity, data protection, and multidisciplinary competence further supports the requirements for high-quality and secure health tourism identified in the literature.

The secondary use of health data through IoT and IoMT technologies offers significant benefits for the development of health tourism and travel safety. Competent professionals, interoperable technologies, and well-defined ecosystem structures are prerequisites for sustainable and secure data exchange. The ManagiDiTH project's educational content (OD 16) supports the creation of these prerequisites and provides a foundation for future digital health and tourism services.

6. Conclusions

This study extends tourism research by demonstrating how the secondary use of health data, enabled by EHDS and IoT/IoMT technologies, can enhance travel safety, service personalization, and cross-border care pathways. By connecting digital health infrastructures with tourism service development, the research offers a novel perspective on data-driven safety management and traveler experience optimization. The findings highlight concrete mechanisms through which interoperable health data ecosystems can support destination preparedness, risk mitigation, and customer-centric service innovation, thereby contributing new conceptual and practical insights to tourism scholarship.

In future work, this research should be extended with comprehensive empirical data, systematic analysis, and deeper comparative evaluation. Another direction for future research is to empirically examine how different tourism stakeholders—such as destination management organizations, travel health insurance providers, healthcare institutions, and digital platform operators—can operationalize the secondary use of health data within real travel environments. This would allow researchers to evaluate practical barriers, economic impacts, data-driven service innovations, and governance requirements in authentic cross-border settings. Such investigations would deepen understanding of how interoperable health data ecosystems can be integrated into tourism operations and how they influence traveler safety, service quality, and overall user experience.

Ethics Declaration

Ethical clearance was not required for the research.

AI Declaration

Artificial intelligence was utilized in the writing process to support literature review synthesis, facilitate comparative analysis between findings and previous research, and assist in the formulation and translation of academic text. AI tools such as Keenious and Copilot enabled efficient information retrieval, structured drafting, and linguistic refinement, thereby enhancing the clarity, coherence, and overall quality of the manuscript. While all conceptual contributions and interpretations remain the responsibility of the author.

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Comparing Four Generations of Rural Tourism Developers in Finland

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Abstract: Intergenerational differences have received growing scholarly attention in recent years, particularly in relation to work practices, communication styles, and values across professional and social contexts. This study explores the characteristics of rural tourism developers in Finland across four generations – Generation Z, Millennials, Generation X, and Baby Boomers. Developers play a vital role in shaping rural destinations, and supporting their wellbeing directly contributes to the sustainability and regeneration of entire tourism ecosystems. Ensuring that developers are equipped, motivated, and supported aligns with the principles of regenerative tourism. The research is based on a questionnaire distributed nationally as part of the Rural Finland Tourism Hub project, co-funded by the European Fund for Agricultural and Rural Development. Due to the unequal distribution of respondents among the four generational groups, results were analysed qualitatively by a narrative approach. This provides valuable insights into generational tendencies while avoiding overgeneralization. The comparison focuses on four key aspects: (1) competence needs, reflecting the skills and knowledge rural developers consider essential for their work; (2) preferred communication and information channels, highlighting differences in how generations access, share, and process tourism-related knowledge; (3) cooperation patterns, describing how various age groups engage with partners and institutions in the context of rural tourism development; and (4) employment characteristics, illustrating differences in working conditions and orientation. The insights of this study hold relevance for tourism managers, educators, governing bodies, and financiers who seek to design support measures, training programmes, and funding instruments that are tailored to the needs of diverse developer profiles. Moreover, the study addresses a notable gap in tourism literature by providing a nuanced understanding of rural tourism developers' characteristics from a generational perspective.

Keywords: Rural Tourism, Generational Differences, Tourism Developers, Regenerative Tourism, Finland

1. Introduction

Rural tourism developers form a key human resource in destination development, acting as gatekeepers of knowledge, networks, and funding opportunities that shape how tourism evolves at the local level. Their work is inherently multifaceted: developers navigate between strategic planning and hands-on project implementation, tourism and other rural development tasks, balance public, private, and community interests, and translate policy frameworks into locally adapted actions (Röntynen, 2025).

Rural tourism developers play a critical role in shaping the long-term sustainability of destinations. Supporting their skills, motivation, and wellbeing aligns with regenerative tourism principles, which emphasize the resilience of local ecosystems, communities, and economies. By examining generational differences among developers, this study provides insights into how intergenerational capacities can be leveraged to foster practices that regenerate rural tourism environments.

Despite the importance of these actors, little is known about how rural tourism developers differ across generations. At the same time, demographic shifts in the workforce mean that younger generations are increasingly present in development roles, while experienced professionals continue to hold institutional and strategic knowledge. Understanding how these generations compare is essential for designing support structures that strengthen rural tourism development and contribute to the wellbeing of those working within it. Yet, this gap has not been addressed in the context of Finland, where rural tourism plays a significant role in regional vitality and where developers' work is shaped by a distinct combination of public, private, and community-based actors (Röntynen, 2025).

This study responds to this gap by examining how Finnish rural tourism developers differ across four generational cohorts – Generation Z, Millennials, Generation X, and Baby Boomers, based on nationally collected survey data. The guiding research question is: *How do rural tourism developers in Finland differ across generations?*

2. Literature Review

2.1 Defining Generations

Generations are commonly understood as cohorts of individuals born during the same period who share formative experiences in similar socio-cultural, historical, and technological contexts (Campbell et al, 2015; Becton et al, 2014). These shared experiences contribute to collective identities that shape attitudes, values, and behaviors. However, defining generations is inherently challenging. Boundaries between generational cohorts are fuzzy, culturally specific, and often contested. Different studies employ slightly different birth-year cutoffs. These variations reflect both methodological choices and the recognition that generational identity is not strictly chronological but socially constructed. Furthermore, many observed differences attributed to generations may instead result from life stage, career stage, or cultural context (Becton et al, 2014; Swim et al, 2022). Therefore, while generational analysis provides useful frameworks for understanding patterns, findings must be interpreted cautiously, avoiding overgeneralization and stereotyping.

Younger generations, particularly Millennials and Generation Z, currently dominate the workforce in many sectors, including tourism, and their influence on professional practices is growing steadily. Together, these cohorts comprise more than half of the global population and a majority of active employees, meaning that their values, preferences, and working styles are no longer future concerns but present realities (Forsman & Hupli, 2023). This demographic predominance underscores the importance of understanding their professional behaviours, communication patterns, and developmental needs, particularly in sectors such as rural tourism where innovation, networking, and adaptability are crucial for sustainable development. At the same time, previous research indicates that the typical rural tourism developer in Finland is approximately 50 years old, placing them predominantly within the Generation X cohort, while also reflecting considerable dispersion in both younger and older age groups (Röntynen, 2025).

2.2 The Significance of Rural Tourism and Generational Dynamics

Rural tourism represents a significant component of regional development, contributing to economic diversification, employment creation, and the maintenance of cultural and natural heritage in peripheral areas (Lane, 1994; OECD, 2020). In many rural destinations, tourism development relies heavily on a limited number of actors who mediate access to resources, funding, knowledge, and networks, making human capital a critical determinant of long-term destination viability and competitiveness (Röntynen, 2025).

As demographic change reshapes the tourism workforce, generational differences increasingly influence how tourism is planned, communicated, and developed, affecting priorities related to innovation, sustainability, and community engagement (Benckendorff, Moscardo & Pendergast, 2010; Baum, 2019). Understanding generational dynamics among rural tourism developers is therefore essential, as these differences may shape not only development practices but also the future trajectories of rural destinations themselves.

2.3 Generation Profiles in the Context of Rural Tourism Development

Baby Boomers (1946–1964) entered the workforce in an era of post-war economic expansion, hierarchical structures, and relative social stability. They are typically characterized by strong work ethics, respect for authority, and material achievement orientation (Becton et al, 2014; Stewart et al, 2017). In Finland, Boomers' early working lives were shaped by industrialization and systematic hierarchies, resulting in strong attachment to organizations and loyalty-driven career trajectories (Huhta, 2018). Boomers rely on traditional communication channels such as phone, email, and face-to-face interactions, reflecting their preference for structured and personal forms of communication. Their preferred communication channels are traditional, reflecting habits formed before the digital era (Forsman & Hupli, 2023). They favour in-person meetings, value direct collaboration, and enjoy the social aspects of working together (Forsman & Hupli, 2023), which could imply a tendency to favour formal gatherings, workshops, or consultations with colleagues and stakeholders, where interpersonal trust and relationship-building are emphasized.

In the context of rural tourism development, these tendencies could suggest that Boomers are likely to value stable, long-term projects, conventional organizational hierarchies, and clear guidelines for responsibilities. Their focus on material success and traditional measures of achievement may translate into a preference for tangible outcomes, such as increasing visitor numbers or revenue, rather than experimental or highly innovative approaches.

Generation X (1965–1980) experienced economic recessions, globalization, and high divorce rates among parents, which shaped their self-reliance, pragmatism, and skepticism toward institutions (Becton et al, 2014; Huhta, 2018). Gen X balances work and personal life, values autonomy, and prioritizes financial and career security over organizational loyalty. Technology adoption among Gen X tends to be utilitarian and pragmatic; while comfortable with email and web-based information, they generally engage less with digital media for social purposes (Calvo-Porral & Pesqueira-Sanchez, 2020). Generation X shows a balanced approach to communication, using email, text messages, and voicemail, and typically preferring calls only during work hours to maintain work-life balance. They favour practical, well-organized meetings that focus on productivity and career growth opportunities (Forsman & Hupli, 2023).

In a rural tourism context, these traits may manifest as a preference for practical and self-directed work, careful assessment of risks in projects, clear agendas, goal-oriented discussions, and entrepreneurial approaches to development initiatives. Their emphasis on work-life balance could lead them to prioritize projects that are manageable within their personal schedules and that align with their family or community commitments.

Millennials (Generation Y, 1981–1996) grew up during rapid technological and societal change, becoming the first truly global, high-tech generation (Becton et al, 2014; Stewart et al, 2017). They are characterized by ambition, optimism, diversity consciousness, and a strong desire for meaningful work (Stewart et al., 2017; Huhta, 2018). Millennials' approach to technology is immersive and multi-purpose; they are highly connected, engage with social media and interactive platforms, and value collaborative and experiential learning (Suyono et al, 2025; Calvo-Porral & Pesqueira-Sanchez, 2020). Millennials are highly oriented toward digital communication, using text messaging, social media, and smartphones. They prefer spontaneous, interactive meetings, enjoy group discussions, and value participatory activities (Forsman & Hupli, 2023).

Within rural tourism, these characteristics might translate into openness to digital tools for marketing, networking, and knowledge sharing, as well as a preference for participatory and collaborative project designs. Millennials may engage enthusiastically in collaborative project planning, brainstorming sessions, and workshops, favouring flexible, creative, and digitally supported forms of coordination. Their orientation toward flexibility, lifelong learning, and purpose-driven work may encourage experimentation with new tourism products, responsible practices, or community-focused initiatives. They prefer interactive communication and positive workplace culture over hierarchical structures, reflecting a shift from time-based to output-based work assessment (Stewart et al, 2017).

Generation Z (1997–2012) represents the first fully digital-native generation. Exposed to smartphones, social media, and continuous online connectivity from a young age, they have developed advanced digital literacy, visual processing skills, and a preference for autonomous, fast-paced learning (Suyono et al, 2025; Visser & Terblanche, 2025; Huhta, 2018). Gen Z exhibits high social consciousness, global awareness, and a desire for meaningful, flexible work (Kykyri, 2025). Social media is central to both personal identity and professional development, serving as a tool for networking, informal learning, and collaborative project engagement (Yustika & Jaya, 2025). However, digital immersion also creates challenges such as information overload, online pressure, and stress, making wellbeing and work-life balance critical considerations for organizations supporting this generation (Kykyri, 2025). Generation Z predominantly uses smartphones and apps such as Snapchat, video platforms, and visual-symbol-based communication; they prefer social media alternatives over traditional meetings and generally have shorter attention spans during gatherings (Forsman & Hupli, 2023).

In rural tourism development, these traits suggest that Gen Z may prefer fast-paced workflow, digital tools for project management, and learning opportunities that are self-directed and practical. Their concern for social and environmental issues indicates a likely interest in sustainability, climate-change impacts, and inclusive practices within tourism initiatives. Moreover, their comfort with global connectivity and online collaboration may facilitate networking beyond local boundaries, integrating international perspectives into rural development projects. Gen Z developers may favour brief, visually rich, and highly interactive digital communication, such as virtual workshops, instant messaging groups, or video updates, rather than long, formal in-person meetings.

2.4 Positioning Rural Developers in Regenerative Tourism

Regenerative tourism extends the principles of sustainability by seeking to actively restore, renew, and enhance local ecosystems and community wellbeing, positioning tourism as a catalyst for positive socio-ecological change rather than a neutral or extractive activity (Bellato, Frantzeskaki & Nygaard, 2022). Within this framework, rural tourism developers hold a particularly influential role, as their everyday decisions shape how natural resources

are used, how communities participate in tourism, and how long-term destination resilience is fostered (Cave et al, 2022). Their competence profiles, collaborative behaviours, and orientations toward innovation determine how effectively regenerative principles, such as community empowerment or ecosystem restoration, can be embedded in local tourism development. In the Finnish context, rural developers have already been identified as a heterogeneous but highly committed group of practitioners whose work spans project management, regional development, education, and entrepreneurship (Röntynen, 2025). Their strategic position between local actors, municipalities, funding bodies, and businesses places them at the heart of potential regenerative transformation, where intergenerational knowledge transfer becomes particularly relevant. Younger developers could contribute technological fluency, environmental awareness, and novel approaches to community engagement, while older generations could provide historical knowledge, strategic continuity, and place-based stewardship. Understanding these generational dynamics is therefore crucial for the operationalization of regenerative tourism in Finnish rural destinations and how supporting structures might be tailored to maximise developers' wellbeing and contributions to long-term destination regeneration.

3. Methods

3.1 Research Design and Approach

A survey was implemented in the nation-wide Rural Finland Tourism Hub Project, aiming to gain insights about rural tourism developers in order to support their work more effectively through new knowledge and networking activities. Besides the practical implications of fine-tuning the project activity according to the results, an observation about the prevailing profile of the Finnish rural tourism developer led to a scientific paper utilizing the survey data (Röntynen, 2025). The limitation, however, was acknowledged, that this study left possible sub-profiles and significant characteristics in the shadow of the dominant one. Therefore, the current study was undertaken, exploring the intergenerational differences between representatives of Finnish rural tourism development within the same set of data.

This study adopts a qualitative, narrative approach to examine generational differences among rural tourism developers in Finland. Given the uneven distribution of respondents across age groups, a narrative and descriptive analysis was deemed most appropriate to capture the nuanced tendencies of each generational cohort, while avoiding overgeneralization that could arise from strictly quantitative comparisons.

3.2 Sampling and Participants

The survey targeted individuals actively involved in rural tourism development across Finland. Participation was voluntary, and respondents represented a variety of professional roles, including project managers, development experts, entrepreneurs, and lecturers. In total, 86 respondents completed the survey, but only 79 of them shared their age, spanning four generational cohorts (Table 1).

Table 1: Generational Breakdown of Finnish Rural Tourism Developers and Survey Responses

Generation	Birth Years	Age Range at Survey	Respondents (n)	Respondents (%)
Generation Z	1997–2012	12-27	4	5%
Milennials	1981–1996	28-43	22	28%
Generation X	1965–1980	44-59	37	47%
Baby Boomers	1946–1964	60-78	16	20%

The majority of respondents were female, particularly among Generation X (86%) and Baby Boomers (87%), while Generation Z had an equal gender split (50/50). Respondents' professional affiliations varied across generations, including educational institutions, municipal development companies, LEADER action groups, tourism associations, and private enterprises, reflecting the diverse organizational contexts in which rural tourism developers operate (Röntynen, 2025).

3.3 Survey Instrument

The survey consisted of structured and semi-structured questions designed to capture multiple dimensions of professional life, including competence needs, preferred communication and information channels, patterns of cooperation with organizations, institutions, and peers, employment characteristics, such as job titles, work settings, and organizational roles. The questionnaire also collected demographic information (age, gender, employer type, and professional role) to facilitate generational categorization and contextual analysis.

3.4 Data Analysis

Due to the unequal sample sizes across generations, particularly the limited representation of Generation Z, the survey results were analyzed using a narrative and qualitative approach. This method allowed for a rich, descriptive comparison of tendencies and preferences among generational cohorts, rather than relying on statistical significance tests, which could be misleading given the sample distribution. The analysis focused on identifying patterns in competence needs, communication habits, cooperation preferences, and employment characteristics, while situating these within broader generational traits documented in the literature.

The study builds on insights from previous research (Röntynen, 2025). By combining these earlier findings with a generational lens, the current study seeks to illuminate the distinctive tendencies and emerging needs of developers from different cohorts, providing a foundation for targeted support, training, and policy measures aligning with the principles of regenerative tourism.

4. Findings: Comparative Analysis of Rural Tourism Developers Across Generations

4.1 Competence Needs

Empirical data reveal that while all represented generations express broad competence needs, the focus differs substantially. Gen Z emphasizes financing, projectification, digital communication, and climate change competencies, reflecting their digital-native background and early exposure to global challenges. Millennials prioritize future competence, responsibility and sustainability, and data-driven management, consistent with literature highlighting their desire for meaningful work and strategic thinking (Stewart et al, 2017; Huhta, 2018). Gen X developers require balanced skills across future competence, productization, and benchmarking, reflecting their pragmatic and entrepreneurial orientation. Boomers focus on social media use, AI, and future competence, suggesting that even traditionalist generations recognize the importance of technology in modern rural tourism development. Critically, these patterns highlight that generational differences in competence needs are often shaped by both technological exposure and career stage rather than intrinsic generational traits (Becton et al, 2014).

4.2 Communication and Information Channels

Communication preferences show clear generational trends. Gen Z relies primarily on social media, favoring fast, visual, and interactive formats. Millennials adopt a hybrid approach, using newsletters and social media (mostly Facebook), and appreciating events and presentations for knowledge exchange. Gen X engages with multi-channel, formal, and data-rich formats, including newsletters, reports, and official statistics. Boomers favor traditional media and structured, face-to-face communication. These findings align with literature emphasizing generational differences in technology use and communication modalities (Calvo-Porral & Pesqueira-Sanchez, 2020; Forsman & Hupli, 2023), but the data also reveal overlaps: both Millennials and Gen Z value interactive events, and Gen X and Boomers actively seek evidence-based information, indicating shared professional priorities despite different communication habits.

4.3 Cooperation and Organizational Engagement

Generational patterns extend to organizational affiliations and cooperation. Gen Z developers engage mainly with educational institutions, reflecting their early career stage and learning-oriented mindset. Millennials utilize educational organizations but also show interest in development companies, aligning with their career ambitions and networking orientation. Gen X frequently interacts with Visit Finland, regional organizations, and development agencies, reflecting their pragmatic, multi-stakeholder approach. Boomers favor educational institutions and have less engagement with consultancy services, consistent with literature describing their preference for established hierarchies and institutional loyalty (Becton et al, 2014; Huhta, 2018). These patterns

illustrate that while generational tendencies exist, organizational structures, professional roles, and sectoral practices mediate the extent of intergenerational differences.

4.4 Employment Characteristics

Roles and titles vary across generations. Gen Z is exclusively project managers, often employed in educational institutions or associations, reflecting their entry-level status. Millennials occupy project management, coordination, and entrepreneurial roles, highlighting transitional career stages and diverse work motivations. Gen X members hold development management and expert roles, emphasizing practical, outcome-oriented contributions. Boomers occupy managerial, entrepreneurial, and advisory positions, consistent with accumulated experience and leadership orientation. Gender distribution also varies, with Millennials and older generations predominantly female, whereas Gen Z shows gender parity, reflecting broader societal trends in gender representation in Finnish rural tourism development. These observations demonstrate that generational differences intersect with career stage, gender, and organizational context, rather than solely reflecting generational identity.

5. Conclusions and Discussion

The findings of the study suggest that while generational differences in rural tourism developers are observable, they are nuanced and mediated by professional context. In terms of digital orientation**,** Gen Z's reliance on social media and fast, visual communication sets them apart from all older generations. Millennials are digitally fluent but prefer structured, collaborative learning. Gen X and Boomers are more utilitarian and formal in technology use. As far as learning and competence development are concerned**,** younger generations emphasize self-directed, experiential, and future-oriented learning, whereas older generations balance competence needs with established practices. Boomers' work values emphasize organizational loyalty and hierarchical respect, Gen X seeks balance and autonomy, Millennials prioritize meaningful work and workplace culture, and Gen Z emphasizes flexibility, innovation, and social responsibility. Generational differences in communication preferences exist but are partly bridged by shared professional requirements; all generations engage with newsletters and events, though modes of interaction differ. Despite differences, all generations recognize the importance of future competence, sustainability, and networking. Generational boundaries are less rigid in practice, as professional roles, sectoral demands, and individual experiences intersect with generational tendencies (Becton et al, 2014; Swim et al, 2022). A synthesis of generational features combining literature and empirical findings are presented in Table 2. The generational profiles are complemented by AI images generated in Microsoft Copilot, using the study data as prompts (Figure 1).

Table 2: Generational Comparison of Finnish Rural Tourism Developers

Generation	Competence Needs	Communication Channels	Cooperation Patterns	Employment Characteristics
Baby Boomers	Future competence, AI, social media use	Phone, email, face-to-face	Formal meetings, institutional loyalty	Managerial, entrepreneurial, advisory
Generation X	Balanced: future, productization, benchmarking	Email, reports, newsletters	Multi-stakeholder, pragmatic	Development managers, experts
Millennials	Sustainability, responsibility, data-driven	Social media, newsletters, events	Collaborative, participatory workshops	Project managers, coordinators, entrepreneurs
Generation Z	Digital tools, financing, climate change	Social media, apps, visual formats	Educational institutions, fast-paced	Project managers in education/associations

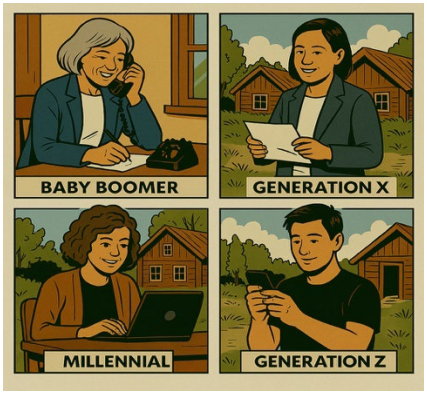


Figure 1: AI-generated Images of the Four Generation of Finnish Rural Tourism Developers

While literature often emphasizes generational contrasts, the Finnish rural tourism data suggest a more nuanced reality. Stereotypes of Millennials as entitled, Gen Z as hyper-digital, or Boomers as rigid (Stewart et al, 2017; Visser & Terblanche, 2025) do not fully capture observed behaviors. Instead, competence needs, communication preferences, and cooperative practices emerge from the interplay of generational orientation, career stage, organizational context, and sectoral practices. Moreover, overlaps across generations – particularly regarding sustainability, future competence, and networking – underscore the potential for intergenerational collaboration. These findings reinforce calls for evidence-based, context-sensitive approaches to managing generational diversity (Becton et al, 2014; Campbell et al, 2015).

By recognizing generational differences among rural tourism developers, stakeholders can design support measures, training, and policies that maximize the potential for regenerative tourism. Intergenerational collaboration offers an opportunity to blend innovation, social awareness, and experience, ensuring that rural destinations not only sustain their current offerings but actively regenerate their ecosystems, communities, and local economies.

The insights of this study hold practical value for tourism managers, educators, governing bodies, and financiers who aim to design support measures, training programmes, and funding instruments that respond to the diverse needs of different generational profiles among rural tourism developers. Understanding these generational tendencies is essential not only for improving professional competencies and communication practices, but also for supporting the wellbeing of developers themselves – an increasingly recognized component of regenerative tourism. Regenerative approaches emphasize the health of social and human systems alongside ecological ones, and the capacity of rural destinations to regenerate ultimately depends on the resilience, motivation, and sustained engagement of the individuals responsible for their development. By tailoring support to the strengths and needs of each generation, stakeholders can contribute to more resilient rural tourism ecosystems.

At the same time, this study is not without limitations. The generational distribution of respondents was uneven, with younger cohorts underrepresented, which restricted the analytical depth and required a qualitative, narrative approach. The qualitative data could have been enriched with in-depth interviews of rural tourism developers representing the different generations, revealing not only the characteristics of each generation but also the interplay between them. This, however, remained out of the scope of the background project. Furthermore, the study is based on self-reported data from a single national context, limiting generalizability beyond Finland. Future research would benefit from larger and more balanced samples, comparative studies across countries, and deeper examination of how generational interplay shapes the capacity of rural tourism systems to pursue regeneration.

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Ethics Declaration

Ethical clearance was not required for the research.

AI Declaration

Microsoft Copilot was used in this research for language review and to create the images of the rural tourism developers.

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Understanding Internship Value from Key Stakeholders' Perspectives in Tourism Entrepreneurship

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Abstract: Internships play a key role in tourism and hospitality education, bridging academic learning and practical experience. They serve as spaces where academic and professional domains intersect, enabling students to navigate multiple roles and perspectives. In Estonia, many students already work in the sector and complete internships at their current workplace. While this provides valuable experiential learning, it also creates challenges for universities in supervision and coordination. This study explores the value created through such internships, drawing on value proposition theory and a modified version of Osterwalder's Business Model Canvas, alongside concepts of boundary crossing and role clarity. Using a qualitative phenomenological approach, data were collected through focus groups and interviews with students, university coordinators, and workplace supervisors. Findings show that although internships benefit all stakeholders, students often face role conflicts as employees, interns, and learners, blurring the educational purpose. Workplace supervisors' roles are often unclear, and universities focus mainly on administrative tasks rather than meaningful collaboration with industry partners. The study emphasizes clearer role definitions, stronger university–employer cooperation, and reflective practices to enhance learning and organizational development.

Keywords: Internship, Current Workplace, Value, Tourism Entrepreneurship, Higher Education, Estonia

1. Introduction

Internships in tourism entrepreneurship link academic learning with professional experience, allowing students to apply theoretical knowledge in real contexts. When structured and supported, internships strengthen engagement and competence development (Van Wingerden et al, 2018; Pusiran et al, 2020). However, insufficient coordination between educators and enterprises often reduces their effectiveness (Veliverronena and Grinfelde, 2018; Bilsland et al, 2020). Successful programs require collaboration among universities, employers, and students, framed by value-based and entrepreneurial learning approaches (Adiba et al, 2023; Hutasuhut et al, 2020). Despite extensive research, most studies focus on students' experiences, leaving the perspectives of educators and employers underexplored (Zopiatis et al, 2021). This study views internships as co-creative learning environments where universities and employers jointly produce value through collaboration. Grounded in value creation and boundary-crossing theories (Akkerman and Bakker, 2011), internships are seen as bridges connecting academic and professional practice, helping students navigate multiple roles.

At two Estonian universities, internships form about 17–18% of the tourism entrepreneurship curriculum, comprising three four-week placements over three years. Despite their importance, limited research examines how internships create value for students already employed at their placement sites. A 2024 survey (n=41) revealed that 32% of first-year students worked full-time, 34% part-time, 12% were entrepreneurs, and 22% unemployed. Given their diverse situations, internships must provide mutual value to all stakeholders. This requires boundary crossing: universities must grasp employer needs, employers must appreciate learning outcomes, and students must balance triple roles as learners, interns, and employees (Akkerman and Bakker, 2011; Mejia and Wickey-Byrd, 2023).

The study aims to understand the value of internships in the tourism sector from the perspectives of students, universities, and enterprises, focusing especially on cases where internships occur at the student's current workplace. The central research question is: *What value do tourism entrepreneurship internships provide to students, universities, and enterprises, particularly when conducted at students' existing workplaces?* The theoretical section reviews academic literature on value creation and boundary crossing, while the empirical part explores how collaboration generates value through learning. The findings yield recommendations for universities to strengthen stakeholder cooperation within tourism entrepreneurship curricula.

2. Theoretical Background

Internship value in tourism education can be analyzed through three frameworks: the curriculum innovation canvas (Willness and Bruni-Bossio, 2017), boundary crossing theory (Akkerman and Bakker, 2011), and workplace learning and mentorship (Tynjälä 2008; Zhou et al, 2022). Together, these illustrate how internships foster collaboration, learning, and stakeholder value.

The business model canvas from Osterwalder was selected as one of the central theoretical foundations, as it describes how an organization generates value, delivers it to customers, and benefits from it (Osterwalder 2004; DaSilva and Trkman, 2014). Osterwalder's theory is particularly effective in examining value, such as facilitating multi-stakeholder collaboration, which supports the co-creation of innovative educational experiences (Willness and Bruni-Bossio, 2017). Osterwalder's business model canvas is a versatile tool that can be adapted to various contexts, such as helping define what creates value while balancing authenticity by making a profit (Carter and Carter, 2020) or functioning as a checklist to assess value creation, capture, and delivery in entrepreneurship (Sort and Nielsen, 2018). Building on this foundation, the curriculum innovation canvas of Willness and Bruni-Bossio (2017), structurally inspired by Osterwalder's model, fosters creative thinking, multi-stakeholder collaboration, and continuous curriculum improvement. It emphasizes co-creation and the long-term improvement of academic programmes to create value for stakeholders.

Improving internship programs enhances their value proposition, benefiting students, employers, and universities, and supporting human capital development (Van Wingerden et al, 2018; Pusiran et al, 2020). As key contributors to workforce development, education providers must align their programs with the needs of students and the tourism industry (OECD, 2024; Wormald, 2013). A value proposition, which explains why customers choose one option over another (Osterwalder & Pigneur, 2010), in the context of internships reflects the relevance and outcomes that students and employers' value. Its strength depends on leadership, structure, and product knowledge (Payne et al, 2017), as well as organizational and psychological resources like mentorship and job rotation, which foster clarity, satisfaction, and commitment (Zhou et al, 2022; To and Lung, 2020).

Hotels, as common internship sites, support career development by promoting role clarity (Yu et al, 2024), which enhances learning and performance (Capitano et al, 2022; Suan and Nasurdin, 2013). However, roles with high autonomy and low formalization may increase ambiguity for interns. Supervision and mentoring are central to internship quality, as they facilitate the transformation of tacit into explicit knowledge and help students connect theory with practice through reflective activities such as discussions, portfolios, and written assignments (Tynjälä, 2008; Hora et al, 2023). A meaningful internship enhances engagement and strengthens value propositions for students and institutions. Holistic employee experience, relevant also for interns, requires aligned systems and leadership (Panneerselvam and Balaraman, 2022). Engagement, gratitude, and customer value foster loyalty (Qi et al, 2023), while structured employer involvement connects students with professionals (Mason et al, 2022). Internships bridge academia and industry, improving employability and offering fresh perspectives (Della Volpe, 2017). Key factors for students include compensation, clarity, autonomy, and supervision (Hora et al, 2023). Challenges like delays and uncooperative hosts require effective coordination (Soffi and Mohamad, 2021).

Internships involve boundary crossing, as students move from the classroom to the workplace, a process that requires both mental and emotional adaptation (Mejia and Wickey-Byrd, 2023). Boundaries offer learning opportunities through identification, coordination, reflection, and transformation (Akkerman and Bakker, 2011). Work-integrated learning supports professional growth via reflection (Tynjälä, 2008; Roosipõld et al, 2020), while transformative learning requires self-reflection and openness (Soomere et al, 2024; Taylor and Cranton, 2013). Collaboration between universities and industry fosters knowledge integration (Ruiz-Cantisani et al, 2021), and real-world experience is vital for adaptation (Tynjälä et al, 2020; Saadat and Saadat, 2016; Anwar and Abdullah, 2021; Leary and Sherlock, 2020). Sustaining change in higher education requires treating organizational change as a learning process (Boström et al, 2024; Dee and Leisyte, 2017), with transformative and organizational learning key to embedding sustainability (Trevisan et al, 2024). The internship value model canvas (Figure 1) developed on curriculum innovation canvas by Willness and Bruni-Bossio (2017), the boundary crossing concept (Akkerman and Bakker, 2011), and role clarity perspectives (Capitano et al, 2022; Suan and Nasurdin, 2013) illustrate the value model canvas for internships, where placements at students' current workplaces generate value for all stakeholders.

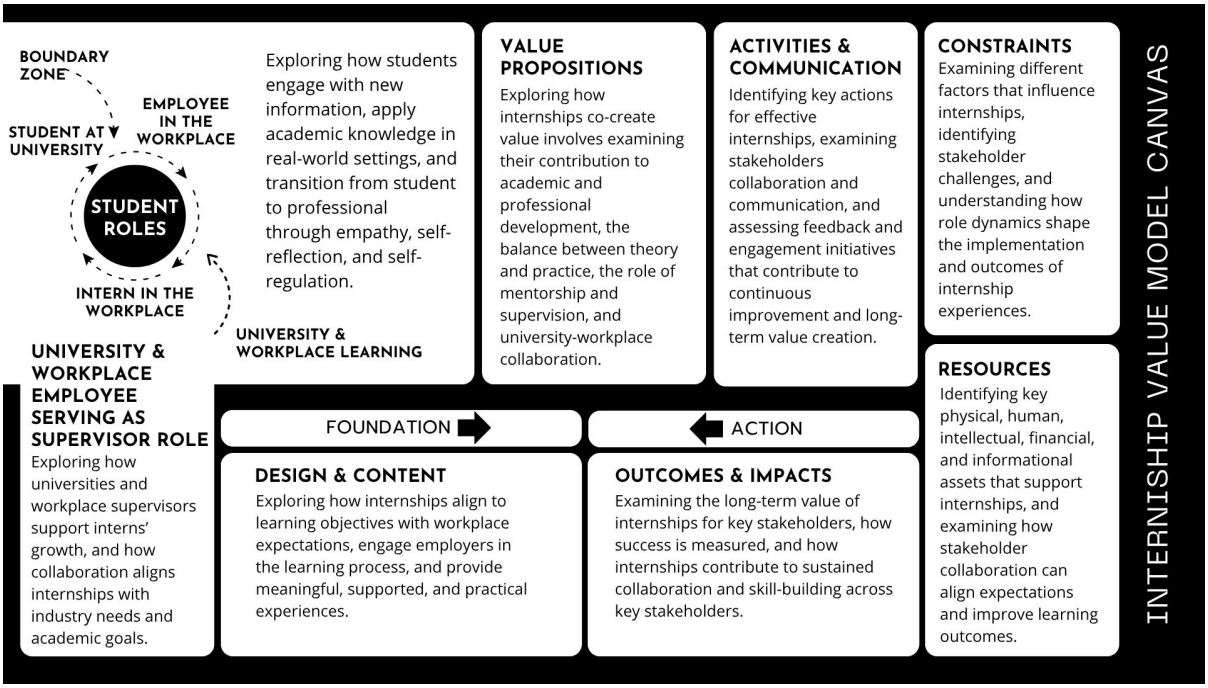


Figure 1: Internship value model canvas developed on curriculum innovation canvas by Willness and Bruni-Bossio (2017), the boundary crossing concept (Akkerman and Bakker, 2011), and role clarity perspectives (Capitano et al, 2022; Suan and Nasurdin, 2013).

Based on the curriculum innovation canvas, boundary-crossing theory, and role clarity, it emphasizes active implementation. The foundation phase builds relationships and content, whereas the action phase transforms these into learning outcomes. The central value proposition links all elements, and flexible design highlights student identity and co-created value at the intersection of academic and workplace learning.

3. Research Methodology

This study applied a qualitative phenomenological approach to explore internships from the perspectives of students, supervisors, and universities, complemented by illustrative quantitative data. Due to the small and specialized sample, universal sampling was used to ensure comprehensive inclusion (Czernek-Marszałek and McCabe, 2024).

Participants included:

- 14 students from two Estonian universities, completing internships in their current workplaces.
- 5 enterprise supervisors.
- 6 university representatives (internship specialists, program managers, and heads of studies), with one person holding a dual role.

The interview framework addressed role clarity, value propositions, activities, resources, constraints, and outcomes (Figure 1). This approach enabled a deep understanding of value creation in tourism internships, emphasizing boundary crossing and stakeholder collaboration.

3.1 Data Collection

Data were collected via focus groups and individual interviews conducted online (MS Teams). A pilot interview helped refines questions. Interviews were held in Estonian to ensure natural expression, with questions adapted from an English-language framework. Semi-structured interviews allowed flexibility, and data saturation was reached after interviewing five internship organizations (two hotels, one hotel restaurant, two leisure/cultural entities). Confidentiality was maintained through coded identifiers (Table 1)

Table 1: Background information of the participants.

Participant	Group or individual interview	Length of an interview
S-1 to S-4	Group interview 1	1 hour 40 minutes
S-5 to S-8	Group interview 2	1 hour 20 minutes
S-9 to S-11	Group interview 3	1 hour 5 minutes
S-12, S-13, S-14	Individual interview	average 35 minutes
U-1 to U-5	Individual interview	average 55 minutes
W-1 to W-5	Individual interview	average 50 minutes

Abbreviations: S – student; U – university representative; W – workplace representative

3.2 Data Analysis

All interviews were transcribed and analyzed using both deductive and inductive approaches. The deductive analysis was guided by predefined categories from the theoretical framework, including value propositions, activities, resources, constraints, outcomes, and roles, while the inductive coding helped identify meaningful content within these categories.

During the coding process, inductive methods were used to extract meaning from the data, focusing on identifying the content that aligned with predefined categories. Each key stakeholder group (universities, students, and workplaces) was analyzed, and relevant textual excerpts were assigned to each category. This allows for context-sensitive interpretation while maintaining a structured analytical lens. Once coded, the content within each category was compared across stakeholder groups to identify similarities and differences between them. These cross-group comparisons highlight shared and conflicting views. The results are presented according to theoretical categories, ensuring a systematic structure that supports interpretation and clarity. The analysis concludes with a summary of the main findings and practical recommendations based on the data.

3.3 Results

The results are structured thematically, beginning with stakeholder roles and interactions in the boundary zone, which shape students' experiences and clarify the value proposition. According to the internship value model canvas (Figure 1), students often identify more as employees than interns or students do, leading to role conflict and blurred boundaries, especially when tasks lack clarity. The students' roles, based on the insights of the interviews, are shown in Figure 2.

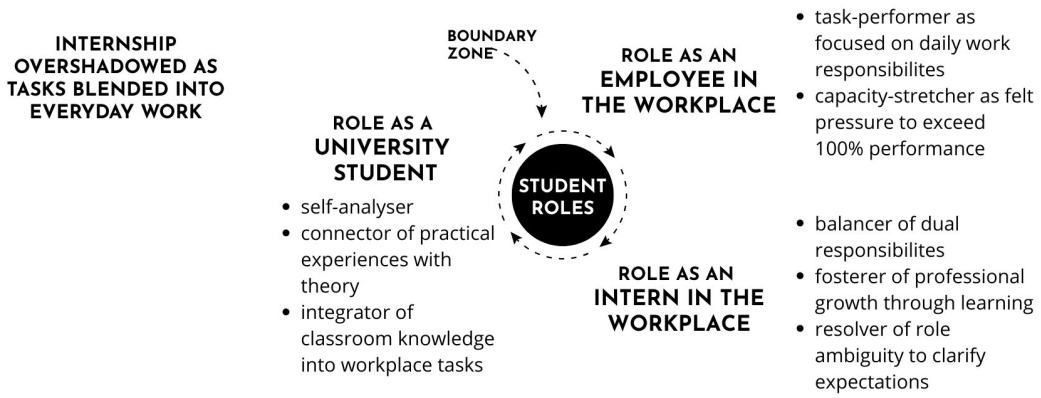


Figure 2: Students' roles according to the insights of interviews.

Students emphasized the need for clearer supervisor roles and suggested short, practical training for workplace mentors. They recommended more constructive and practice-oriented feedback from university supervisors.

Despite these challenges, internships remain valuable for applying academic knowledge and encouraging active, reflective learning.

3.3.1 Design and Content

Internships at current workplaces were seen as convenient, but the academic report was viewed as bureaucratic and disconnected. Students suggested shorter formats, clearer links to coursework, and greater employer involvement. Universities acknowledged the need to better communicate internship value, while employers requested standardized guidance.

It could be in the enterprises' own interest (so that internship reports reach the workplace). I would be interested. (U-2)

All stakeholders saw value in short-term job shadowing and cross-organizational experiences to broaden learning, although concerns about confidentiality and limited resources were noted. Students supported the idea if they aligned with their work and studies.

Short-term job shadowing would be a nice experience but difficult to implement. Good idea. (S-10)

Universities recognize the potential but would need to take an active role in coordination. Employers support this idea in principle, especially in similar sectors, but highlight the need for clear structures and agreements to ensure feasibility and clear outcomes.

3.3.2 Activities and Communication

Supervision varied: some students felt supported, others left alone. University visits were appreciated when practical advice was offered.

I felt that guidance from the university was minimal or invisible. (S-2)

Workplace supervision was informal and continuous, while university cooperation was often formal and distant. Feedback was mostly brief, and students desired more engagement.

Supervision flows well; I do not set a specific time for it; we talk during working hours. (W-1)

Universities differed: one relied on individual initiatives, the other had formal partnerships but lacked integration of feedback into curriculum.

Employers valued feedback and proposed tools like supervisor logbooks, stressing the need for mentor training and university collaboration.

3.3.3 Resources

Universities provided multilayered support (seminars, guidance, digital tools). Both used tripartite agreements, though formats varied. Workplaces often saw them as formalities. Interns already employed were treated as staff; new interns lacked onboarding materials.

We do not have any designated guidelines on how to proceed when an intern arrives. (W-4)

Workplaces offered practical tasks and access to resources, but lacked standardized procedures.

3.3.4 Constraints

Students found report writing complex, and noted employer resistance, unclear supervision, and digital system limitations. At one university, enterprise representatives lacked access to assessment tools; at the other, placement availability was the main issue. Workplaces cited time constraints and seasonality as barriers.

It is difficult to plan your own time resources to supervise the interns. (W-3)

Despite challenges, internships were seen as essential for linking theory and practice.

You can combine theory with practical life. (S-11)

Here, he (intern) experiences real-life moments and can take them back to university. To turn them into learning opportunities. (W-5)

Motivation issues arose from unclear expectations and poorly defined tasks, with misaligned timing adding further complexity.

3.3.5 Outcomes and Impacts

Students valued internships for applying theory to practice, learning new tools (e.g., Canva), expanding networks, and exploring career paths. Internships improved communication skills and confidence.

I have applied the knowledge gained at the university during my internship to improve my job. (S-1)

Experience varied by initiative—some found tasks repetitive and lacking novelty.

It has not created any special value for me, as I have done this work before, and it is just a reinforcement. I did not experience any 'wow' effect. (S-7)

Internships in current workplaces felt safe and familiar, though finding external placements was difficult. Summer timing raised concerns; students suggested spreading internships and reporting throughout the year. Many emphasized personal growth and confidence.

I was pretty much a scaredy-cat... now I write to enterprises myself and am not afraid of hearing 'no.' (S-12)

Internships helped clarify career direction and sometimes led to employment. Their value was greater when aligned with studies and offered new tasks.

3.3.6 Value Propositions

Students noted limited employer engagement and rare structured communication between universities and enterprises. Universities emphasized internships as a bridge between theory and practice, and called for more intellectually challenging tasks.

…Internship tasks should be transformed into smaller projects or cases that would challenge students intellectually as well. You have a real organization and a real problem, and as a team, we (students) need to solve it… (U-1)

Traditional formats were less valuable for employed students, prompting universities to explore alternatives like project-based internships. Flexibility and individual tailoring were seen as key to increasing relevance.

It has not created any special value for me, as I have done this work before, and it is just a reinforcement. (S-7)

The value of internships is greater for those who are still looking for direction in the tourism field, as it gives them an opportunity to experience a real work environment and decide whether the field suits them. For employed students who complete internships in their current workplace, the value is seen more in the opportunity to engage with new tasks and expand their skills in the field. Since some students did not see the value of internships, implementing this new approach could bring a clear change to them. Like students, university representatives agree that internships help to connect academic knowledge with real work practices. They see the potential to offer more flexible and individually tailored internships to better meet students' needs. Merely performing routine work is not considered valuable.

Universities acknowledged the need for better coordination with employers, especially in supervision and curriculum integration. Employers valued interns for fresh perspectives and ideas, but stressed the importance of clear expectations and collaboration with universities. Interns contributed to improved processes and organizational development. Workplaces noted interns adapted quickly but lacked meaningful feedback. Short-term job shadowing was widely supported but seen as difficult to implement due to resource and confidentiality constraints. Students appreciated internships in their current workplaces but criticized lengthy academic reports as disconnected from experiential learning. Theoretical knowledge helped understand practical work, though searching for research articles was seen as less relevant.

4. Discussion and Conclusion

This study explored the value of tourism internships conducted in students' current workplaces. For students, the main value lies in applying theoretical knowledge in practice, although the experience varies. Workplaces valued fresh perspectives, whereas universities saw internships as a bridge to industry collaboration, highlighting their transformative potential.

The interpretation of value was supported by Osterwalder's value proposition theory using an adapted version of the Willness and Bruni-Bossio (2017) model. Given the nature of internships conducted at students' current workplaces, clarification of stakeholders' roles is particularly important. Boundary-crossing theory helps to understand how students and supervisors navigate transitions between different roles, integrating theories of experiential, transformative, and integrated learning as a broader framework for understanding how learning during internships supports both individual and organizational development. The findings of this study reveal that the clarity of roles among the three stakeholders involved in the internship process varies considerably. The role of workplace supervisors has emerged as the least clear and ambiguous. Based on these findings, a question arises: in what format should workplace supervision be organized when interns are already daily employees? Nevertheless, it is crucial to clearly define and acknowledge the role of the workplace supervisor, as Capitano et al (2022) and Suan and Nasurdin (2013) emphasize that clarity in this role is important for enhancing interns' learning, engagement, confidence, and performance.

These findings raise an important discussion about the unclear roles of different stakeholders in the internship process. While students mostly see themselves as employees rather than interns, universities tend to focus on linking theory with practice through task reporting. This limits the potential of internships as a meaningful learning experience. This confusion limits the educational value of internships, as students are not fully supported as learners and workplaces are not fully engaged as co-educators. Therefore, clearer role definitions and more active reflective involvement from both universities and workplace supervisors are essential to better support student development.

From the perspective of analytical tasks, portfolios, and self-assessment, the findings indicate that they have value for learners, which aligns with Tynjälä's (2008) view that they are valuable tools for converting tacit knowledge into explicit knowledge. The value for learners is diminished only by the length of the reporting and excessive academic approaches. Self-assessment and reflection are also important from the perspective of workplace supervisors as they involve acquiring new knowledge (Akkerman and Bakker, 2011). However, workplace supervisors did not explicitly mention this in their responses, suggesting that no transformation is taking place, nor are existing practices altered in the workplace. Self-reflection could offer value to workplace supervisors, but the issue lies in the fact that supervisors do not fully recognize this, as revealed by the interviews.

There is limited structured employer engagement, which according to Maison et al (2022), can reduce the overall value proposition. Interviews also highlighted that, for students, the value of internships is diminished by the challenges associated with reporting, where an overly academic approach is expected. Therefore, more creative approaches are required. Furthermore, communication-related factors also play a role. This may stem from a lack of attention paid to the role of experience and empathy, which is supported by the findings of Taylor and Cranton (2013).

Common themes emerged from the student interviews, which Hora et al (2023) also highlighted, including factors such as autonomy, academic coordination, and quality of supervision, which are essential for understanding the relationships between internships and student development. In addition, students emphasized other key advantages of internships, such as the application of theory in real-world settings, practical skill development, career exploration, network building, and personal growth, particularly in developing soft skills, such as communication and self-confidence. However, factors such as compensation and task clarity were not mentioned, which may have been influenced by the fact that students are already everyday employees in specific enterprises.

Based on the results, it is also evident that transformative learning is lacking from the university perspective, which aligns with Boström et al (2014) finding that transformative learning is a complex process both individually and collectively. Different universities have approached internships in different ways, highlighting the opportunities for mutual learning. This suggests that universities could benefit from learning from each other's approaches to internship programs and aligning their methods to enhance the overall experience for all stakeholders. Table 2 presents targeted recommendations for universities to improve support and strengthen the internship experience.

Table 2: Recommendations for universities to enhance the value proposition based on the research findings.

Stakeholders view	Theory	Proposal to universities
Unclear supervisor roles	Role clarity improves learning and engagement (Suan and Nasurdin, 2013).	Define supervisor roles clearly in internship guidelines.
Need for self-reflection	Self-reflection transforms tacit into explicit knowledge (Tynjälä, 2008).	Simplify reports format, focus on self-reflection, offer flexible formats (e.g., project-based).
Student motivation varies	Reflection fosters coherence in learning (Roosipõld et al, 2020).	Encourage reflective feedback from both university and workplace supervisors.
Limited collaboration	Partnerships enhance programme success (Van Vechten, 2021; Zainullina and Kedrova, 2020).	Strengthen collaboration between university and workplace supervisors; involve employers in curriculum design.
Different university approaches	Common understanding builds commitment (Ruiz-Cantisani et al., 2021).	Promote inter-university collaboration and knowledge exchange.

This study demonstrates ways to increase the value of key stakeholders, providing a strong foundation for change. These recommendations are aimed at universities, providing proposals to improve support and enhance internship experience. This research also supports Dee and Leisyte (2017) claim that organizational learning is essential for sustaining change, highlighting its role in institutional transformation within higher education. When managing such changes, it is important to consider that involving key stakeholders in the process is crucial for value creation for all parties.

This research offers a new perspective on internships undertaken by students within their current workplaces, highlighting the importance of role definition in successful boundary-crossing. This also complements boundary-crossing theory. However, a limitation of this study is its focus on a specific field, which limits the generalization of the results to internships that students perform at their current workplaces. Future research should explore similar studies in other sectors to develop a more comprehensive and transferable internship value model.

Although this study focuses on tourism entrepreneurship, its findings are broadly relevant, especially for internship models where students remain in their current workplaces. The identified challenges and opportunities, including role clarity, structured mentorship, and reflective engagement, highlight factors that enhance value creation and support boundary crossing. These insights also apply to wider educational partnerships, where clear roles and supportive structures are vital. By emphasizing value creation and boundary crossing, this research can inform the design of partnerships that promote meaningful learning across diverse educational environments.

Ethical Declaration

This study involved voluntary participation. All participants were informed about the study's purpose and gave prior consent. The research followed the principles of anonymity, confidentiality, and voluntary participation in accordance with the University of Tartu ethics guidelines.

AI Declaration

AI tools were used only for language editing. The content and conclusions are entirely the author's own.

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Sustainability in Tourism and Hospitality Degrees: A Systematic Review

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Abstract: Sustainability has been of greater concern in all industry sectors, specifically in hospitality and tourism, which highlight the need for skills in sustainability in the sector. Therefore, higher education institutions must consider this concern of industry and incorporate this topic in hospitality and tourism curriculums. This paper makes a systematic literature review on sustainability topics included in hospitality and tourism curriculum of higher education courses. It was analysed 48 papers indexed on Web of Science database that discussed the presence and/or requirement for sustainability topics in higher education curriculums. This study shows that the first study on this topic only started in 2015 and emphasizes that only in the last two years it has been of greater concern by researchers, but still needing to be more carefully addressed by higher education institutions to effectively include sustainability topics in hospitality and tourism curriculums. Moreover, more research is needed to push higher education curriculums in hospitality and tourism to fully address the topic of sustainability and well prepare the future professionals of the sector.

Keywords: Curriculum; Higher Education; Hospitality; Sustainability; Tourism

1. Introduction

How to integrate sustainability into the undergraduate curriculum is a topic of rising pedagogical discussion because of the growing significance of sustainability in the Hospitality and Tourism sector. The requirement of teaching sustainability in the Hospitality and Tourism curriculum (Deale et al., 2009) and assessing stakeholders' opinions regarding curriculum instruction in this area (Barber et al., 2011) have been the main themes of the preceding systematic review. According to Phi & Clausen (2020), the sector is often promoted as an important driver of global economic growth but is criticized for its sustainability on issues such as rising inequality, climate change and over-tourism. This current context therefore provides increased needs for the development of tourism students' innovation skills, to better adapt and cope with change and contribute to meeting the sector's growing challenges. To Ruano-Borbalan (2019), in addition to formal academic training, there must be transversal and tacit knowledge that articulates the personal, social, political, and professional dimensions. Tourism students, as future tourism professionals and leaders, must take responsibility and concrete steps to ensure a sustainable future for both industry and the world. Innovation skills must be fostered in tourism higher education, as well as their motivation and confidence in becoming future tourism change agents and responsible professionals (Phi & Clausen, 2020). To Hayes (2020), for tourism to be truly sustainable, it is crucial to have a balance between the needs of the business world, socio-cultural, and environmental needs. Educators must balance the professional and liberal education of curricula to genuinely contribute to a better and more sustainable world through their educational work (and not just our research work), and it can even be argued that this issue should be brought to the forefront. It could be argued that this is a necessary focus within a service industry like tourism, and this means that graduates coming out of these curricula are likely to be competent employees (Hayes, 2020). As they develop reflective skills, these graduates may also be able to recognize when they, or the organization they work for, are underperforming and take corrective action to mitigate it. It will be a while before all management students can be considered to have received a comprehensive education on environmental issues, claim Larrán & Andrades (2015). To guarantee that future managers act sustainably, it would be required to create more ecologically conscious organizational management courses for the upcoming generation of students. Larrán & Andrades (2015) defend that only institutional and legal pressure from stakeholders might address the dearth of environmental teaching at Spanish colleges. The absence of social pressure is one of the primary obstacles to turning institutions into sustainable universities (Ferner-Balas et al., 2008). The existence of coordination bodies and initiatives, with society and the availability of finance, are the primary forces behind change, all of which are critical for advancement. To Ferner-Balas et al. (2008), it is crucial to improve interdisciplinarity as a strategic goal and create networks of expertise within universities. To Ruano-Borbalan (2019), in addition to formal academic training, there must be transversal and tacit knowledge that articulates the personal, social, political, and professional dimensions. Tourism students, as future tourism

professionals and leaders, must take responsibility and take concrete steps to ensure a sustainable future for both the industry and the world. Innovation skills must be fostered in tourism higher education, as well as their motivation and confidence in becoming future tourism change agents and responsible professionals (Phi & Clausen, 2020). More specific policies are needed to create a sustainable future for all, both within higher education in tourism and beyond (for example, in start-up incubators, innovation centres and the travel sector in general). To Phi & Clausen (2020) higher education institutions should recognize different pedagogies for innovation education in tourism curricula (compared to traditional pedagogies and education) and adapt both administration and program to better accommodate the different teaching tasks and functions. According to Hayes (2020) programmes should encourage student reflection on the complex relationship between tourism, people, and the planet (i.e. liberal reflection). Slocum et al. (2019) argue that the mission of higher education remains the stimulation of critical thinking, decision-making skills, and ethics. However, some universities are market orientated. Sustainable tourism is deeply linked to the Sustainable Development Goals (SDG) and its integration into higher education implies a responsibility to contribute to the long-term success of these goals. According to Slocum et al. (2019), academia must provide the means to engage students with multiple forms of knowledge to inform the individual's role in society. Zizka & Varga (2020) claim that the mindset about sustainability has changed from following the law to acting morally. To better prepare students to become leaders who care about the world they share with others, several higher education institutions have included sustainability principles into their curricula and as part of their overall school strategy. To Ruhanen & Bowles (2019), the importance of education in promoting sustainability action and change is becoming more widely acknowledged. Given that over a billion people travel abroad annually, it is critical that we create efficient strategies to inform and motivate these individuals to take longer-term, more sustainable, and ethical travel habits. Higher education institutions must become significant contributors to the promotion of sustainability (Ruhanen & Bowles, 2019) and the preparation of a new generation of graduates whose values and skills contribute to social progress and the advancement of knowledge. To Zizka & Varga (2020), higher education instructors should give students the chance to have an appreciation for making decisions that consider the social, environmental, and economic pillars of sustainability both now and in the future. Conefrey et al. (2025) realized that there is a substantial knowledge gap in sustainable literacy among third-level tourism degrees, especially when it comes to measuring and tracking emissions to help make the shift to Net-Zero emissions before 2050. Higher education plays a crucial role in equipping tourism graduates with the knowledge and skills necessary to enhance sustainability and climate action (Arrobas et al., 2020).

In general, this research aimed to develop a systematic review and study of the literature to highlight the findings of how sustainability is offered in Hospitality and Tourism Degrees. Additionally, it presents helpful direction for creating programs and curricula that promote sustainable practices. The results of this study have the potential to provide information on how to develop sustainable tourist practices and climate change education.

2. Methods

2.1 Searching Strategies, Inclusion and Exclusion

The literature search was conducted using the Web of Science due to the fact that this is the database licensed for Higher education institutions. The strategy involved using as topic the terms “(hospitality OR tourism) AND sustainab* AND (curriculum OR curricula)”. All search attempts focused on the sustainability issues applied to tourism and hospitality curriculum in higher education degrees. The search was made during April 2025.

The inclusion criteria were: (a) studies focused on sustainability in the hospitality and tourism curriculum; (b) full paper and early access available in Web of Science; (c) the text had to be written in English. The exclusion criteria were: (a) inability to access the full text; and (b) being a systematic review paper.

2.2 Searching Process

In the first step, a total of 146 publications were collected from the Web of Science. In the screening phase, considering papers and early access, we achieved 108 papers. We removed 4 papers because they were not written in English. In the screening of the title and abstract, according to the study objective, we identified 51 papers. It was removed 53 records. In the eligibility analysis, it was excluded 3 papers, remaining 48 full papers for analysis that are suitable for a systematic review (Paul & Criado, 2020).

2.3 Data Analysis

A bibliometric performance analysis was performed for the 48 articles. This analysis consisted of a quantitative description of the paper according to the following information: Annual scientific production, Knowledge areas of publications, Countries, Most relevant authors, Most relevant articles, and Journals. In this stage, tables, graphics and visualization maps were prepared in a segregated way to present the main results

Moreover, a science mapping using VOSviewer was performed. For this analysis, a cluster was created for the keyword (conceptual structure) and a cluster for co-citation (intellectual structure). The results interpretations and discussions were based on the analysis of the science mapping and identification of the most relevant aspects conducted through the main evolutionary analysis techniques and relational analysis.

3. Results

3.1 Bibliometric Performance Analysis

This section aims to present the main results related to the sample in a global context to provide an overview of the state of art based on bibliometric performance analysis techniques to present the key evolutionary indicators (annual scientific production, knowledge areas, countries, journals, most relevant authors, and most cited papers).

In order to promote a broad debate related to issues of sustainability in the curricula of Hospitality and Tourism higher education degrees, it is important to know in which area of knowledge efforts are being directed towards the development of scientific production related to this topic. Figure 2 shows the subject areas' proportions of the 48 papers analyzed in this systematic review. Most papers, in the Web of Science, were classified in the Business Management and Accounting, and Social Sciences subjects, representing 36% of the total sample. Business, Management and Accounting as a knowledge represents 28% of the total sample.

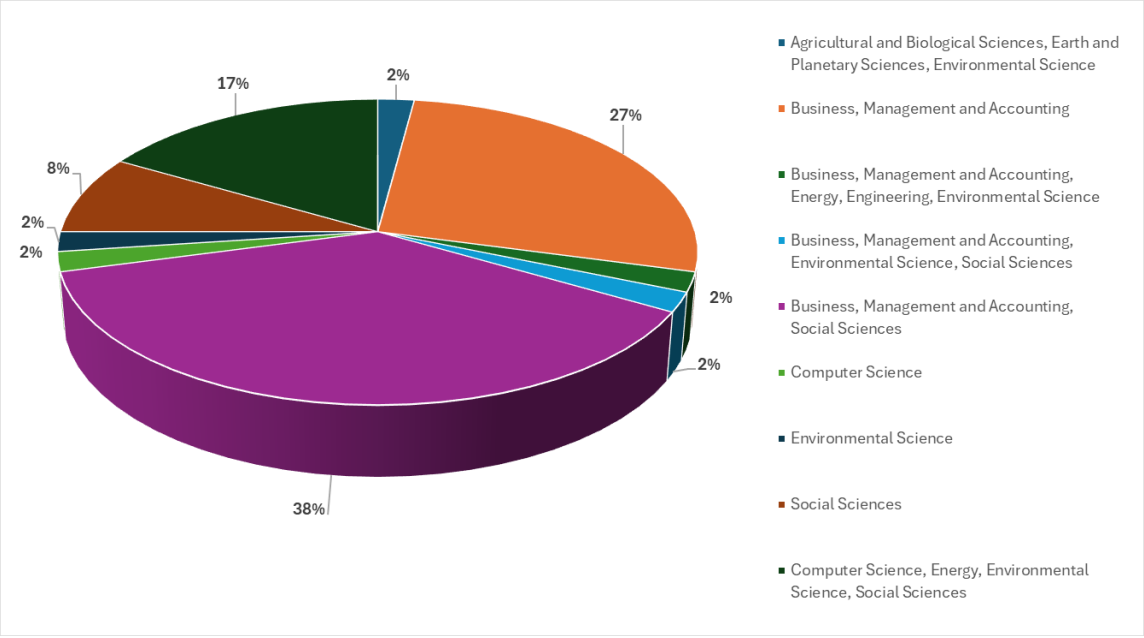


Figure 1: Knowledge areas of papers

3.1.1 Countries

Within the scope of this sample study, the 48 papers analyzed were produced by authors from 24 countries, as observed in Figure 3. Publications covered multiple countries. Considering the continent, we can observe that 17 were produced in Europe (36%), 18 (38%) in Asia, and 8 in America (17%). At the country level, the most frequent is USA (n=8, 17%), followed by Spain (n=5, 10%) and China (n=5, 10%).

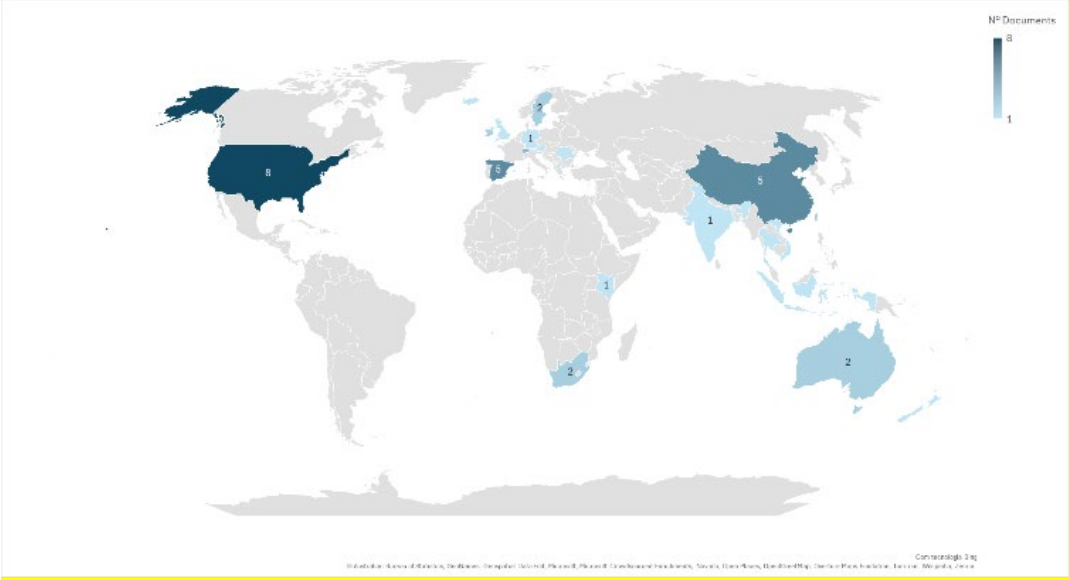


Figure 2: Country scientific production

3.1.1 Most Relevant Papers

The list of the most cited papers is presented in Table 1. The most cited paper (Tasdemir & Gazo, 2020) aimed to contribute to the strategic alignment of higher education institutions and corporate organizations by developing a course curriculum that integrates modern management techniques and sustainability concepts with wood products industry dynamics, which also focuses on project-based learning (PBL). Main findings suggested that the proposed course content successfully increased sustainability awareness at both overall and individual sustainability pillar levels. At the end, 100% of students were able to develop a complete understanding of various modern management techniques and stated that they feel confident to apply learnt skills to real-life issues within their profession upon graduation (Tasdemir & Gazo, 2020).

The second most cited paper (Coterrell, 2019) aimed to analyze the strength of sustainability conceptualizations underpinning international undergraduate sustainable tourism courses. Results suggested that sustainable tourism courses do not include “very strong” conceptualizations of sustainability, and that sustainability pedagogy and approaches such as systems and holistic thinking are not widely used.

3.1.1 Journals

Regarding the distribution of the journals that published the most within the sample under analysis, with their Quartile, despite a dispersed sample, the journal with the most papers published was Sustainability (n=8). Sustainability is a Q1 journal, with an impact factor of 3.3 and a cite score of 7.7 in the year 2023. The second journal that published the most articles were the Journal of Hospitality, Leisure, Sport & Tourism Education (n=7) and the Journal of Teaching in Travel & Tourism (n=7). The Journal of Hospitality, Leisure, Sport & Tourism Education is a Q1 journal, with an impact factor of 4.8 and a cite score of 10.6. The Journal of Teaching in Travel & Tourism is a Q2 journal, with an impact factor of 1.3 and a cite score of 4.3.

3.2 Science Mapping Techniques

This sub-section aims to present the results of the science mapping analysis, namely the relational keyword co-occurrence and co-citation analysis. Science mapping explore the relationships between researchers’ constituents through conceptual, intellectual and social connections analysis (Donthu et al., 2021).

3.2.1 Conceptual Structure

The conceptual structure of a research consists in the analysis on the most important keywords co-occurrence of the documents, allowing the mapping of clusters terms extracted from keywords, titles, or abstracts in a bibliographic collection (Aria & Cuccurullo, 2017). This analysis is crucial to enable understanding relationships among various scientific concepts and to reveal the evolution of research topics and knowledge (Zeng et al, 2017).

The VOSviewer software was used to construct the words co-occurrences map, as observed in Figure 5, considering the keyword plus metric as unit of analysis, in a full counting method, and considering the minimum number of 5 occurrences of a keyword. With these parameters, and according to the metadata information, 13 keywords were selected, resulting in three clusters.

The first cluster (shown in red) on Figure 5 is composed by five words: education, curriculum, business, attitudes and behavior. The second cluster (shown in green) is composed by four words: tourism, management, challenges, and higher education. The third cluster (shown in blue) is composed by four words: hospitality, students, framework, and perceptions.

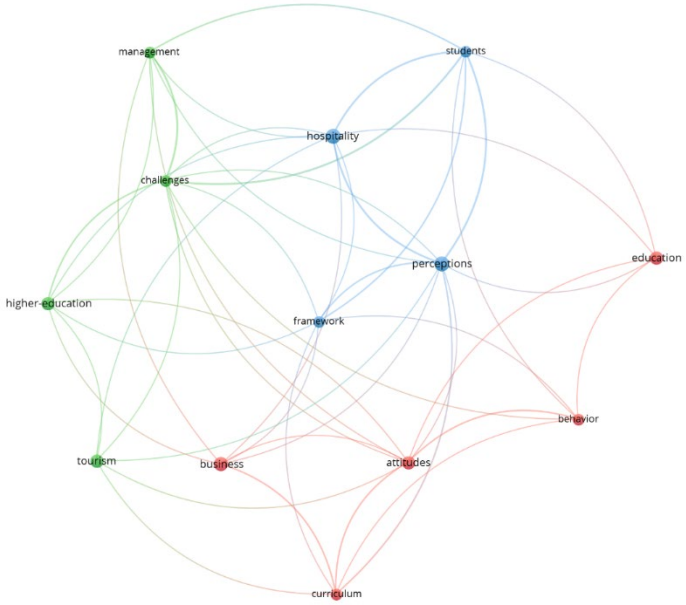


Figure 3: Keyword Plus co-occurrence analysis

3.2.1 The Intellectual Structure

The intellectual structure of a knowledge area can be made through co-citation analysis (Köseoglu, 2020). The co-citation is defined as the frequency with which two papers of earlier literature were cited together by the later literature (Aria et al., 2020). The VOSviewer software was used to construct the co-citation map, as shown on Figure 5, considering cited authors metric as unit of analysis, in a full counting method, and considering also four as a minimum number of citations of an author. With these parameters, 27 authors were identified as the threshold for this analysis based on the calculation of the total strength of the co-citation links between authors. As a result, three clusters were identified in the sample with a total of 2735 citations, 177 links between papers and a total link strength of 272. The red cluster is the largest, comprising 12 publications. The highly cited publication is Boley (2011) with seven citations. The green cluster is the second largest cluster with 11 papers. blue cluster is the smallest cluster with four publications. The highly cited publication in this cluster is Alexakis (2019) with five citations.

In the red cluster, the most cited author is Boley (2011) with the paper Sustainability in Hospitality and Tourism Education: Towards an Integrated Curriculum. In this paper the main subject debated over whether or not sustainability should be taught in the Hospitality and Tourism curriculum. According to these papers (e.g Boley, 2011), rather than restricting its inclusion to particular classes or majors, an integrated sustainability curriculum will give students a better education and better preparation for the Hospitality and Tourism industry.

In the green cluster, the most cited authors are Tribe (2002), Wilson & von der Heidt (2013), and Boyle et al. (2015). In Tribe (2002) study the concepts for curriculum organization in higher education tourism courses are analyzed. The framework suggested is based on four basic realms of liberal reflection, liberal action, vocational action, and vocational reflection. This framework makes it possible to highlight the issues with curriculum that are overly concentrated in one area of the curriculum. It also makes it possible to argue for and specify the content of a higher education program in tourism that trains "philosophic practitioners." These "philosophic practitioners" would be recent graduates who provide effective and efficient services while also fulfilling the

responsibility of stewarding the growth of the broader tourism industry in which these services are provided (Tribe, 2012). Moreover, Wilson & von der Heidt (2013) stated that there is a lack of research on how "sustainability" is integrated in tourism degrees. This study is based on a course of education for sustainability within the 1st-year business/tourism curriculum at an Australian regional university. With a qualitative sample of 16 academics and using an interpretive methodology, interviews aimed to identify the barriers in trying to incorporate sustainability. Three key themes were revealed: (1) a crowded curriculum; (2) staff and student resistance to sustainability; and (3) the realities of a complex, multicampus institution. These impediments will be important to consider if we want to engender a more transformational approach to sustainability leadership in tourism education. Therefore, Wilson & von der Heidt (2013) concluded that for achieving a more revolutionary approach to sustainable leadership in tourism education, it will be crucial to take these obstacles into account. The paper of Boyle et al (2015) reinforces the importance of education for sustainability as a way of transforming ways of teaching and learning, emphasizing critical reflection on values and the active empowerment of students to make change. This qualitative paper analyzes the relationship between tourism lecturers' understandings of sustainability and the way sustainability is taught and developed through curriculum. The results showed a wide range of ideological variances in the way lecturers positioned and taught sustainable tourism, from a "stronger" sociocultural/environmental focus to a "weaker" commercial emphasis. In tourism higher education courses, it was also clear that lecturers with a strong sustainability perspective were more likely to apply the transformative principles of activism, critical reflection, and political agency (Boyle et al., 2015).

In the blue cluster, the most cited author is Alexakis & Jiang (2019) with the paper *Industry Competencies and the Optimal Hospitality Management Curriculum: An Empirical Study*. This paper analysis the hospitality managers' perceptions of the skills and knowledge of hospitality students and compare them to U.S. hospitality management undergraduate curricula. This quantitative study, with a sample of 206 managers analyzed the curricula from 20 leading U.S. hospitality programs and compared them to the survey results. The findings reinforced the crucial role of essential skills such as communication, critical thinking and problem solving. In order to satisfy the demands of entry-level management, the current study created a model that summarizes the kinds of abilities and knowledge required of hospitality students (Alexakis & Jiang, 2019).

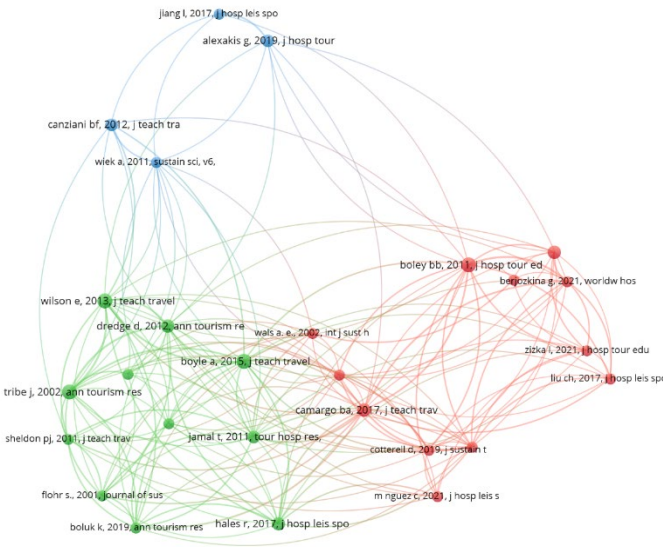


Figure 4: Co-citation analysis

4. Conclusions

According to Siddaway et al. (2018) methodical and reproducible presentation and technique are hallmarks of systematic reviews, and they entail doing a thorough search to find all pertinent published and unpublished work on a topic; integrating search findings in a methodical manner; and evaluating the quantity, type, and caliber of evidence considering a specific research issue.

In this systematic literature review, the overarching aim was to give a systematic overview of literature on how sustainability is taught and integrated into Tourism and Hospitality courses and curricula and enhance knowledge of the idea of sustainability, particularly from the perspectives of Higher Education courses. All the

literature searched in April 2025 was conducted using the Web of Science database and attempts to focus on the sustainability issues applied to tourism and hospitality curriculum in higher education degrees. We pursued this aim by presenting the key evolutionary indicators (annual scientific production, knowledge areas, countries, journals, most relevant authors, and most cited papers) and this reveals several key findings.

First, there has been a notable increase in academic publications on this topic since 2021, indicating a growing recognition of sustainability as a critical component in hospitality and tourism education. The majority of research originates from Europe, Asia, and the Americas, with the U.S., Spain, and China leading in contributions.

The analysis of knowledge areas shows a strong emphasis on Business Management, Accounting, and Social Sciences, suggesting that sustainability is often framed within managerial and socio-economic contexts rather than purely environmental or ethical perspectives. The most influential papers highlight the importance of integrating sustainability across curricula (Tasdemir & Gazo, 2020; Boley, 2011) while also pointing out challenges such as resistance from faculty, curriculum overcrowding, and industry-driven educational priorities (Wilson & Von der Heidt, 2013; Slocum et al., 2020).

Science mapping techniques further clarify the conceptual and intellectual structure of this field and keyword analysis identifies three main clusters: education and curriculum design, tourism management challenges, and student perceptions in hospitality. Co-citation analysis reinforces the influence of foundational works advocating for transformative, integrated sustainability education (Tribe, 2002; Boyle et al., 2015) and highlights ongoing debates about balancing industry needs with sustainability pedagogy (Alexakis & Jiang, 2019).

The leading journals in this domain, such as *Sustainability* and the *Journal of Hospitality, Leisure, Sport & Tourism Education*, reflect the interdisciplinary nature of the research. However, the relatively recent surge in publications suggests that the field is still evolving, with more longitudinal and impact studies needed to assess how effectively sustainability is being embedded in curricula.

This study demonstrates methods for incorporating sustainability into Hospitality and Tourism education, and the literature offers numerous instances of how this might be used and taught. A more complete view of the situation and strategy for tackling the current problems is made possible by the integration of the various academic fields' approaches to sustainability, which enhance one another.

In conclusion, while progress is evident, greater emphasis on pedagogical innovation, faculty training, and industry collaboration is essential to ensure that sustainability becomes a core—rather than peripheral—element of tourism and hospitality education.

5. Limitations and Future Research

While significant findings can be derived, the present review possesses certain limitations that must be acknowledged. First of all, the authors only consider literature from Web of Science database, and this can be very restraining. The reliance on Web of Science-indexed journals may exclude relevant studies from other databases, potentially overlooking alternative perspectives.

When analyzing the different perspectives of the authors and trying to develop keys for specific issues, it is still difficult to integrate the various outlooks on sustainable education in practice as the various types of knowledge and perspectives can be integrated through interdisciplinary collaboration, theoretical considerations, technological requirements, and practical relevance.

Considering the sample, it is dominated by research from the U.S., Spain, and China, with limited representation from Africa, South America, and Oceania. This restricts the generalizability of findings to global contexts, particularly in developing regions where sustainability challenges may differ.

Another limitation of the study is the very recent subject researched - the majority of analyzed papers (70%) were published after 2021, indicating that sustainability in tourism and hospitality curricula is an emerging field. This may limit the depth of insights, and the maturity of research trends and early citations may not fully reflect the impact of newer studies, as influential works require time to accumulate citations. To overcome this problem, the authors suggest repeating the study in the near future for richer and more complete study.

Future research should explore best practices for curriculum design, student engagement, and measurable educational outcomes to advance sustainability in this critical sector. It could investigate how sustainability integration in curricula evolves over time and compare different approaches from different educational systems

and assess whether early adopters of sustainability education (e.g., European institutions) demonstrate measurable differences in graduate outcomes compared to late adopters.

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Ethics Statement

Not applicable.

AI Declaration

AI was not used.

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The Art of Preservation: Bridging Historical Narratives and Modern Visual Expression in Omani Heritage Sites

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Abstract: Based on an ongoing research project, this abstract combines modern representation with reconstructed history. With the use of virtual reality (VR), augmented reality (AR), and high-definition screens, Oman's stunning natural beauty and rich historical legacy might be transformed into engaging, accessible, and instructive experiences. (Alrihani, N., 2022). The objective is to preserve history while making it more appealing to audiences both locally and globally. Optical technology may be both an effective narrative tool and a preservation support by minimizing direct interaction with fragile monuments and landscapes. Visitors may interact with historically significant periods and experience these stories in real life through digital reconstructions, such as ancient cities, traditional handicrafts, and maritime trade. Through the provision of engaging, technologically enhanced experiences, this approach fosters the expansion of eco-friendly travel. More tourists will be attracted as a result, and new job opportunities in the areas of innovation and historical preservation will arise. Using contemporary visual technology in a cultural context encourages more community involvement, information transfer across generations, and keeps heritage interesting for a younger generation. (Sullivan, A.M., 2015) Through the integration of creative, artistic, and technological approaches with historical narratives, the initiative establishes Oman as a potential leader in the Gulf region's cultural tourism innovation. Heritage professionals, government officials, and innovative innovators looking to incorporate advanced technology interpretation methods while preserving history will be interested in them.

Keywords: Digital Cultural Heritage, Virtual Reality, Augmented Reality, Oman Vision 2040, Non-Invasive Preservation, Sustainable Tourism, Intergenerational Knowledge Transfer.

1. Introduction: Context, Imperatives, and Research Objectives

1.1 The Omani Imperative: Heritage, Vision 2040, and Development Pressures

The Sultanate of Oman possesses a significant cultural heritage, encompassing historical architectural settings, unique narratives, and historic maritime trading routes. Recognizing the fundamental value of these national treasures, the Omani government has initiated substantial investments in heritage sites and historical documentation, aligned with the economic diversification approach outlined in Oman Vision 2040 (Al-Raee, A., 2023). The fundamental challenge lies in employing modern technology to bridge the gap between necessary preservation and increasing accessibility.

Despite this dedication, Omani historical sites face systemic pressure from rapidly extensive infrastructure development, a direct consequence of the economic imperatives of Vision 2040, which simultaneously targets preservation (Al Mamariyah, J.S.M., 2024). This development pressure, coupled with physical deterioration caused by environmental variables and tourist impact, makes the sustainability challenge harder. Historical evidence, such as the extensive renovation required for Bahla Fort before it could be removed from the UNESCO Heritage List, underscores the critical priority that must be granted to solid preservation techniques (McCafferty, J.D., 2023).

The inherent fragility of cultural assets, combined with socioeconomic demands, has transformed digital preservation from a mere interpretative supplement into an essential requirement for cultural asset resilience (Siliutina, I., Tytar, O., Barbash, M., Petrenko, N. and Yepyk, L., 2024). The emphasis on digital documentation generates a non-intrusive alternative database for the cultural asset. This strategy guarantees that the fundamental knowledge base remains available even if the physical site suffers damage or uncontrolled infrastructure expansion, thereby establishing the digital initiative as a strategic hedge against inevitable

development pressures. The proposed approach combines innovative digital cultural heritage narration techniques specifically Virtual Reality (VR), Augmented Reality (AR), and High-Definition (HD) screens to reduce physical contact while significantly boosting interpretative authenticity and accessibility (Alrihani, N., 2022).

1.2 Defining Digital Cultural Heritage and Interpretation

Apart from just digitizing documents, Digital Cultural Heritage refers to a thorough merging of technological innovation and historical culture. Information management and research, presentation, interpretation, preservation, and documentation are the four main purposes of Digital Cultural Heritage (Lian, Y. and Xie, J., 2024). It must be viewed as an act of interaction that facilitates the sharing of values, and knowledge.

In this digital environment, an approach modification is required to guarantee effective understanding. Conventional narrative interpretation uses optically biased, predetermined, sequential instructional sequences. A dialogue-based interaction strategy, in which audiences are encouraged to interact with the information, is necessary for modern Digital Cultural Heritage to be effective. This development is essential to producing meaningful heritage experiences that appeal to a wide range of international tourists.

1.3 Conceptual Framework Paper Structure and Contribution

The integration of innovative interactive digital technologies with difficult preservation goals in the Omani environment is covered in this paper. With an emphasis on narration theories, the study builds a strong conceptual framework that is essential for understanding effective interaction between visitors through a methodical approach.

The main contribution of this study is the development of an Integrated Digital Cultural Heritage Preservation Conceptual Framework that goes beyond a straightforward technological listing and is generated from methodical conceptual integration. In addition to the quantifiable socioeconomic value, this approach includes the initiative of previous technical affordances and the factors determining future development intention. Furthermore, this work establishes an outline for a policy approach different from the large institutional investments typically throughout the region and provides a sustainable, practical example for other GCC governments facing similar constraints related to rapid infrastructure development and preservation requirements.

2. Research Methodology and Approach: Methodical Integration for Developing Conceptual Frameworks

In order to ensure that the theoretical integration that is the main paper finding, this categorization requires a methodical and comprehensive approach to the conceptual framework's structure. It offers recommendations and methods to improve industry development and contributions, which is particularly significant for Oman's rapidly expanding tourism industry.

2.1 A Methodical Approach to Theoretical Integration

The conceptual framework that is provided was developed by a methodical approach of comprehensive literature study and multi-source documentary assessment. This approach was created to identify knowledge gaps at the interaction of digital humanities, preservation philosophy, and sustainable tourism regulations.

The three fundamental conceptual categories which act as the framework's foundation were outlined during the first step of the identification:

- **Preservation Philosophy:** Understanding why digital technologies should be used by analysing works that define the interaction and meaning of cultural heritage, especially Paul Ricoeur's philosophical hermeneutics (Romele, A., 2019).
- **Technological Affordances:** Studying actual Digital Cultural Heritage uses of VR, AR, and HD visualization to find ways to optimize accessibility and informal interpretation (Hou, Y., Kenderdine, S., Picca, D., Egloff, M. and Adamou, A., 2022).
- **Policy and Sustainability:** Determining whether the framework must produce practical policy by analysing the contextual issues unique to Oman and the GCC, with an emphasis on Vision 2040 and the demands of infrastructure development (Al Mamariyah, J.S.M., 2024).

The second phase was Integration and Analytical Interpretation. The review emphasized on integrating the theoretical role of technical devices to the ethical development of preservation value (Ricoeur's theory), using a structured technique to analyse the sources (Reynhout, K.A., 2013) . A cohesive, integrated model of Digital Cultural Heritage implementation appropriate for the Omani context was subsequently produced by validating the framework against regional socioeconomic difficulties. Through this methodical approach, the initial phase of observations can be transformed into a methodically solid model for academic contribution.

3. Theoretical Framework: Bridging Refiguration, Narrative, and Visual Expression

The effective use of immersive technologies in heritage interpretation requires a strong conceptual foundation that clarifies how reconstructed heritage (narrative) is successfully integrated by audiences through contemporary representation (expression) (Leow, F.T. and Chng, E., 2021).

3.1 Ricoeur’s Hermeneutics: Refiguration and Immersive Experience

The conceptual framework is strongly grounded in Ricoeur’s hermeneutics, which provides a conceptual basis for understanding how audiences develop an emotional and intellectual connection with historical records, particularly through the idea of refiguration (Mouzakitis, A., 2015). Ricoeur's threefold model of textual mimesis applies to visual arts and non-linguistic symbolic systems, asserting their power to make and remake the world.

Refiguration is the process of transforming reality by which it is first projected in perception, then configured it to art, and ultimately turned into the experience and interpretation of the audience(Knoblauch, H. and Löw, M., 2020).This transformation becomes accessible by technologies like virtual reality (VR) and augmented reality (AR), which go beyond basic observations to provide full visual and intellectual immersion(Riva, G., Baños, R.M., Botella, C., Mantovani, F. and Gaggioli, A., 2016). Another method to transform historical events into an actual digital experience is to allow visitors to experience digitally simulated old Omani settings, traditional craft workshops, or popular marine commercial activities. A conceptual experience of "existing as" within the historical environment is developed via this extended engagement, which is recognized as a significant invisible representation structure (Demetriou, P., 2014). This leads to increased tourist satisfaction and a strong motivation to return after the visit.

Ricoeur's idea implies a significant change in preservation philosophy. This emphasis on refiguration significantly impacts the preservation criteria, changing the criteria for assessment toward the social value and cultural resilience created by constant digital involvement rather than only concentrating on the stability of the physical site (Seekamp, E. and Jo, E., 2020).This transformation provides an important strategic motivation for establishing significant investments in advanced digital reconstruction techniques over traditionally challenging, and often restricted, physical restoration efforts. Additionally, the Digital Cultural Heritage approach provides an essential aspect of resilience against climate change and the rapid infrastructure expansion required by Oman's economic objectives by transferring the fundamental cultural value from the sensitive physical artifact to the intangible narrative (Al-Hinai, A., 2024).

3.2 Dialogic Interpretation and the Non-Linear Digital Narrative

To optimize the interpretative and educational value of Digital Cultural Heritage, the theoretical approach requires a transition from structured instructional practices to an interactive and contributive framework (Rahaman, H., 2018). This transition requires a "dialogic-interaction" in which the digital environment and its audience interact spontaneously based on individual demands and interests. Dialogic interaction is demonstrated to enhance digital heritage content and promote social activities that evoke awareness concerning heritage conservation. This concept necessitates a user-centred process, encouraging popular participation from both heritage professionals and active participants to co-create dialogue and new heritage information.

Digital environments are highly effective at promoting flexibility, allowing users to explore settings and routes relevant to their own interests, thereby overcoming the limitations of sequential historical narration (Alleyne, B., 2014). Digital narration utilizes simple visual techniques to make advanced historical knowledge clearer and improve audience engagement. This non-linear, hypermedia-driven approach encourages a sense of exploration and discovery, blurring the boundaries between creator and audience, and allowing users, especially youth, to become active participants in the wider Omani cultural narrative. For a variety of audiences, this technology keeps history applicable and engaging by transforming historical data into interactive narratives.

4. The Integrated Conceptual Framework: Digital Cultural Heritage Application in Oman

The Integrated Digital Cultural Heritage Preservation Conceptual Framework outlines the necessary alignment between technological affordances, preservation ethics, and strategic national objectives. The framework utilizes optical technologies VR, AR, and HD visualization which are strategically integrated to create a comprehensive structure that maximizes visitor experience while minimizing physical impact on Omani heritage sites (Alrihani, N., 2022).

4.1 Technological Affordances for Conservation

The framework mandates a synergistic application of Digital Cultural Heritage technologies:

Virtual Reality (VR): offers incredibly engaging and interactive experiences that enable people to explore historical architecture and environments, overcoming geographical and historical limitations. This capacity is essential for restoring damaged parts or reconstructing the entire historical context of an area, such as the surroundings of Bahla Fort. VR enhances education and preservation by providing extensive knowledge of the cultural structure and its environment (Selmanović, E., Rizvic, S., Harvey, C., Boskovic, D., Hulusic, V., Chahin, M. and Sljivo, S., 2020). Success requires a balance between usability and achieving high historical realism (reconstruction accuracy).

Augmented Reality (AR):is an important aspect nowadays, integrating interactive information, restored structures, and virtual technology with reality in an intuitive way (Schmalstieg, D. and Hollerer, T., 2016). AR provides deep and meaningful engagement by displaying customized multimedia into the actual physical space (Scholz, J. and Smith, A.N., 2016). In addition to increasing visitor satisfaction, this integration presents beneficial potential for the tourism sector.

High-definition digital screens are essential for information preservation and providing global accessibility. They are generated by modern technologies like laser mapping and 3D modelling (Stanco, F., Battiato, S. and Gallo, G., 2011). By minimizing geographical and physical constraints for people who are unable to travel, this framework promotes international engagement with Omani cultural heritage by supporting comprehensive documents and high-resolution visual databases.

4.2 Using Digital Interaction to Reduce Physical Impact (A Non-Invasive Strategy)

The main goal of using AR and VR as preservation technologies is to enable minimum visitor interaction. The framework highlights that the requirement for direct connection with sensitive architectural settings or physical touch with fragile objects decreases significantly when reliable digital reconstructions are generated (Pintore, G., Mura, C., Ganovelli, F., Fuentes-Perez, L., Pajarola, R. and Gobbetti, E., 2020). This decrease in physical impact is important for sensitive Omani locations where fragility necessitates restricted accessibility. Particularly, AR provides a sustainable method feasible by totally transforming the focus of interpretive interaction to the interactive display (Alrihani, N., 2022).

By combining the interpretive activity across multiple devices, the structured technology method increases viewer engagement while maintaining the physical setting. In order to promote future visits, HD displays and virtual tours provide advanced global accessibility and knowledge (Huang, Y.C., Backman, S.J., Backman, K.F. and Moore, D., 2013). VR offers a more comprehensive, interactive historical reconstruction for tourists or senior visitors, while AR allows free interactive feedback by projecting information over the actual space (Bozzelli, G., Raia, A., Ricciardi, S., De Nino, M., Barile, N., Perrella, M., Tramontano, M., Pagano, A. and Palombini, A., 2019). By preserving the physical site's capability, this parallel technology guarantees resource management and operational efficiency.

4.3 Modern Optical and Architectural Lighting as a Narrative Tool

Apart from basic Digital Cultural Heritage technologies, the framework emphasizes the strategic use of contemporary architectural and optical technologies, which can significantly improve how traditional structures are presented and boost engagement, especially with younger generations and foreign tourists. Globally, outdoor lighting has expanded beyond just essential lighting to include the growth of evening tourism and city beauty. The utilization of spectacular forms of illumination for tourism purposes is a growing trend, exemplified by projects like the internationally renowned "Ruta de los Rios de Luz" in Valladolid, which uses sophisticated lighting design to promote quality of life and experiences in space utilization (Giordano, E., 2018). Similarly,

projection mapping is being successfully implemented at heritage sites to attract visitors and communicate the intangible values and "spirit of the place" by projecting visual effects and historical renderings onto architectural heritage (Torsi, S., Ardito, C. and Rebek, C., 2020).

While these technologies are established international practices, the framework emphasizes that their success in Oman relies on adaptation not discovery or originality. The artistic expression and innovative concepts achievable with these dynamic lighting systems, such as temporary dynamic lighting or architectural projections, must be carefully tailored to the distinct traditional architecture and cultural narratives of Oman to ensure authenticity and resonance with local heritage. By transforming historic locations into lively, interactive evening attractions, our initiative provides a visually appealing and technologically advanced way to attract young Omanis and international tourists.

4.4 Artificial Intelligence's Contribution to Digital Interpretation

In terms of preservation, visualization, and customization, artificial intelligence (AI) is a fundamental element that supports the Digital Cultural Heritage architecture. By enabling the processing of massive information, AI is transforming historic documentation and interpretation (Gîrbacia, F., 2024). This helps with the sustainable conservation of architectural features by identifying imperfections and predicting damaged patterns. The production of precise 3D models and digital replicas of cultural heritage places is made possible by generative AI and machine learning, which also make it possible to create extremely realistic and interactive digital experiences. Additionally, by analysing information from guests, AI-driven systems might act as intelligent cultural assistants and offer unique interpretation experiences, eventually improving learning, discovery, and inclusion for visitors with a variety of interests and accessibility requirements (Ma, S., 2024).

5. Socio-Cultural Impact and Intergenerational Engagement

The intelligent utilization of Digital Cultural Heritage technology generates significant socio-cultural advantages that extend beyond basic tourism development, specifically by promoting important intergenerational knowledge transfer and encouraging strong community engagement (Garcia-Mieres, H., Parra, L., Paz-Vazquez, L.M., Castano, E. and Pedrosa, I., 2025).

5.1 Fostering Cultural Understanding and Community Involvement

Immersive technologies enhance deeper visitor interaction, and the factors of enjoyment and interaction significantly boost awareness of culture and increase visitor involvement during VR-based tourism activities (Sinha, N., Kapoor, G. and Kataria, N., 2025). By offering distinctive, captivating, and interactive experiences, cultural heritage is made more accessible to a wider range of audiences.

The framework emphasizes the critical importance of localized cultural narratives. For example, the towns of Manah and Adam in Al Dakhiliyah region are profoundly significant to the Sultanate's history and are considered a cradle of Omani culture. Specifically, Adam is historically associated with Ahmed bin Said Al Busaidi, the grandfather of the ruling family and the founder of the present-day Al Busaidi dynasty. Manah itself contains vital landmarks such as Al-Fiqain Fort, Al-Bilad Fort, and ancient ruins, affirming the deep cultural roots and historical continuity of the area. Integrating this rich, specific local heritage into Digital Cultural Heritage platforms is essential.

However, the long-term success of Digital Cultural Heritage initiatives fundamentally depends on strong multidisciplinary collaboration and the inherent participation of local communities. The framework emphasizes that projects must integrate local knowledge systems with digital technology, ensuring preservation efforts are both successful and supportive of cultural traditions (Ciolfi, L., Damala, A., Hornecker, E., Lechner, M. and Maye, L. eds., 2017). This mandate for community ownership directly addresses documented challenges within Oman's tourism strategy, where limited community involvement and power imbalances among stakeholders often persist. Participation from community stakeholders in the data collection, administration, and decision-making procedures regarding which knowledge to retain is necessary for the digital archive to be effective and culturally relevant. This collaborative process enhances social cohesion and fosters local identity and place attachment.

5.2 Intergenerational Knowledge Transfer and Cultural Identity

Technology serves as an essential channel for intergenerational cultural exchange by enabling the distribution of information that historically occurred through direct interaction, such as learning and narrative (Marzo, R.R.,

2024). By adopting digital channels, historical perspectives may be enhanced and reach larger audiences, making history and culture more accessible, particularly to younger generations.

A highly effective approach to overcome this generational barrier is through intergenerational digital projects, where community seniors and youth work together to produce digital content. While younger generations offer technological skills, seniors provide the cultural traditional knowledge. Digital narratives successfully foster these interactions, boosting confidence among young people while promoting the development of cultural perspectives. Research indicates a beneficial relationship between visitor use of digital technologies, cognitive identity formation, and cultural heritage participation, linking the user's sense of participation through identification with an ongoing heritage story.

This process requires rigorous ethical analysis. While technological innovation enhances cultural identity formation, close attention must be paid to minimize the risk of cultural appropriation or distortion. Digital heritage narratives present the risk of being adopted for political or financial purposes when content creation is mainly motivated by external foreign researchers or institutions. This could result in a prescriptive perception that ignores regional diversity or community traditions. To prevent sustaining historical biases, the framework mandates community-based preserving approaches which enable community to preserve ownership and cultural records, and enhance information literacy. For the use of technology to effectively preserve heritage while fostering cultural identity, it is essential that the narratives maintain authenticity and link with their experienced settings.

6. Innovation in the Regional Economy and Sustainable Tourism

By employing modern optical technologies, the conceptual framework directly supports the expansion of sustainable tourism in Oman, boosting the economy and positioning the Sultanate as a regional centre for heritage innovation (Abdelfattah, F., Al-Alawi, A., Abdullahi, M.S., and Salah, M., 2023).

6.1 Promoting Sustainable Travel and Tourism Management

The objectives of the UNESCO Cultural Heritage and Sustainable Tourism Program, which aim for integrated planning, collaboration among stakeholders, and local community empowerment, are closely aligned with the Omani approach (Al-Abri, M., 2020). By employing minimal technological interpretation, the digital infrastructure promotes sustainable tourism and significantly decreases the physical impact of visitors on sensitive historical areas.

The fundamental goal of the framework is to ensure that income generated by tourism stays in the area while also enhancing cultural identity and resilience. Practices like the annual cultural festival at Bahla Fort, which promotes community talented artists and generates jobs locally, already demonstrate this sustainable approach. To make sure that destination expansion is resilient to external factors, this integrated approach is essential (Rasmussen, A.K., 2012).

6.2 Innovation's Economic Diversification and Employment Growth

By encouraging the establishment of job opportunities in especially significant businesses in addition to regular tourist attractions, the adoption of an advanced digital heritage framework immediately strengthens the economy. In sectors like 3D imaging, geographic analysis, content creation, and digital historical preservation, new opportunities were developed (Stanco, F., Battiato, S. and Gallo, G., 2011). Such growth is an important step in economic diversification since it attracts investors and entrepreneurs who align their objectives with Environmental and Social Governance principles. Virtual heritage technology provides real economic assistance by increasing the number of visitors to historical places by making them more interactive.

6.3 Oman's Exceptional GCC Strategic Positioning

Oman's strategy is clearly focused on the modern, sustainable preservation of authentically current heritage, whereas the rest of the GCC have prioritized the establishment of global cultural institutions and "massive international cultural sites" (such as the Louvre Abu Dhabi in the UAE or main museums in Qatar) (Zaid, D.M.H.A., 2025).The GCC's regional governments are becoming more aware of the revolutionary potential of the Cultural and Creative Industries for sustainability and economic diversification.

Oman's cultural tourism strategy is distinguished as a dynamic regional model by its emphasis on a resilient, community-based, and sustainable approach. This approach has great strategic significance, especially as it attracts young tourists who are increasingly interested in being in line with sustainable values. Oman's regional advantages are boosted by the framework described in this study, which offers the conceptual and operational plan for this sustainable, alternative regional growth approach.

7. Conclusion and Future Research Directions

7.1 Integration of Framework Validation and Contribution

The management of Omani heritage experienced a significant transformation with the adoption of an approach that incorporates innovative architectural technologies such as VR, AR, and HD displays (Abdelfattah, F., Al-Alawi, A., Abdullahi, M.S. and Salah, M., 2023). The study employs integration for creating a reliable conceptual model, demonstrating that modern optical and digital technologies are essential, ethically based techniques for sustainable conservation, especially where minimizing visitor contact with sensitive locations is critical.

Particularly, when integrated with a strong preservation philosophy and empowerment of the local community, the effective use of these visual devices such as architectural projection mapping goes beyond simply improving the visual appeal to serve as an essential tool of attracting visitors (Otis, H.G., 2024). This comprehensive Digital Cultural Heritage strategy contributes in building sustainable cultural tourism. Sustainability is achieved by promoting employment, keeping tourism income within the region, and establishing a community owned knowledge resource. Additionally, by focusing on the durability of cultural resources regardless of environmental challenges, the framework aligns with sustainable development principles and a sustainability approach that minimizes the environmental impact associated with extensive digital infrastructure (Sparviero, S. and Ragnedda, M., 2021). Thus, this methodical approach ensures the preservation of relevance while significantly improving historical and cultural comprehension across different groups.

The conceptual approach strategically combines Digital Cultural Heritage with the national objective of Oman Vision 2040 by developing this strong, and sustainable tourism strategy (Al Mamariyah, J.S.M., 2024). The Omani concept offers a sustainable framework for the growth of cultural tourism throughout the GCC by emphasizing preservation, community empowerment, and creative development.

Ethical Declaration

Ethical clearance was not required for this research as the study analyses the conceptual framework and operational potential of technology integration based on published research and policy documents. No human or animal subjects were involved in the data collection process.

AI Declaration

AI tools, specifically large language models, were used in the initial analysis and outlining phase to synthesize and categorize the provided source material and structure the academic argument. The final composition, critical analysis, theoretical framing, and integration of the core arguments were performed solely by the author, ensuring content originality and academic fidelity.

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Smart and Sustainable Tourism in the Azores - The Integration of Technological Practices: A Study of a Hotel Unit in the Region

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Abstract: Tourism growth in the Azores has generated significant economic benefits but also challenges related to sustainability and the risk of overtourism. This qualitative study analyzes how the adoption of emerging technologies can contribute to creating a smart and sustainable tourism ecosystem in the region, reconciling innovation with environmental preservation and sociocultural valorization. The research was based on semi-structured interviews with professionals from the Azorean tourism and business sector, complemented by a case study of a local hotel unit. The results show the growing implementation of technological practices such as consumption sensors, automation, digital platforms, and sustainable resource management solutions, but also reveal structural obstacles, such as resistance to change, infrastructural limitations, and digital skills deficits. It is concluded that the Azores have the potential to position themselves as a smart tourism destination, provided that coordination between public and private entities is strengthened, investment in training is increased, and integration between digital strategies and sustainability practices aligned with the Sustainable Development Goals (SDGs) is enhanced. The study contributes to advancing knowledge about smart tourism in island contexts, proposing replicable frameworks for digital sustainability and strategic communication. Limitations include the lack of long-term data and the absence of tourists' direct perspectives, highlighting avenues for future research.

Keywords: Sustainable Tourism; Technological Innovation; Smart Tourism; Digital Marketing; Azores; Customer Experience.

1. Introduction

Tourism in the Azores has experienced significant growth, generating economic and social benefits, but also increasing structural and environmental pressures, with a risk of overtourism in fragile island contexts. In this global scenario of digital transformation and growing environmental awareness, the concept of smart tourism (Buhalis, & Amaranggana, 2015; Gretzel et al. 2015) has emerged, integrating emerging technologies, data-driven management, digital communication, and collaborative governance to enhance operational efficiency, improve visitor experience, and promote environmental and sociocultural preservation. In the Azores, where natural resources are central to tourism, this integration is particularly crucial.

This study aims to analyze how technological practices can contribute to the creation of a smart and sustainable tourism ecosystem in the Azores, balancing sector growth with the mitigation of overtourism and the preservation of natural and cultural heritage. Specifically, it seeks to explore the relationship between sustainability and technological innovation; identify technological practices already implemented, focusing on a selected Azorean hotel; assess the benefits and barriers of digital transition; examine the role of digital marketing and strategic communication in promoting sustainability; and propose conceptual and practical frameworks to consolidate the Azores as a smart and sustainable tourism destination.

The work is structured into five main sections: 1. introduction**;** 2. literature review, covering sustainable tourism, emerging technologies and smart tourism, digital marketing, and consumer experience**;** 3**.** methodology, detailing the qualitative approach, case study, semi-structured interviews, and thematic analysis; 4. analysis and discussion, integrating empirical evidence with literature, highlighting technological practices, perceived impacts, and structural challenges; and 5. conclusions**,** which summarize the findings, present the proposed frameworks, and discuss theoretical and practical contributions, limitations, and directions for future research, including longitudinal analyses, comparative island studies, and the inclusion of tourists' perspectives.

The study demonstrates that digital innovation, when strategically aligned with sustainability, can strengthen the competitiveness and resilience of tourism in the Azores.

2. Literature Review

The analysis of specialized literature supporting this study focuses on four fundamental pillars: 1. sustainable tourism and Azores; 2. the application of emerging technologies in the tourism sector; 3. the role of marketing and digital strategies in competitive differentiation; and finally, 4. consumer experience as a driver of innovation and value co-creation. The articulation of these themes provides the necessary theoretical foundation to understand how the Azores can evolve toward a smart and sustainable tourism ecosystem.

2.1 Sustainable Tourism and the Azores

The economy of the Azores has been boosted by the increasing flow of tourists, positioning the archipelago as a unique and paradisiacal destination, sought after for its abundant nature, active volcanism, and distinctive features found only on islands of this kind (Isabel, 2024). The Azores have witnessed a steady increase in tourism, largely driven by its natural beauty, including the unique landscapes shaped by volcanic activity and rich biodiversity. However, as tourism grows, the region faces the challenge of ensuring sustainable development while preserving its environmental and cultural heritage (Lenzen et al., 2018). To address these challenges, there is a growing emphasis on eco-tourism and sustainable tourism practices. Efforts are being made to manage the visitor experience, ensuring that tourism does not overwhelm local resources and that the natural environment is preserved for future generations. The archipelago's positioning as a destination for nature-based tourism offers a promising opportunity to develop tailored experiences for eco-conscious tourists, aligning with global trends that prioritize sustainability and environmental preservation (Isabel, 2024). Despite this natural competitive advantage, the region currently offers a diverse tourism supply that remains relatively impersonal, highlighting the strategic need to develop more sophisticated mechanisms for engaging with different target audience segments. This evolution requires the implementation of differentiated, hyper-personalized, and digitally integrated services that maximize the destination's unique potential through personalized and technologically advanced experiences (Buhalis & Amaranggana, 2015; Gretzel et al., 2015; Sigala, 2020; Ryan, 2017).

Sustainability in tourism is based on the triple bottom line paradigm, economic, environmental, and social, considered by the literature as essential to ensure the long-term viability of destinations (Dwyer, 2005; UNWTO, 2005). Sustainable tourism seeks to balance the generation of economic benefits with the protection of fragile ecosystems and the safeguarding of local cultures. In the case of the Azores, these issues are critical, given that the archipelago presents unique ecosystems that are highly vulnerable to the impact of tourism pressure.

The identified challenges include managing tourist excess at certain points of interest, the difficulty in reconciling short-term revenues with sustainability goals, and the absence of environmental literacy among both visitors and operators. Despite these weaknesses, the literature demonstrates that sustainability is also a strategic opportunity for destinations: it strengthens the authenticity of the experience, increases attractiveness among conscious travelers, and creates economic and social value in the medium and long term (Ritchie & Crouch, 2003).

Furthermore, in a global context where the tourism sector is responsible for approximately 8% of greenhouse gas emissions (Lenzen, 2018), aligning tourism development with the Sustainable Development Goals (SDGs) has become imperative. In the Azores, the application of these principles can contribute not only to mitigating environmental risks but also to consolidating the destination's positioning as a reference in responsible tourism.

2.2 Technology and Smart Tourism

Tourism is frequently identified as one of the sectors that earliest embraced digitalization on a global scale (Buhalis & Law, 2008). Currently, the literature identifies the concept of smart tourism as a natural evolution, sustained by the integration of data from different sources—visitors, operators, governments, and infrastructures—using advanced technologies (Gretzel, 2015). This paradigm has three main objectives: improving the tourist experience, increasing destination efficiency, and promoting sustainability.

Among the main emerging technologies are: artificial Intelligence (AI): used in chatbots, recommendation systems, and analysis of large data volumes to predict demand patterns (Gretzel, 2015); big data and analytics: applied in monitoring tourist flows, avoiding overloads at sensitive points and improving demand management (UNWTO, 2019); internet of things (IoT): applied to smart hotels, connected transport, and environmental monitoring (Buhalis & Amaranggana, 2015); virtual reality (VR) and augmented aeality (AR): provide immersive experiences, both in planning and during the trip, facilitating decisions and enriching the visit (Tussyadiah, 2018);

blockchain: increases transparency and security in transactions, reservations, and payments (Önder & Treiblmaier, 2018); drones and 5G: contribute to environmental monitoring, visual promotion of destinations, and real-time connectivity (Sigala, 2020; UNWTO, 2021).

Despite their potential, the implementation of these technologies faces significant barriers, such as investment costs, resistance to organizational change, concerns about data privacy, and inequalities in digital access (Van Dijk, 2020). The literature points out, however, that the articulation between technology and sustainability can offer innovative solutions to mitigate phenomena such as overtourism by redistributing visitors, optimizing resources, and offering hyper-personalized experiences without increasing pressure on the territory.

Recent literature on smart tourism consistently highlights the central role of digital technologies in transforming the tourist experience. Ionescu and Sârbu (2024) demonstrate that smart technologies enhance tourist satisfaction by personalizing and enriching interactions with destinations, while Wu et al. (2024) provide a systematic review showing the convergence of digital tools and emerging trends in the sector.

From a strategic perspective, Anica Popa et al. (2025) propose an integrated model linking AI, IoT, and Big Data to competitive advantages in smart destinations, suggesting that technology is not only an experience facilitator but also a critical economic and managerial resource. Innovatively, Cardoso and Fraga (2024) apply neuroscience methods and immersive technologies to reveal opportunities for understanding tourists' cognitive and behavioral responses, pointing to new research methodologies in the field.

Recent meta-analyses (2023) confirm the consistent positive impact of smart technologies on the tourist experience, supporting empirical findings such as those of Gomes (2025), which emphasize the practical role of technological tools in leisure and overall tourist engagement in smart destinations. Despite these advances, important gaps remain. Most studies focus on European or Asian contexts, leaving space for comparative international analyses. Integrated approaches that combine technological, economic, and behavioral perspectives remain limited, as do investigations into the socio-environmental impacts of technologies on destinations.

Overall, the current evidence suggests that future research should explore not only technological implementation but also its strategic, behavioral, and sustainable effects, consolidating smart tourism as a multidimensional phenomenon centered on the tourist experience.

2.3 Marketing and Digital Strategy

Digital transformation has redefined tourism marketing. Kotler (2021; 2024) introduces the concepts of Marketing 5.0 and 6.0, which combine data analysis, artificial intelligence, and automation with the need to humanize brands and create emotionally relevant experiences. The literature indicates that effective digital strategies must align with the organizational mission, prioritizing loyalty, personalization, and omnichannel experience (Chaffey & Ellis-Chadwick, 2019; Kotler et al., 2021).

In the tourism sector, digital presence on websites, social media, and booking platforms has become determinant for brand trust and awareness (Buhalis & Law, 2008). Data-based digital marketing strategies allow not only real-time campaign adjustments (Ryan, 2017) but also the creation of transmedia narratives that engage consumers across multiple channels (Jenkins, 2006). Emerging trends highlighted by the literature include AI hype, personalization, immersive experiences with AR/VR, conversational marketing (chatbots and voice search), blockchain applied to transparency, social commerce, and the centrality of Environmental, Social, and Governance ESG practices communication (Tussyadiah, 2020; Sigala & Gretzel, 2018). In the Azorean context, these practices can differentiate the region by combining technological innovation with authenticity and connection to nature, central attributes for the destination.

Furthermore, strategic communication is identified as fundamental to ensuring message consistency and aligning sustainable practices with organizational reputation (Cornelissen, 2017). Well-structured communication plans allow for audience segmentation, resource optimization, and strengthening the image of competitive and sustainable destinations (Chaffey & Ellis-Chadwick, 2019).

The continuous growth of tourism in the Azores places the region at risk of overtourism, given its limited insular territory and the sensitivity of its natural and cultural ecosystems. To mitigate this risk, the implementation of a smart tourism ecosystem is essential, enabling strategic management of visitor flows and the promotion of sustainable practices (Castanho & Couto, 2023).

The proposed Blended Communication Plan addresses this challenge by combining sustainability-oriented

digital communication, visitor experience optimization through participatory platforms, and strategic coordination between public and private entities. By prioritizing authentic storytelling, integrating immersive technologies (AR/VR), and monitoring outcomes through KPIs, the model provides tools to guide tourism in a balanced manner, raise visitor awareness of responsible behavior, and protect natural and cultural resources, thereby preventing the negative impacts associated with overtourism.

2.4 Consumer Experience and Value Co-creation

Tourist consumer behavior has undergone profound changes, especially after the COVID-19 pandemic. Risk perception, preference for nearby destinations, and the growing use of digital platforms to plan and book trips reinforce the importance of digitalization and transparent communication (Swarbrooke & Horner, 2007; Ribeiro, 2021). Authors such as Solis (2015) and Kotler (2021) highlight that consumer experience has become the new strategic focus of organizations, surpassing traditional marketing practices. Tourists value authentic, sustainable, and emotionally significant experiences, a trend particularly strong among Millennials and Generation Z (Travel BI, 2022; Trindade, 2017). These segments show high digital affinity, resort to social media and influencers in decision-making, and demonstrate greater concern for environmental issues. The literature on value co-creation (Prahalad & Ramaswamy, 2004) adds that consumers should not be seen merely as recipients but as active partners in constructing the tourist experience. Digital technologies enable this real-time involvement, strengthening the connection between destination and visitor, generating loyalty, and reinforcing reputation.

The literature review demonstrates that the future of tourism depends on the coherent integration of four dimensions: sustainability, technology, digital marketing, and consumer experience. Sustainable tourism provides the ethical and strategic framework; technology provides tools to optimize resources and offer differentiated experiences; digital marketing ensures communication and competitiveness; and consumer experience centers the process on people, enhancing value co-creation. In the Azorean context, these dimensions are particularly relevant, given the delicate balance between environmental preservation and economic development. The literature not only confirms the relevance of the dissertation theme but also highlights the urgency of integrated strategies that allow the Azores to consolidate as a smart and sustainable tourism destination.

3. Methodology

This study employed a qualitative approach, selected for its suitability in exploring phenomena requiring an in-depth understanding of participants' perceptions, meanings, and experiences. The approach aligns with the study's central objective: to analyze how the adoption of technological practices can foster a sustainable tourism ecosystem in the Azores, balancing economic development, overtourism mitigation, and the preservation of natural and cultural resources. By prioritizing interpretive and exploratory analysis, the qualitative methodology captured the complexity of a sector in transformation, where innovation and sustainability are closely interlinked.

The central research question guiding this study was: "How can the adoption of technological practices foster the development of a sustainable tourism ecosystem in the Azores, while simultaneously balancing sectoral growth and mitigating overtourism?" To address this question, a structured methodological framework was implemented, comprising three interrelated components: a systematic literature review, an in-depth case study, and semi-structured interviews with key stakeholders.

The adoption of emerging technologies by hotel units enhances operational efficiency and supports environmental sustainability by enabling more effective resource management, reducing waste, and optimizing costs (Buhalis & Amaranggana, 2015; Gretzel et al., 2015; Ionescu & Sârbu, 2024). At the same time, integrating technological and sustainable practices strengthens tourist trust, satisfaction, and emotional engagement, fostering personalized and authentic experiences aligned with sustainability principles (Sigala, 2020; Gomes, 2025). However, technology alone is insufficient to drive destination transformation. Structural barriers, limited digital skills, and organizational resistance highlight the importance of collaborative governance involving public authorities, private companies, and local communities (Buhalis, 2008; Ritchie & Crouch, 2003).

The transition to a smart and sustainable tourism ecosystem in the Azores depends on three interdependent conditions: (i) reinforcement of digital infrastructures; (ii) continuous investment in training and technological literacy; and (iii) promotion of a collaborative culture among stakeholders. The effectiveness of technological

and sustainable initiatives relies on strategic coordination and equitable access to digital tools. Meaningful digital transformation must therefore be accompanied by organizational and cultural change oriented toward sustainability and shared innovation.

The literature review provided a critical synthesis of theoretical frameworks and contemporary debates regarding sustainable tourism, technological innovation, digital marketing strategies, and consumer experience management. This review informed both the development of the interview protocol and the definition of analytical categories applied in the empirical phase, ensuring conceptual coherence and analytical rigor.

Three propositions structured the dialogue between empirical evidence and theoretical contributions presented in the literature review. The first exploratory proposition suggests that the adoption of emerging technologies by hotel units and other Azorean tourism operators enhances operational efficiency and favors environmental sustainability. The second exploratory proposition points to the positive influence of integrating technological and sustainable practices on tourist experience and value perception. The third exploratory proposition relates to the importance of structural and collaborative factors for consolidating a smart tourism ecosystem in the Azores.

The empirical component focused on a single-case study of a hotel unit located on São Miguel Island, hereafter referred to as "Unit X" for confidentiality. The case was selected using purposive sampling, based on the unit's strategic relevance in the regional tourism sector, its degree of technological adoption, and its willingness to participate. This instrumental case study design enabled a contextualized, intensive analysis of digitalization processes, emphasizing depth over statistical generalization.

Semi-structured interviews were conducted with two participant groups, also selected through purposive sampling. Group 1 comprised two hotel professionals, one internal to Unit X and one external with consolidated industry experience, allowing the triangulation of organizational perspectives with broader sector insights. Group 2 included four specialists in marketing, technological innovation, smart tourism, and sustainability, providing expert technical knowledge to enrich understanding of trends, challenges, and opportunities in the sector.

Participant inclusion criteria were clearly defined to ensure relevance and data quality: (i) recognized professional expertise in the relevant field; (ii) demonstrated experience in at least one of the study's core domains; and (iii) higher education qualifications. These criteria ensured that participants possessed the technical knowledge and practical experience necessary to provide informed and substantively meaningful contributions.

Interviews were conducted in May 2025 via Google Meet, offering temporal and geographical flexibility while maintaining participant comfort and safety. The interview guide was structured around key themes, including tourism challenges and opportunities in the Azores, technological practices, sustainability initiatives, barriers to digital transition, and strategic recommendations. Data analysis followed thematic content analysis procedures (Bardin, 2016), including exploratory reading, identification of categories and subcategories, and interpretive analysis in dialogue with the literature.

Methodological triangulation, combining interview data, theoretical grounding, and strategic analysis of Unit X, including SWOT, PESTEL, and competitive analysis, enhanced the validity and consistency of findings. Ethical considerations were strictly observed. Confidentiality was maintained, the organization was anonymized as "Unit X," and informed consent was obtained from all participants. Data handling complied with GDPR, ensuring anonymity and secure management of collected information.

Overall, the adopted methodology ensured alignment between the research question, objectives, and analytical procedures. By integrating literature review, case study, and semi-structured interviews, the study captured the complexity of an evolving tourism sector, producing insights relevant for both academic research and professional practice in smart and sustainable tourism.

4. Analysis and Discussion of Results

Data analysis was guided by three exploratory propositions, as mentioned in methodology, derived from the theoretical framework and used as an interpretive basis for results discussion. These propositions serve to structure dialogue between empirical evidence and theoretical contributions presented in the literature review. This section's central objective is to understand how technological practices implemented in the Azorean tourism sector contribute to building a smart and sustainable ecosystem, highlighting emerging trends,

challenges, and opportunities.

The first exploratory proposition suggests that the adoption of emerging technologies by hotel units and other Azorean tourism operators enhances operational efficiency and favors environmental sustainability. Analysis of the "Unit X" case study and conducted interviews show that the use of consumption sensors, automation systems, and digital monitoring platforms has allowed more rigorous control of energy and water resources, as well as a reduction of waste and operating costs.

Participants recognize that these practices not only improve companies' economic performance but also reinforce their environmental commitment. As one interviewee stated, "automation brought much more rigorous control over what we consume and waste." This perception is consistent with contributions from Buhalis and Amaranggana (2015) and Gretzel (2015), who argue that digitalization constitutes a driver of sustainable innovation in tourism destinations. However, evidence also reveals that these practices are still poorly disseminated, suggesting the need for regional public policies and incentives for digital transition in smaller companies, to ensure more balanced and inclusive development.

The second exploratory proposition points to the positive influence of integrating technological and sustainable practices on tourist experience and value perception. Interviewees report that visitors demonstrate growing sensitivity to environmental issues and value personalized, authentic experiences consistent with sustainability principles. One participant observed that "tourists want to see environmental commitment in small actions—and technology helps make it visible." This reading suggests that the combination of technological innovation and sustainability contributes to reinforcing trust, satisfaction, and visitors' emotional involvement with the destination.

This interpretation finds support in Ritchie and Crouch (2003), who associate sustainability with destinations' competitive advantage, and in Kotler (2021; 2024), who highlights the importance of technological humanization and hyper-personalization in constructing tourist experience. Despite this convergence, it is important to recognize that the analysis does not include data collected directly from tourists, which limits the depth of understanding about visitor perception and opens space for future quantitative and comparative investigations.

The third exploratory proposition relates to the importance of structural and collaborative factors for consolidating a smart tourism ecosystem in the Azores. Empirical evidence suggests that technology, in isolation, is not sufficient to guarantee destination transformation. Interviews reveal structural barriers, such as infrastructural insufficiencies, resistance to organizational change, and a lack of digital skills. One participant summarized this difficulty by stating that "the barrier is not in technology, but in the lack of training and mentality."

These results reinforce the relevance of the human and institutional dimension of the digital transition process, confirming what Gretzel, Sigala, Xiang, and Koo (2015) designate as smart governance: the need for effective collaboration between public and private entities and local communities. Van Dijk (2020) adds that digital exclusion can worsen regional asymmetries, especially in island contexts, where connectivity and professional qualification play a central role in sustainable development.

Integrative results analysis allows inferring that the transition process to smart and sustainable tourism in the Azores depends on three essential conditions: strengthening digital infrastructures, continuous investment in training and technological literacy, and promoting a collaborative culture among different sector stakeholders. Data suggest that although relevant initiatives and good practices are ongoing, their effectiveness remains limited by a lack of strategic coordination and inequality in technology access. This finding reinforces the argument that digital transformation must be accompanied by organizational and cultural change, oriented toward sustainability and shared innovation.

In summary, the discussion shows that the Azores have high potential to establish themselves as a smart and sustainable tourism destination, provided that technology is understood not only as an operational tool but as an instrument of social, environmental, and economic integration. The study demonstrates that the future of Azorean tourism will depend less on isolated adoption of digital solutions and more on the collective capacity to build a participatory and sustainable governance model, in which technological innovation serves experience quality, resource preservation, and valorization of territory and its communities.

5. Conclusions

The central question that guided this investigation was: "How can the adoption of technological practices contribute to creating a sustainable tourism ecosystem in the Azores, balancing sector development with overtourism mitigation?" The answer to this question results from the combination of literature review and empirical study conducted, which together allow not only confirming trends already identified in previous investigations but also bringing original contributions from the concrete reality of the Azorean tourism sector.

Empirical results demonstrate that the integration of emerging technologies in the region's tourism is already underway, albeit unevenly and fragmentarily. Practices associated with service automation, use of consumption sensors, implementation of intelligent energy management systems, digitalization of reservation and communication processes, as well as waste management and water consumption measures aligned with environmental concerns were identified. These practices reflect, albeit partially, what Gretzel (2015) and Buhalis & Amaranggana (2015) define as smart tourism pillars: an integrated ecosystem that uses data and digital solutions to increase operational efficiency, enrich visitor experience, and promote destination sustainability.

However, it was also verified that the application of these technologies faces relevant obstacles. Structural barriers persist, such as technological infrastructure limitations on some islands, difficulties accessing advanced solutions, and high investment costs. Added to these are cultural and organizational barriers, such as resistance to change and lack of digital literacy training, aspects already widely discussed by Van Dijk (2020) when analyzing digital exclusion risks in technological transition processes. The study confirms that without clear investment in human resource training and organizational change strategies, technology implementation will tend to be slow, partial, and ineffective.

One of the most relevant findings relates to the value perception that tourists themselves attribute to sustainable and technological practices. Study participants recognize that the Azores visitor profile, especially among younger and digitally active segments, values authentic experiences aligned with environmental preservation and supported by digital solutions that increase convenience and personalization. This result resonates with literature from Ritchie & Crouch (2003), which emphasizes sustainability as a differentiating factor in the medium and long term, and in Kotler (2021; 2024), which highlights hyper-personalization and experience humanization as competitiveness drivers.

Thus, the investigation proves that convergence between sustainability and technology is not only desirable but constitutes a direct response to expectations of increasingly conscious and demanding demand. From a strategic perspective, it became clear that the Azores have the conditions to establish themselves as a smart tourism destination, but this path will depend on coordination between three key dimensions: consolidation of robust digital infrastructures, continuous training of professionals in digital and sustainable skills, and creation of collaborative networks between public and private entities. The absence of effective collaboration among stakeholders was identified as one of the main obstacles. This point confirms literature from Gretzel, Sigala, Xiang & Koo (2015), which emphasizes the need for interconnected ecosystems, where data flows, decisions, and responsibilities are shared to ensure effective impact.

Another significant contribution of the study was the construction of digital sustainability and strategic communication frameworks, which present themselves as practical organizational self-assessment tools, conceived as a synthesis of theoretical and empirical results and as practical application instruments:

Digital Sustainability Framework: Proposes a technological maturity model for Azorean tourism organizations, structured in four main dimensions: (1) Operational Efficiency, focused on intelligent management of energy, water, and waste; (2) Technological Innovation, focusing on integration of emerging technologies (AI, IoT, Big Data); (3) Environmental and Social Sustainability, which aligns digital practices with Sustainable Development Goals (SDGs); and (4) Collaborative Governance, which highlights coordination between public and private entities and local communities. This model allows organizations to self-assess their digital maturity level and outline evolutionary strategies toward sustainability.

Integrated Strategic Communication Framework for Smart Tourism: Translates into a three-dimensional model that articulates (1) Sustainable Digital Communication, oriented toward environmental education and regional identity valorization; (2) Visitor Experience and Co-creation, prioritizing participatory digital platforms and authentic storytelling; and (3) Institutional Coordination, promoting cooperation between regional and private organizations through digital performance indicators (KPIs). This model offers tourism entities a strategic planning tool capable of reinforcing destination visibility and consolidating a coherent image of responsible and innovative tourism.

These frameworks represent theoretical contributions by proposing unprecedented integration between technology, sustainability, and communication in the island context; practical, by providing diagnostic and planning tools accessible to tourism organizations; and social, by valuing the role of local communities and visitors as active agents of sustainable digital transition. More than conceptual proposals, they are configured as operational instruments that allow Azorean organizations to advance in a structured manner in integrating technological solutions aligned with sustainability objectives.

In answering the research question, it is concluded that the adoption of technological practices can effectively contribute to creating a sustainable tourism ecosystem in the Azores, provided it is accompanied by investment policies, training programs, and collaboration strategies. Technology alone is not sufficient; it is its articulation with clear sustainability objectives and involvement of local communities that will allow achieving a lasting balance between economic growth, environmental preservation, and cultural valorization. This vision is aligned with the sustainable tourism paradigm advocated by the World Tourism Organization (2005), which seeks to integrate visitors', communities', and industries' needs in a dynamic balance logic.

From an academic perspective, the study contributes to expanding knowledge about smart tourism in island contexts, a still underexplored area. By analyzing the Azores case, empirical evidence is added about how emerging technologies can be applied in peripheral and geographically fragmented territories, characterized by fragile ecosystems and strong dependence on tourism activity. From a practical perspective, the conclusions offer useful guidelines for managers, policy makers, and entrepreneurs, reinforcing the importance of aligning technological innovation with sustainability objectives.

6. Limitations and Future Research Directions

Despite its contributions, this study presents some limitations that must be acknowledged. First, the empirical analysis focused primarily on a single hotel unit and a limited number of interviews, which constrains the generalizability of the results. Second, the absence of direct input from tourists limits understanding of the visitor experience, an essential dimension for evaluating the effectiveness of the proposed technological and sustainability strategies. Third, many technological practices in the Azores are still in early stages of implementation, making it difficult to assess their long-term impacts on operational efficiency, environmental sustainability, and visitor satisfaction.

Building on these limitations, several avenues for future research are recommended: Inter-island comparative studies, to identify unique dynamics, challenges, and opportunities across different islands of the Azorean archipelago; quantitative studies on visitor perceptions, to measure tourist satisfaction, preferences, and the perceived value of sustainable and technological practices and Integration of emerging technologies – including Artificial Intelligence (AI) and Big Data Analytics, for real-time monitoring of tourist flows, predictive management of carrying capacity, and enhanced decision-making.

Ethics Declaration

The research presented in this article did not involve the collection of personally identifiable data, nor did it involve animals. Therefore, submission to or approval by a research ethics committee was not required.

Artificial Intelligence Declaration

Generative artificial intelligence tools were used exclusively for grammatical and stylistic language revision of the manuscript. No AI tools were employed in the conception of research, data analysis or interpretation, or in the formulation of conclusions. The authors critically reviewed and validated all content and assume full responsibility for the final manuscript.

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Understanding Audience Engagement with Japan Travel Itinerary Videos Across Social Media Platforms

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Abstract: Social media plays a central role in shaping destination image and tourist behavior. Beyond providing information and entertainment, it influences how viewers explore places, plan trips, and share their experiences after visiting destinations. While some prior studies have examined the role of social media in shaping tourists' choices, most have focused on individual social media platforms. Very few studies have compared how engagement differs across social media platforms such as YouTube, Instagram, and TikTok. This study addresses this gap by analyzing engagement on one popular 14 days Japan travel itinerary video from each platform, specifically YouTube, TikTok, and Instagram. After cleaning, filtering, removing non-English comments and quality checks, the final dataset used for analysis consisted of 525 YouTube comments, 804 TikTok comments, and 451 Instagram comments. Sentiment analysis was done using RoBERTa and emotional tone was identified using the DistilRoBERTa-based J-Hartmann emotion model. Hugging Face's facebook/bart-large-mnli zero-shot model was used to assign comments to manually defined candidate labels, and final topic grouping was completed through manual mapping. Results show that YouTube generated predominantly positive sentiment and strong joy-based emotions, with viewers asking detailed trip-planning and itinerary-related questions and expressing intentions to visit Japan and follow the itinerary. In contrast, TikTok and Instagram showed largely neutral sentiment, dominated by emojis, tagging friends and family, and shorter emotional responses. Zero-shot topic analysis further confirmed this difference, showing that YouTube comments centered on information-seeking, trip planning, and past travel reflections, while TikTok and Instagram were more focused on short reactions, visual appreciation, destination praise, and social sharing. The findings show that YouTube platform supports detailed trip planning and engagement, while TikTok and Instagram encourage quick, emotion-based reactions. These insights can help influencers, destination management organizations (DMOs), and relevant policy makers design content that both guides travel decisions and inspires interest in destinations.

Keywords: Social Media Influencers, Sentiment and Emotion Analysis, Cross-Platform Engagement, User-Generated Comments, Destination Marketing

1. Introduction

Social media has changed how tourists search for and get information and visit a destination. Traditionally, travel brochures and guidebooks were very popular among potential tourists but now they play a limited role. Nowadys, tourists are increasingly relying on digital platforms such as YouTube, TikTok, and Instagram to gain important information about destinations. Previous studies found that users generated content (UGC) such as videos, photographs and comments act as important informational and affective tools that shape travelers' destination images, which in turn influence their intentions to visit(Aboalganam et al., 2025; Guerreiro et al., 2024; Z. Wang et al., 2022; Xu et al., 2023; Yang et al., 2025). Studies also suggest that visual and short-video content on social media and travel platforms enhance destination image and help to foster travel intention and reduce uncertainty with the destination(Leung et al., 2021; J. Liu et al., 2023). Travel-vlog content on YouTube enhances destination imagery and viewer engagement and information quality, vlogger credibility, and visual representation helps to jointly shape viewers travel intentions(Islam et al., 2024; Mirzamurodova Kizi et al., 2025; Silaban et al., 2022). Multiple studies demonstrate that short-video content on platforms such as TikTok influences tourist intentions(C. Liu et al., 2024; J. Liu et al., 2023; Zhou et al., 2022). Similarly, On Instagram, research shows that travel-influencer content significantly influences travel intention and destination choice of viewers(Asdecker, 2022; Pourazad et al., 2025). Social Media Influencers are now playing a key role in destination marketing and tourist decision-making. They act as constant and trusted media channels. A recent review study found that SMI attributes such as credibility, authenticity and expertise reliably improve their audience attitudes and intentions(Barari et al., 2025). Past studies show that SMI use credibility and emotional storytelling to shape their followers' travel choices through relatable and narrative-driven content(Asdecker, 2022; A. Hussain & Ali, 2021; Pourazad et al., 2025)

SMI can influence decisions throughout the entire process, from creating initial interest and awareness to encouraging bookings and actual travel (Lou & Yuan, 2019; Wei et al., 2025) . Research also shows that influencers not only help build destination image but also help in playing a role in shaping travel planning decisions (Pettersen-Sobczyk, 2023; Uniyal & Pant, 2024).

Each social media platform has its own features that shape how people create and understand travel stories. YouTube long-form videos allow creators to combine attractive storytelling, visuals, and personal thoughts and the viewers often leave comments that show their feelings and impressions about destinations shown(Asdecker, 2022; Carvache-Franco et al., 2023a; K. Hussain et al., 2024). TikTok relies on short, highly-scrolled videos and algorithmic discovery which usually get quick reactions like tagging or sharing. Its emotion-driven, interactive short videos significantly shape tourists' behavioral intentions by enhancing engagement, destination image(C. Liu et al., 2024; Y. Wang et al., 2025). In contrast, Instagram focuses on visual storytelling, where photos, captions, and short videos let users share moments and inspire others. On Instagram, influencer posts and Reels attract viewers through visuals and credibility, creating emotional bonds that influence travel choices.

Japan aims to attract 60 million international visitors by 2030 an under its *Tourism Nation* strategy. The Japan Tourism White Paper suggests promoting regional destinations through engaging digital content as a key strategy to disperse tourist flows and enhance distinctive local experiences(Japan Tourism Agency, 2024). Many past studies confirm that social media platforms such as YouTube, TikTok, and Instagram now play a pivotal role in promoting destinations and inspiring travel decisions. However, comparative, cross-platform research on viewers' sentiment, emotions, and key discussion topics remains scarce. Therefore, this study fills that gap by examining comment patterns on Japan travel-itinerary videos across YouTube, TikTok, and Instagram to explain how platform design and influencer storytelling shape destination perception. It investigates how viewers' sentiment, emotions and key discussion topics vary by platform, and explores which platforms prompt more interest in following the itinerary or planning travel.

2. Literature Review

Social media is significantly influencing tourists travel in recent years (Tang et al., 2024). Research shows that these platforms influence how people select destination and plan their trips(Dai et al., 2021; Matikiti-Manyevere & Kruger, 2019).UGC, such as travel videos, photos, and online reviews, has become an important information source which shapes tourists' perceptions of destinations and influences their travel intentions(Aboalganam et al., 2025; Nguyen & Tong, 2023). Among social platforms, YouTube is the most examined in tourism studies as its long-form travel vlogs mix information with strong narratives, enhancing persuasive impact. A study with 154 Indonesian respondents found that *content* comprehensiveness and attitude toward YouTube travel content significantly predicted destination-visit intention(Siti & Sugeng, 2021). Similarly, Yanget al. (2025) analyzed user-generated short videos promoting rural tourism and found that destination image perception significantly mediated the relationship between TikTok content and willingness to visit. Similarly, Instagram uses its influence to promote destinations through visual storytelling. Overall, the most effective YouTube, TikTok, Instagram travel content combines narrative clarity, visual quality, and informational completeness which leads to stronger destination image and viewers visit intention.

Beyond engagement metrics, researchers are increasingly examining viewer comments to understand their emotional reactions to travel content. Recent advances in social media data analytics are using comment data from platforms such as YouTube, TikTok, and Instagram to uncover how audience sentiment and emotional response shape destination perception and viewers intentions. Recent studies show that large-scale analysis of YouTube comments offers valuable insights into tourists' emotions, perceived destination image, and regional tourism potential, demonstrating the platform's growing relevance in tourism behavior research(Carvache-Franco et al., 2023; Kurniawan et al., 2023) . Beyond YouTube, some studies using Instagram and TikTok comments show that user discussions on these platforms reveal emotional cues and destination-image themes, highlighting their growing importance in understanding tourists' perceptions and engagement (Binbasioglu Hulisiand Yilmaz, 2023; C. Liu et al., 2024c; Sobarna, 2023)

Sentiment, emotion, and discussion patterns in user comments reflect how viewers see influencer content and develop the desire to visit a place. Comparing these sentiments and emotions across YouTube, TikTok, and Instagram will show how each platform shape viewers feelings, emotions, and perceptions of destinations.

3. Research Methodology

This study utilizes advanced large language model techniques to analyze viewer comments on influencer travel-itinerary videos of Japan across YouTube, TikTok, and Instagram. It examines how audiences express their sentiment, emotion, and thematic focus in response to Japan travel content shared on these platforms. The key purpose is to examine how each platform's design and influencers storytelling style influence viewers' emotions, perceptions, and perception of Japan as a travel destination.

3.1 Videos Selection

To ensure comparability, one highly viewed two-week Japan itinerary video was selected from each platform:

1. YouTube: How To Spend Two Weeks in Japan – A Travel Itinerary by Inaka Adventure (uploaded 4 June 2022; ~1.7 million views, over 1,000 comments including replies, influencers with ~50 k subscribers).
2. TikTok: 2-WEEKS JAPAN ITINERARY by KarenExplores (uploaded 7 May 2023; ~436 k likes, ~66.8 k shares, and over 1,000 comments including replies).
3. Instagram: Best of Japan in 14 days by ColorCrush (uploaded 7 February 2024; ~11.1 million views, over 1,000 comments including replies, influencer with ~112 k followers).

Each video presents a comparable 14-day travel route and was chosen for its narrative similarity, good audience engagement and number of comments.

3.2 Data Collection and Analysis

All public comments from the selected YouTube, TikTok, and Instagram videos were collected and analyzed. Comments from YouTube were extracted through YouTube Data API, while those from TikTok and Instagram were obtained using the Apify Comments Scraper tool. Manual verification was also done to ensure accuracy. Duplicate comments, replies, irrelevant, and non-English entries were excluded to ensure data better quality. The final dataset comprised 525 comments from YouTube, 804 from TikTok, and 451 from Instagram. The cleaned data were then analyzed using a multi-stage natural language processing (NLP) pipeline integrating sentiment analysis, emotion detection, and zero-shot classification. Sentiment polarity was identified using the RoBERTa model while emotions were classified using the Large Language Model DistilRoBERTa (j-hartmann Model), and zero-shot classification with BART-MNLI assigned comments to thematic categories such as inspired to travel Japan, asking trip related question, electronic-word of mouth about Japan, tagging friends or family and aesthetic and visuals appreciation.

4. Data Analysis

4.1 Sentiment Analysis

Sentiment results varied clearly across the three platforms (Fig. 1). For the YouTube video, most comments were positive, followed by neutral and a small number of negative sentiments. Viewers frequently praised the itinerary and visuals, asked question about travel to Japan, showing intentions to travel to Japan and follow the itinerary.

In contrast, comments on TikTok and Instagram were mainly neutral, with fewer positive and very limited negative responses. The short, reel-based nature of these platforms led viewers to post brief comments, tagging friends and family, or praising visuals and creators rather than detailed feedback and sharing travel intentions. Overall, YouTube generated more expressive and appreciative comments, while TikTok and Instagram showed shorter, more neutral responses.

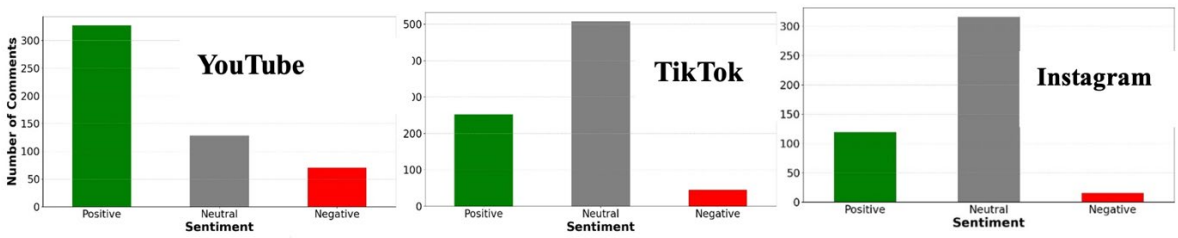


Figure 1: Sentiment Distribution of Comments on Japan Itinerary Videos across YouTube, TikTok, and Instagram

4.2 Emotion Analysis

Emotional patterns varied clearly across the three platforms (Fig.2). YouTube comments showed the strongest sense of joy, as viewers often expressed content appreciation, excitement to visit Japan, and personal connection to the travel itinerary. The YouTube longer videos seemed to give viewers space to reflect and write comments

in more detail. On TikTok, most comments were neutral, with only a few showings joy or surprise. This suggests that viewers engaged briefly, tagging friends and family and reacting more to visuals and itinerary highlights. Instagram showed a mix of neutral and surprise, where comments focused on beauty, creativity, and admiration for Japan. In general, YouTube encouraged detailed and expressive engagement, while TikTok and Instagram encouraged shorter and visual reactions.

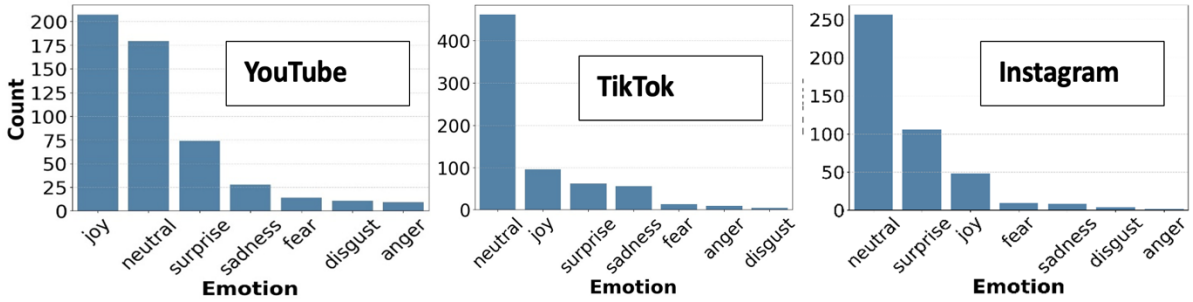


Figure 2: Sentiment Distribution of Comments on Japan Itinerary Videos across YouTube, TikTok, and Instagram

4.3 Zero-Shot Classification

Zero-shot classification was performed using the Hugging Face *facebook/bart-large-mnli* model to assign comments to predefined candidate labels, which were manually mapped to broader topics. The following sub-sections present the zero-shot topic results for YouTube, TikTok, and Instagram videos comment.

4.3.1 Zero-Shot Topic Analysis of YouTube Viewers Comments

A total of 44 candidate labels were developed, each beginning with the phrase "The viewer is …" (for example, "The viewer finds the video helpful for planning"). These labels were applied to classify individual comments, and the resulting outputs were then manually mapped to broader thematic topics for analysis. Labels like " The viewer is sharing promotional, religious, or unrelated content" were also included to filter irrelevant comments

The zero-shot classification results in 9 topics. Figure 3 shows that the highest number of comments belonged to "Informative and Helpful Video" and "Japan Trip-Related Questions". This indicates that viewers found the video informative and helpful for practical travel guidance. Many comments contained detailed questions about various destinations, transportation, weather, seasons and budgeting which shows the role of YouTube's as an information tool for trip-planning. Topics such as "Inspired to Travel Japan" and "Planning Japan Trip with This Itinerary" highlight the video's role in impacting viewers intentions to visit Japan, while "Bringing Back Travel Memories" and "Regret Not Seeing This Earlier" reflect viewers emotional attachment with destinations. A smaller number of comments under "Electronic Word of Mouth" and "Followed the Itinerary" suggest destination image and following the influencers travel route.

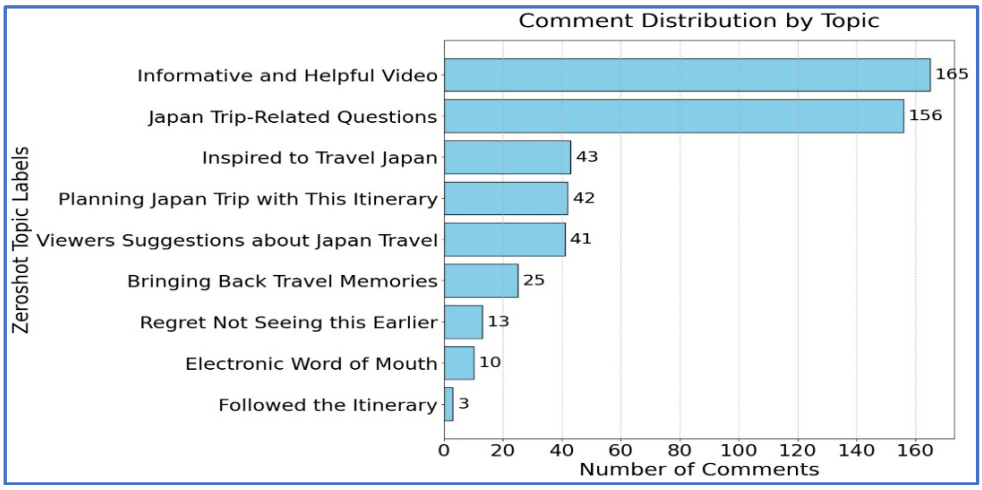


Figure 3: Zero-Shot Topic Mapping of YouTube Video Comments

4.3.2 *Zero-Shot Topic Analysis of Instagram and TikTok Viewers Comments*

Using the same 30 candidate labels starting with "The viewer is …" (e.g., "The viewer is expressing excitement or joy"), comments were classified and then grouped into five categories (Fig.4). Labels like " The viewer is sharing promotional, religious, or unrelated content" were also included to filter irrelevant comments The largest group, "Emotional Reactions, Engagement & Tagging", indicates that most users interacted through emojis, appreciative expressions, and tagging friends or family, reflecting TikTok and Instagram's emphasis on short comments, visual appeal and social sharing**.** Topics such as "Planning & Inquiry" and "Destination Praise & E-WOM" indicate that some viewers were inspired to visit or recommend Japan. Finally, the topics like "Opinions & Experiences" and "Content & Creator Appreciation" reveal viewers opinion and appreciating creator. Overall, the comments show short, positive reactions, focused more on visual inspiration and social sharing than detailed discussion.

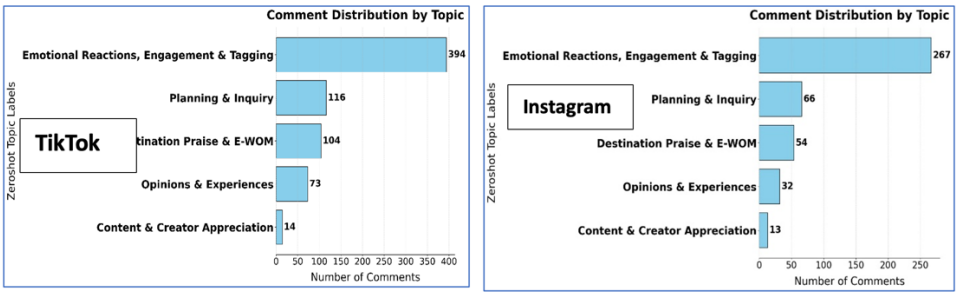


Figure 4: Zero-Shot Topic Mapping of TikTok and Instagram Video Comments

4.3.3 *Cross-Platform Topic Comparison*

The zero-shot topic results reveal clear difference in how viewers interact with the same travel content across platforms. On YouTube, the largest share of comments fell under "Informative and Helpful Video" "Japan Trip-Related Questions," and "Inspired to Travel Japan", indicating that viewers treat YouTube as a source of practical information and trip planning. Users frequently ask for clarification, itinerary details, and travel tips, and intentions to visit Japan which reflects a strong trip planning-oriented engagement style.

On TikTok and Instagram, the dominant topic was "Emotional Reactions, Engagement & Tagging," indicating brief, expressive, and socially oriented interaction through emojis and tagging family or friends. While some topics with fewer comments are related to trip planning which shows some curiosity about travel. Overall, engagement on both platforms was driven more by visual appeal and social sharing than by detailed trip preparation.

In summary, YouTube supports information-seeking and trip planning, while TikTok and Instagram encourage emotional engagement, curiosity, social sharing, and visual appreciation. These differences show how each platform shapes user behavior and influences how travel content is viewed and followed.

5. Discussion

Building on the topic-level patterns, the differences observed across various platforms highlight how social media content shapes the way viewers engage with it. It suggests that YouTube facilitates a form of engagement that goes beyond brief reactions. YouTube travel videos often elicit comments in which viewers express impressions and feelings about destinations, reflecting engagement with both visual content and personal narratives (Carvache-Franco et al., 2023a; K. Hussain et al., 2024). As a result, the study shows that YouTube comment sections provide spaces for reflection and opinion sharing, where viewers often express travel plans, ask trip-related questions, and reflect on past memories and impressions of the destinations featured in the videos.

In contrast, viewer response on TikTok and Instagram videos in this study was mostly quick and socially driven. Comments were often short and focused on emojis, tagging, and brief reactions, rather than detailed discussion or travel planning. This pattern is consistent with recent findings showing that TikTok travel videos influence the travel intentions of Generation Z and Millennials primarily through enjoyable and immersive viewing experiences(C. Liu et al., 2024). Similarly, research on Instagram influencer content shows that visually rich travel posts mainly create feelings of wanderlust and emotional interest through images and personal presentation, rather than encouraging detailed reflection or information sharing. (Asdecker, 2022). Overall, these findings suggest that TikTok and Instagram function mainly as inspirational platforms that promote emotional

engagement and social sharing, with a more limited role in practical travel planning while YouTube allows detailed space for viewers interactions.

6. Theoretical and Practical Contributions

This study contributes to tourism and social media research by showing that viewers' engagement with the same travel content varies across platforms due to differences in format and video style and viewer interaction norms. The findings clarify that YouTube tends to support more reflective, information-seeking, and trip planning-oriented engagement, while TikTok and Instagram content mainly encourage emotional reactions and social sharing. From a practical perspective, the results suggest that YouTube is more suitable for detailed travel guidance, whereas TikTok and Instagram are better used to generate inspiration and interest. Using these platforms will help travel influencers and destination management organizations to reach audiences more effectively across different stages of the travel decision process.

7. Conclusion

With social media now playing an important role in shaping tourist decisions, understanding how viewers respond to travel content across platforms has become essential. This study analyzed comments from YouTube, TikTok, and Instagram travel-itinerary videos to examine sentiment, emotional expression, and viewer topic focus. The cross-platform comparison shows that the similar kind of travel content generates different forms of engagement depending on platform style.

YouTube generated the most detailed interaction, with viewers asking practical questions about transport, budgeting, weather, timings, and how to follow the same itinerary. Many viewers connected the video to their own trip planning, showing that YouTube has become a helpful tool for gathering information and making travel decisions. In contrast, comments on TikTok and Instagram were shorter and more emotion-driven. Viewers reacted with excitement, tagged friends, posted emojis, and responded mainly to the visuals, while only a small number engaged in detailed travel planning. Overall, YouTube encouraged practical engagement, while TikTok and Instagram were used more for inspiration and quick emotional responses.

These findings show that platform design and communication style influence how viewers engage with travel content. YouTube encourages more thoughtful and planning-based engagement, while TikTok and Instagram promote short, visually driven emotional reactions. This suggests that a destination can go viral on TikTok or Instagram overnight through visual excitement, whereas YouTube encourages more thoughtful and responsible trip planning.

8. Limitations and Future Research

This study is limited by its use of a single video from each platform, which restricts the generalizability of the findings. Future research using larger and more varied sets of videos from every platform would help to test whether the observed engagement patterns and findings hold across different content types, creators, and destinations.

Ethics Declaration

This study used publicly available data and did not require ethical approval.

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Positioning Space Tourism within Astrotourism: Pathways for Commercialization and Market Development

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Abstract: Astrotourism is increasingly recognized as a niche form of tourism that integrates science, culture, and experience through human engagement with the universe. Within this broader category, space tourism represents one of its most prominent strands, shaped by technological progress and the growing demand for knowledge-driven encounters. While interest in both astrotourism and space tourism has expanded, the commercialization of these activities remains underexplored, particularly regarding how markets, business models, and visitor experiences evolve in tandem. To address this gap, this study examines how Business Model Innovation (BMI) has been conceptualized and applied within the context of terrestrial astrotourism, and what implications it holds for the sustainable commercialization of space tourism. A systematic literature review (SLR) was conducted following the PRISMA approach, focusing on 12 scholarly publications indexed in Scopus. Each article was analyzed through thematic synthesis to identify its central focus, treatment of business model components, and orientation toward commercialization. The analysis was guided by a framework distinguishing five forms of business model innovation: value proposition, marketing, process, revenue model and organizational innovation. The findings reveal that commercialization in astrotourism is primarily driven by innovations in value proposition, market expansion, and organizational collaboration. These developments indicate a transition from conventional sightseeing toward immersive, educational, and community-embedded experiences that generate emotional, cultural, and environmental value for visitors. While process and revenue innovations appear less developed and often implicit, emerging practices such as emotional experience staging, technology-assisted interpretation, and coordinated dark-sky management reflect increasing maturity in how astrotourism products are designed and delivered. More broadly, astrotourism functions as a testing ground for new forms of destination governance and experience-based value creation that may inform future models of responsible space-related tourism. Its emphasis on sustainability, inclusiveness, and local participation offers insights for constructing resilient and ethically grounded tourism frameworks. Further research should examine digital mediation, financial sustainability, and impact assessment to clarify how astrotourism can contribute to sustainable pathways within the evolving space economy.

Keywords: Astrotourism, Business Model Innovation, Commercialization, Space Tourism.

1. Introduction

Astrotourism has gained significant traction in recent years as travelers increasingly seek meaningful connections to nature and educational experiences. This niche form of tourism, centered on astronomy-related leisure with the intention of observing the celestial sphere and/or its astronomical heritage, has grown in parallel with rising concerns about light pollution and global movements toward sustainable travel (Araya-Pizarro and Verelst, 2023; Tapada et al., 2021). Its appeal lies not only in its scientific and cultural dimensions but also in its potential to support rural economies and foster environmental awareness.

Despite its growing popularity, astronomy-related tourism still faces challenges in establishing viable and scalable business models. Key constraints include limited or seasonal demand, inadequate infrastructure in rural dark-sky areas, and the difficulty of balancing commercialization with conservation goals (Tapada et al., 2021). These tensions underscore the need to rethink and explore how organizations segment markets, create value propositions, design, and implement them to achieve the long-term sustainability of astrotourism ventures (Teece, 2010).

While recent studies have attempted to consolidate the emerging body of knowledge on astrotourism—for instance, through systematic reviews (PRISMA) (Tapada et al., 2021) and bibliometric analyses (Araya-Pizarro and Verelst, 2023), none have specifically examined how business model innovation supports the design, growth, or sustainability of astronomy-based tourism initiatives. This gap is increasingly relevant as global discourse begins to link terrestrial astrotourism with commercial space tourism: one serving as an accessible entry point for public engagement with the cosmos, and the other representing its speculative frontier. It has been suggested that the progression toward space tourism is unlikely to occur instantaneously, but must instead develop from grounded terrestrial experiences such as astrotourism (Cater, 2010) Understanding how business models evolve within this domain may therefore offer conceptual insights for future space-economy

development, where value creation is similarly rooted in experience, education, and technological emergence.

To address this gap, this study conducts a Systematic Literature Review (SLR) focusing on the types of business model innovations currently applied in astrotonomy tourism. The findings are expected to contribute to scholarly discourse and provide a conceptual foundation for translating terrestrial innovation into the emerging space tourism market.

2. Literature Review

2.1 Astrotourism

Astrotourism, or astronomy-based tourism, can be defined as a sustainable tourism segment that invites public participation in observing the night sky and celestial objects, positioning the untouched night sky itself as an essential and marketable attraction (Collison and Poe, 2013). Astrotourism relies on the ecological integrity of pristine night sky, which are highly sensitive to light pollution and other environmental disruptions (Kanianska et al., 2020). As such, the development of astrotourism is inherently tied to conservation efforts, particularly through dark-sky protection initiatives. Further refining the scope of astrotourism, a typology was proposed to classify the phenomenon into three main categories (Matos, 2017) :

- ***Space Tourism***, referring to orbital or suborbital travel experiences and beyond Earth's orbit.
- ***Atmospheric Space Tourism,*** which includes experiences such as zero-gravity flights and high-altitude ballooning within Earth's upper atmosphere.
- ***Terrestrial Astrotourism,*** which focuses on earthbound activities like stargazing, aurora watching, observatory visits, dark-sky-based experiences, space movies and virtual space travel.

Space tourism continues to captivate the public imagination through its association with advanced technology and exclusive participation, while terrestrial astrotourism represents an early, more accessible modality of space engagement. Therefore, viewing astrotourism holistically provides a more comprehensive basis for theorizing commercialization pathways, rather than limiting analysis to space-oriented models.

2.2 Business Model Innovation

Business model innovation begins with a company's ability to create a value proposition reflected in customer value added, which occurs when perceived value exceeds price, resulting in a surplus of benefits for customers (Matzler et al., 2013). Value propositions, positioned at the front end of the business model, determine the direction of change in the distribution system and revenue logic (Günzel and Holm, 2013). Value propositions encompass all solutions to customers' primary needs, including product and service usability, accessibility, affordability, and relevance to the social context (Gebauer et al., 2017). In short, value proposition in BMI is a configuration of primary benefits in functional, emotional, social, and contextual value that creates a higher willingness to pay.

Market innovation is a change in how companies exploit market opportunities (Teece, 2010) through reconfiguring the architecture of value creation, delivery, and capture, including changes in who is served and how value is delivered to the market (Foss and Saebi, 2018). It changes the relationships between actors, activities, and transactions that reshape how value exchange occurs in the network of business model activities (Foss and Saebi, 2018; Haftor and Climent Costa, 2023; Teece, 2010). In short, market innovation is needed for the adjustment of business models to suit the ever-evolving market dynamics.

Process innovation refers to changes in the logic of value creation, namely how organizational activities and processes are structured to generate and deliver value more efficiently and effectively (Matzler et al., 2013). The designed changes concern the architecture of complementary activities, rather than minor operational improvements (Foss and Saebi, 2018). These include how the organization structures its operations, costs, activity systems, and value delivery mechanisms to convert value into profit (Teece, 2010). Although some of these processes overlap with value propositions and organizational innovation, analytically they are positioned as process innovations because they directly change the company's value creation mechanisms.

Revenue model innovation refers to a company's ability to generate actual revenue through innovative monetization mechanisms, such as changes in pricing structures, revenue sources, or payment logic (Matzler et al., 2013). Revenue model innovation needs to be designed to align with customer accessibility and affordability, particularly in the context of an inclusive market, thus enabling a balance between social value creation and

financial sustainability of the business (Gebauer et al., 2017).

Organizational innovation refers to an organization's ability to adapt through learning, changes in structure, processes, procedures, norms, and innovation decision-making mechanisms (Buliga et al., 2016). This ability includes updating value creation systems, value propositions, and value capture mechanisms (Moradi et al., 2021).

3. Materials and Methods

This study adopts a Systematic Literature Review (SLR) approach to identify how Business Model Innovation (BMI) is discussed, framed, and manifested within astronomy-related tourism. The use of SLR is considered appropriate because previous research in other industries has also employed SLR as a method to map business models and detect forms of BMI, utilized literature-based synthesis to structure BMI knowledge and classify innovation patterns (Downs and Velamuri, 2016; Tell et al., 2016). The review process was structured following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, which consisted of four key stages: identification, screening, eligibility assessment, and final inclusion (Moher et al., 2009).

3.1 Data Collection

The literature search was performed in April 2025 using the Scopus database, chosen for its wide coverage and reliability in indexing high-quality, peer-reviewed academic publications. The following search string was applied to identify relevant studies:

("astrotourism" OR ("astronomical" AND "tourism") OR ("dark" AND "sky" AND "tourism") OR ("stargazing" AND "tourism") OR ("astro" AND "tourism")) AND ("revenue" OR "entrepreneurship" OR "tourism development" OR "management")

The search was limited to articles published in English in peer-reviewed journals, following the four key stages outlined in **Figure 1**.

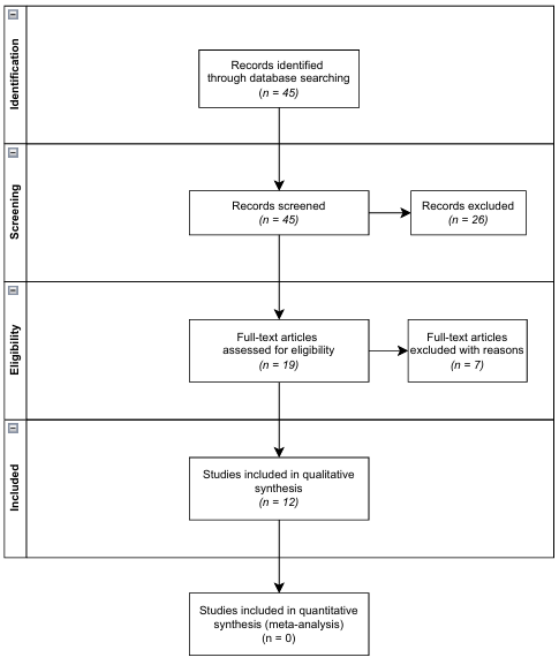


Figure 1: The Four Key Stages of the Literature Review in Astrotourism Research

3.2 Selection Process

A total of 45 records were initially retrieved, spanning publication years from 2002 to 2024. The selection process began with a title and abstract screening to assess the relevance of each paper to the core themes of astronomy tourism and business model innovation. Although the initial search was restricted to English-language publications, the manual screening of titles and abstracts identified a few misclassified non-English articles, which were subsequently excluded during the eligibility assessment. Studies were excluded if they met

at least one of the following criteria:

- Focused exclusively on general tourism without specific reference to astro-related tourism.
- Addressed highly technical or location-specific data (e.g., meteorological reports, light pollution measurements) without implications for business or tourism.
- Did not engage with themes of entrepreneurship, revenue generation, business model or tourism management.

Following this screening, 19 articles met the eligibility criteria. Each full text was read thoroughly. During this phase, seven additional articles were excluded. These articles initially appeared relevant, but a closer examination revealed that they did not engage analytically with the business model transformation or innovation dimensions. These studies still contributed valuable contextual insights, such as visitor perceptions, sustainability perspectives, regional development impacts, and the conceptual positioning of astrotourism. However, they did not examine value-creation logic, market structuring, organizational arrangements, revenue mechanisms, or operational innovation in a way consistent with the BMI framework.

3.3 Analysis Strategies

The selected articles were analyzed using secondary thematic analysis to explore how commercialization and market development are framed within the context of astronomy-related tourism. Each publication was examined to identify its central focus, as well as its treatment of business model components and innovation strategies. The classification of innovation types followed an established framework distinguishing five forms of BMI: value proposition, market, revenue model, process, and organizational innovation. The primary focus, data collection, and data analysis methods were identified across the selected studies.

As business model innovation is inherently multidimensional, articles were allowed to be classified across multiple BMI categories when conceptually justified. Classification was guided by a theory-driven framework and based on the substantive emphasis of each study's core arguments and findings rather than incidental references. To strengthen analytical rigor, the categorization process involved iterative reading and systematic cross-comparison across studies to ensure internal coherence within the five BMI dimensions. A detailed summary of the reviewed studies is provided in **Table 1.**

Table 1: Summary of Reviewed Astrotourism Articles

Authors	Primary Focus	Data Collection	Data Analysis Method	Type of Innovation				
				V	M	P	R	O
Blundell et al. (2020)	Investigates how DST can contribute to sustainable regional destination development with a triple bottom line approach plus ethics and education	Semi-structured interviews with tourism stakeholders	Thematic analysis	●	●			
Cater C.I. (2010)	Proposes a staged framework for the evolution of astrotourism from terrestrial experiences to commercial space tourism.	Conceptual/ Theoretical (literature-based)	Critical literature synthesis.	●				●
Collison and Poe (2013)	Explores the implementation of dark sky programs in national parks as an educational and experiential offering	Descriptive case-based documentation	Narrative descriptive analysis.	●	●	●		
Dalgleish et al. (2019)	Uses astronomy for capacity building, guide training, and rural development through DST	Program-based qualitative study	Applied case study reflection.			●		●
Fernández Hernández et al. (2022)	Analyzes tourist preferences and willingness to pay for different stargazing infrastructures	Discrete Choice Experiment (DCE)	Econometric modeling	●	●	●	●	
Ibrahim et al. (2012)	Presents a one-stop astronomy center blending Islamic values, education, and tourism.	Descriptive case analysis of architectural and programmatic design.	Narrative-descriptive interpretation.	●	●	●	●	●
Rodrigues et al. (2015)	Case study of Dark Sky Alqueva, highlighting local integration and	Interviews, observations, site-	Qualitative case analysis.	●	●		●	●

Authors	Primary Focus	Data Collection	Data Analysis Method	Type of Innovation				
				V	M	P	R	O
	tourism product diversification.	based reports.						
Rodrigues et al. (2022)	Investigates how the feeling of "awe" influences satisfaction and return intentions.	304 survey responses	PLS-SEM	●		●		
Rodrigues et al. (2023)	Examines how novelty, hedonism, and meaningfulness influence tourist loyalty in astrotourism experiences.	296 surveys at a Portuguese astrotourism event.	PLS-SEM	●		●		
Tapada et al. (2021)	Analyzes stakeholder perceptions of network-based planning in the development of an astrotourism project in Portugal.	Semi-structured interviews with stakeholders.	Social Network Analysis (SNA) and thematic analysis.	●	●	●	●	●
Weaver D. (2011)	Positions astrotourism within ecotourism, emphasizing conservation and education in nature-based night-sky experiences.	Conceptual/Theoretical (literature-based).	Analytical discussion and conceptual positioning.	●	●	●		●
Xanthakis et al. (2024)	Analyzes the digital visibility and promotional strategies of International Dark Sky Parks.	Content analysis of 60+ websites.	Descriptive and content-based comparison.	●		●	●	●

* V: value proposition innovation, M: market innovation, P: process innovation, R: revenue model innovation, O: organizational innovation

4. Findings and Discussions

4.1 Value Proposition Innovation

The systematic reviews show that astrotourism offers a diverse spectrum of value propositions, beginning with the value of immersive and multisensory experiences, as demonstrated by night-sky interpretation programs that deliver "*sensory-rich experiences*" in Bryce Canyon (Collison and Poe, 2013) and the characterization of astrotourism as a niche that supports sensory and cognitive engagement (Tapada et al., 2021). Emotional value becomes significant in astronomical tourism experiences, which are intentionally designed to evoke awe, thereby enhancinge satisfaction and behavioral intention (Rodrigues et al., 2022). Likewise, novelty, meaningfulness, knowledge, and involvement operate as experiential stimuli that trigger cognitive and emotional responses, such as hedonism and refreshment, ultimately shaping memorable experiences and loyalty (Rodrigues et al., 2023). A value of well-being and emotional restoration is also reflected in the spiritual and restorative qualities associated with night-sky experiences (Blundell et al., 2020), as well as reflections on the loss of opportunities for contemplation due to light pollution (Tapada et al., 2021).

Community authenticity value arises from local community involvement and the reinforcement of rural cultural identity (Rodrigues et al., 2015) as well as from the positive sociocultural outcomes of celestial ecotourism (Weaver, 2011). A dark-sky conservation value is likewise evident, especially in the emphasis on preserving *unpolluted* night-sky conditions for sustaining tourism experiences (Weaver, 2011) and in conservation-oriented destination development (Rodrigues et al., 2015). Cultural and heritage value also emerges through UNESCO's recognition of the starry sky as *"cultural and universal heritage*" and its relevance to astronomical heritage (Rodrigues et al., 2015), consistent with the role of *archaeoastronomical heritage* highlighted in astrotourism activities. In addition, astrotourism promotes educational astronomy values through observatories and public programs that provide opportunities for learning and the dissemination of astronomy knowledge (Tapada et al., 2021).

On other hand, activities such as astrophotography add further value by enabling visual interpretation of dark skies (Tapada et al., 2021), while a technology-enhanced value arises from the use of modern astronomical infrastructures that deepen observational experience (Fernández-Hernández et al., 2022).

4.2 Market Innovation

Market innovation in astrotourism primarily manifests through the expansion of audience segments beyond astronomy enthusiasts. Activities involving public education, guided night-sky observation, and sensory engagement attract non-astronomy visitors seeking unique natural experiences (Tapada et al., 2021). Evidence suggests that celestial ecotourism can "*complement or even substitute*" for traditional ecotourism attractions (Weaver, 2011), while also attracting wellbeing-oriented visitors pursuing psychological restoration (Blundell et al., 2020), and engaging general park visitors and families through structured night-sky programming (Collison and Poe, 2013).

Astrotourism also involves strategic repositioning and category formation. The creation of a distinct dark-sky market category, conceptualized as celestial ecotourism, constitutes a unique form of ecotourism focused on pristine night conditions (Weaver, 2011) and is further strengthened by broader interest in astronomy-related tourism phenomena (Cater, 2010), illustrating deliberate market differentiation.. Destinations are also repositioned through dark-sky branding, such as Alqueva's transformation into a night-sky destination (Rodrigues et al., 2015) and Bryce Canyon's shift from a geology-centric identity toward a night-sky–oriented profile (Collison and Poe, 2013).

Market innovation is further strengthened through cultural and community embedding. The designation of the starry sky as *cultural and universal heritage* and its integration with rural cultural landscapes in the Dark Sky Reserve of Alqueva (Rodrigues et al., 2015). Moreover, astrotourism exhibits community-linked market integration, in which local involvement and rural cultural identity are integral to the destination's appeal (Rodrigues et al., 2015), aligning with the positive sociocultural impacts observed in celestial ecotourism (Weaver, 2011).

The technology-enabled expansion of market reach is evident, with astronomical infrastructures and interpretation technologies in sites such as Teide National Park attracting non-experts (Fernández-Hernández et al., 2022). Meanwhile, digital planetariums, robotic observatories, and internet-controlled telescopes at the Al-Khawarizmi Complex expand access to general visitors, families, and students (Ibrahim et al., 2012).

4.3 Process Innovation

Astrotourism is expressed through diverse operational and experiential mechanisms. Destinations incorporate experience design processes that structure meaningful sensory engagement, as seen in Tapada's (2021) emphasis on sensory–cognitive experiences and in Bryce Canyon's *"sensory-rich"* night-sky interpretation programmes (Collison and Poe, 2013). Emotional experience design further reinforces this structuring, as activities are intentionally crafted to evoke awe and related affective states that shape memorable stargazing encounters (Rodrigues et al., 2022). Experiential stimuli such as novelty, meaningfulness, knowledge, and involvement operate as structured elements within this process, strengthening satisfaction and memorability (Rodrigues et al., 2023).

Beyond experiential design, process innovation is supported by institutional and sustainability-oriented mechanisms. Dark-sky preservation processes are embedded within destination management strategies that maintain high-quality night conditions (Rodrigues et al., 2015). It aligns with calls to protect *unpolluted* skies within celestial ecotourism (Weaver, 2011). Capacity building is further strengthened through training processes, such as Namibia's structured guide-training curriculum, which covers astrophysics, star lore, practical astronomy, and light pollution (Dalgleish et al., 2019), complemented by observatory-based dissemination activities (Tapada et al., 2021). Visitor-flow coordination within dark-sky reserves further demonstrates how operational control sustains environmental integrity and experiential consistency (Rodrigues et al., 2015).

Technology functions as an enabling layer that enhances both interpretation and delivery, with astronomical infrastructures and public telescopes enabling accessible scientific engagement (Fernández-Hernández et al., 2022). In addition, educational and interpretive processes are enhanced by digital planetariums, robotic observatories, and internet-controlled telescopes which facilitate public learning and understanding of celestial phenomena (Ibrahim et al., 2012).

4.4 Revenue Model Innovation

None of the reviewed studies explicitly articulate revenue models in structural or financial terms. Revenue mechanisms are therefore absent as a formal analytical dimension within literature. Instead, revenue

innovation appears only implicitly, embedded within descriptions of value creation and destination practices. For example, the framing of astrotourism as a "*unique, rare and valuable*" experience (Tapada et al., 2021) and the emotional depth of night-sky encounters (Xanthakis et al., 2024) indicate potential for premium experience-based pricing. Certification initiatives such as Alqueva's Dark Sky Reserve status (Rodrigues et al., 2015) imply heritage-based commercial positioning. Educational infrastructures including digital planetariums and robotic observatories (Ibrahim et al., 2012), suggest education-oriented revenue streams. Community involvement in service provision also enables local-based revenue participation (Rodrigues et al., 2015), while the use of specialised observation technologies expands possibilities for tech-based add-on services (Fernández-Hernández et al., 2022).

Overall, these patterns suggest that revenue generation in astrotourism remains embedded within value propositions rather than conceptualized as a distinct business model dimension.

4.5 Organizational Innovation

Organizational innovation in astrotourism is manifested through the establishment of governance and sustainability-oriented structures that coordinate the protection and interpretation of the night sky. The Alqueva Dark Sky Reserve exemplifies multi-stakeholder governance, involving local government, community actors, tourism operators, and astronomical institutions in an integrated management framework (Rodrigues et al., 2015) in line with Weaver's (2011) view that celestial ecotourism requires cross-sector ecological coordination. Formal lighting regulation, monitoring systems, and destination-level dark-sky management frameworks institutionalize environmental protection (Rodrigues et al., 2015) while ecological-emotional management logics further embed sustainability within organizational arrangements (Xanthakis et al., 2024). These developments illustrate how astrotourism organizations are evolving toward ecosystem-based, knowledge-intensive configurations.

Beyond governance structuring, organizational innovation also manifests through the institutionalization of knowledge and the hybridization of scientific and community roles. Structured guide-training programmes covering astrophysics, star knowledge, and light pollution (Dalgleish et al., 2019), alongside observatory-based educational functions (Tapada et al., 2021). professionalize service delivery and consolidate expertise as organizational capital. The integration of digital planetariums, robotic observatories, and internet-controlled telescopes bridges professional astronomy and public engagement (Ibrahim et al., 2012), consistent with the broader trend toward knowledge-oriented tourism discussed by Cater (2010). The role of communities is also embedded in organizational structures, as local participation in service provision and cultural interpretation forms a defining component of tourism operations (Rodrigues et al., 2015) and aligns with the sociocultural benefits noted in sky ecotourism (Weaver, 2011). These developments illustrate how astrotourism organizations evolve toward ecosystem-based and knowledge-intensive configurations.

To visualize how these five forms of business model innovation interrelate within the context of astrotourism, a conceptual mapping was developed (see Figure 2). While analytically distinguished for clarity, the five BMI dimensions operate as an interconnected configuration in practice. Adjustments in one dimension may reshape others. For example, shifts in value positioning can reframe market orientation, revenue logic, operational routines, or organizational arrangements. These relationships are context-dependent and adaptive rather than sequential. Accordingly, the framework captures a dynamic configuration of innovation elements instead of a fixed or prescriptive progression.

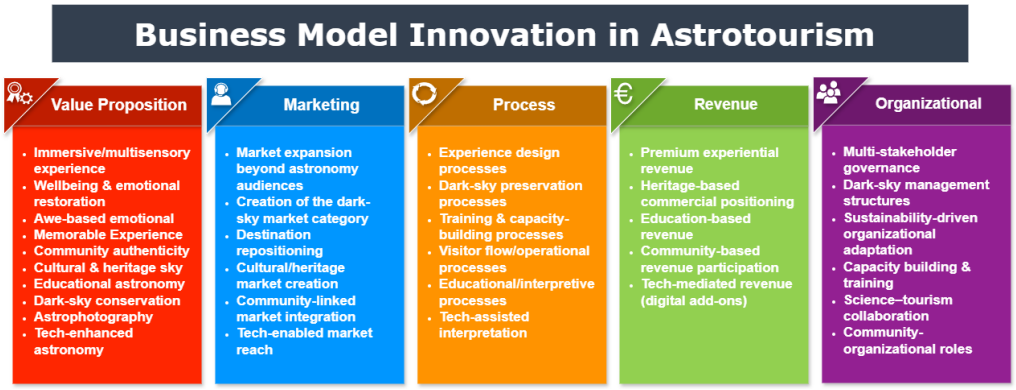


Figure 2: Conceptual Mapping of Business Model Innovation in Astrotourism

5. Conclusion and Future Research

This study examined how BMI has been conceptualized and applied within the emerging field of astrotourism. The review revealed that commercialization in astrotourism is primarily driven by innovations in value proposition innovation, marketing innovation, and organizational innovation. These developments indicate a gradual shift from traditional sightseeing toward immersive, educational, and community-based experiences that create deeper emotional and social value for visitors. While financial and process-related innovations remain underdeveloped, the increasing integration of storytelling and digital tools suggests a growing maturity in how astrotourism enterprises design and deliver their offerings.

From a commercialization perspective, these trends imply that astrotourism functions as an experimental platform where new market structures, revenue models, and governance mechanisms can be tested on a small scale before being adapted to the broader domain of space tourism. The emphasis on sustainability, inclusiveness, and multi-stakeholder collaboration found in astrotourism offers valuable insights for building responsible and resilient space tourism models. Future research should therefore explore how the principles of value co-creation and local participation evident in terrestrial astrotourism can inform the ethical and economic frameworks of space tourism commercialization.

Beyond mapping existing practices, this study advances BMI theory in tourism in three ways. First, it extends BMI analysis to an emerging niche tourism domain where commercialization is intertwined with conservation and educational logic. Second, it demonstrates that in early-stage tourism markets, value and market innovations tend to precede and structurally dominate revenue and process innovations, suggesting a developmental asymmetry within BMI configurations. Third, the findings reveal that revenue mechanisms in astrotourism are embedded within experiential and governance practices rather than articulated as standalone financial structures, thereby challenging the assumption that BMI dimensions evolve uniformly across contexts.

Future research should examine structured analyses of revenue architecture and pricing strategies, develop more digital integration (e.g., VR/AR and platform-based systems) and assess the socio-economic and environmental impacts of astrotourism business models to strengthen empirical grounding.

Ethics Declaration

This research did not require formal ethical clearance as it is based solely on secondary data obtained from previously published literature. No human participants or sensitive personal information were involved in this study.

AI Declaration

The authors used OpenAI's ChatGPT (GPT-5) to assist in summarizing literature and improving language fluency.

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Determinants of Digital Engagement in Cultural Tourism: A Logistic Regression Analysis of Social Media Likes

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Abstract: Digital media are central to the visibility and attractiveness of cultural institutions that operate at the intersection of heritage, leisure and tourism. Increasingly, cultural organizations rely on social platforms not only to communicate with local communities but also to engage international visitors and strengthen their role within the tourism economy. Social media uses "Likes" to provide a measurable signal of audience interaction and approval and have therefore become a valuable indicator of digital engagement. This study investigates the determinants of audience engagement by analyzing 1,349 social-media posts from ten Greek cultural organizations. A unique dataset was systematically coded across several dimensions, including organizational identity, sustainability orientation (economic, social, environmental), thematic focus (collaboration, education, inclusion, transparency), content structure (text, image, video, multimodal) and language of communication (Greek, English, bilingual). Engagement was measured through Likes, employed as the dependent variable. To examine engagement patterns, Likes were dichotomized into high versus low engagement using the sample median as the threshold. Logistic regression analysis estimated the probability that a post achieved high engagement conditional on its characteristics. Results confirm that sustainability orientation significantly influences engagement levels, with posts addressing social sustainability showing the highest mean engagement. Logistic regression further reveals that education and inclusion themes negatively predict high engagement, whereas transparency emerges as a positive predictor. Interaction effects demonstrate that engagement outcomes depend on synergies between sustainability themes and interactive design. Specifically, combining calls-to-action with embedded links increases engagement for environmental posts but reduces it for economic ones. Simultaneously, links without explicit calls-to-action benefit economic sustainability communication. The interaction model substantially improves explanatory power, relative to the main-effects model, indicating that digital engagement is context dependent rather than additive. The findings offer quantitative evidence on how cultural organizations' communication strategies shape online audience behavior. From a managerial perspective, the results highlight the need for differentiated communication strategies that align sustainability narratives with suitable interactive elements. Investing in transparency messaging and designing content strategically across sustainability dimensions can enhance both visibility and impact within the cultural tourism ecosystem.

Keywords: Cultural Tourism, Social Media, Digital Engagement, Sustainability Communication, Interaction Model

1. Introduction

The digital transformation of cultural tourism has fundamentally reshaped how cultural institutions communicate, and engage audiences, whilst positioning themselves within the tourism economy (Mariani et al., 2016; Trunfio & Della Lucia, 2019). Social media platforms have emerged as critical tools for cultural organizations to reach both local communities and international visitors, enabling real-time interaction and co-creation of cultural experiences (Barger et al., 2016; Hallock et al., 2019). Within this context, understanding the determinants of digital engagement has become essential for both academic inquiry and managerial practice.

Social media platforms reshaped the dyadic interaction between customers and organizations, creating spaces for digital sharing and engagement (Barger et al., 2016; Peltier et al., 2020). By enabling users to comment, review, create, and share content across online networks, social media provide direct access to brands and allow co-creation processes. The pervasive use of social media, alongside its potential for nurturing and building relationships, has generated much interest in the concept of social media engagement (Schivinski et al., 2016; Oviedo-García et al., 2014).

Thus, understanding, monitoring, and measuring social media engagement are key aspects that interest scholars and practitioners (Mariani et al., 2018; Muñoz-Expósito et al., 2017). Nevertheless, many studies offer a partial perspective of analysis, offering a limited overview of digital engagement across a diverse context (Oviedo-García et al., 2014). As McKinsey (2012) noted, social media engagement remains an enigma wrapped in a riddle for many executives.

This study addresses this gap by investigating the determinants of digital engagement in the cultural tourism sector, focusing specifically on social media Likes as a measurable indicator of audience interaction. By analyzing 1,349 posts from ten Greek cultural organizations, the authors provide empirical evidence on how sustainability

communication and content design influence engagement outcomes. The research contributes to tourism economics by demonstrating how strategic digital communication can enhance cultural institutions' attractiveness as tourist destinations and promote sustainability narratives to global audiences.

2. Literature Review

2.1 Social Media Engagement

Although the engagement of digital followers has considerable theoretical and managerial relevance (Brodie et al., 2011; Hollebeek et al., 2016, 2019; Kumar et al., 2019; Vivek et al., 2012), there is still no consensus on its definition due to its multidimensional and multidisciplinary nature. Several customer engagement conceptualizations have been proposed in the literature, drawing on various theoretical backgrounds, particularly service-dominant logic and relationship marketing.

Focusing on the behavioral aspects, Vivek et al. (2012) describe it as the intensity of an individual's participation in an organization's offerings or organizational activities. More recently, from a value-based perspective, Kumar et al. (2019) define customer engagement as the mechanics that customers use to add value to the firm. The literature generally understands engagement as a highly experiential, subjective, and context-dependent construct (Brodie et al., 2011) based on customer-brand interactions (Hollebeek, 2017). Most of the literature focuses on the behavioral dimension as it can be expressed through actions such as liking, commenting, sharing, and viewing contents from a brand (Barger et al., 2016; Muntinga et al., 2011; Oviedo-García et al., 2014; Peltier et al., 2020; Rietveld et al., 2020; Schivinski et al., 2016). Moreover, scholars agree on its multidimensional nature (Brodie et al., 2013; Hollebeek et al., 2016; So et al., 2016; Vivek et al., 2012) encompassing cognitive (customer focus and interest in a brand), emotional (feelings of inspiration or pride caused by a brand), and behavioral (customer effort and energy necessary for interaction with a brand) dimensions. Social media engagement has been investigated as brand-user interaction on social media platforms (Barger et al., 2016; De Vries & Carlson, 2014; Hallock et al., 2019; Oviedo-García et al., 2014; Peltier et al., 2020; Schivinski et al., 2016).

2.2 Determinants of Social Media Engagement

Several factors have been identified as determinants of social media engagement. Sabate et al. (2014) investigated factors influencing popularity of branded content in Facebook fan pages, finding that content type, message characteristics, and posting time significantly affect engagement. Wang and Kubickova (2017) examined factors affecting the engagement metrics of Facebook fan pages in the Northeast America hotel industry, identifying factors such as time-of-day, day-of-week, age, gender and distance between the hotel and users' origin of residence. Colicev et al. (2018) developed three social media metrics, including engagement, to study the effects of earned social media and owned social media on brand awareness, purchase intention, and customer satisfaction.

Content structure plays a crucial role in engagement outcomes. Studies have shown that visual content, particularly videos and images, tend to generate higher engagement than text-only posts (Rietveld et al., 2020). The combination of different types of content (multimodal content) has been found to be particularly effective in capturing audience attention and encouraging interaction.

2.3 Cultural Tourism and Digital Engagement

Cultural tourism represents a significant segment of the tourism industry, with cultural institutions serving as key attractions for both domestic and international visitors (Mariani et al., 2016). Digital platforms have become essential tools for cultural organizations to communicate their offerings, values, and sustainability initiatives to diverse audiences. In the context of cultural tourism, social media engagement serves multiple purposes. First, it enhances visibility and attractiveness of cultural institutions among potential visitors (Mariani et al., 2016). Second, it facilitates real-time communication with both local communities and international tourists (Harrigan et al., 2017). Third, it enables cultural organizations to position themselves as key nodes within the tourism economy.

The language of communication is particularly relevant in cultural tourism contexts. Organizations serving international audiences often face the challenge of communicating effectively across language barriers. Bilingual communication strategies may offer advantages by reaching both local and international audiences simultaneously, though empirical evidence on this aspect remains limited.

2.4 Sustainability Communication in Cultural Tourism

Sustainability has become a central concern for cultural institutions, encompassing economic, social, and environmental dimensions. Social media platforms provide opportunities for cultural organizations to communicate their sustainability initiatives and engage stakeholders in sustainability-related discussions (Hallock et al., 2019). Different sustainability dimensions may resonate differently with audiences. Social sustainability, which encompasses aspects such as inclusion, education, and community engagement, has been suggested to have particular appeal in the cultural sector (Dessart, 2017). However, systematic empirical evidence on how different sustainability frames influence digital engagement in cultural tourism remains scarce.

2.5 Research Gaps and Objectives

Despite the growing body of research on social media engagement, several gaps remain. First, most studies focus on commercial brands rather than cultural institutions operating in tourism contexts. Second, the role of sustainability communication in driving digital engagement has not been systematically investigated. Third, methodological approaches often rely on simple correlation analyses rather than multivariate techniques that can disentangle the relative effects of multiple determinants.

This study addresses these gaps by: (1) focusing specifically on cultural organizations in the tourism sector; (2) examining how different sustainability dimensions and thematic categories influence engagement; (3) investigating the role of content structure choices; and (4) employing logistic regression to estimate the probability of high engagement.

3. Methodology

3.1 Data Collection and Sampling

The empirical analysis was based on a unique dataset of social media posts published by cultural organizations. The sample comprises large national cultural institutions (including the country's principal state theatre and opera), major municipal concert halls and state orchestras based in Athens and Thessaloniki, as well as independent theatres and multifunctional cultural centers. This composition ensures variation in institutional size, governance structure, and geographic reach, providing a robust basis for assessing the generalizability of the findings. Posts were collected from official Facebook pages using a time sampling approach (January – May 2025). Researchers opted for a five-month period to capture a diverse range of cultural programming across different seasons. The timeframe also avoided major holiday periods that might skew posting patterns. The dataset comprised 1,349 posts, each representing an individual observation unit. Each post was manually coded according to thematic and structural characteristics using a coding framework informed by prior literature on social media engagement and sustainability communication (Barger et al., 2016; Harrigan et al., 2017; Trunfio and Della Lucia, 2019). To ensure consistency in the manual coding procedure, a pilot coding phase was conducted on a subset of posts to refine the coding framework and establish clear decision rules. A single-coder protocol was employed, supported by detailed coding guidelines, which were applied consistently across all 1,349 posts to maintain intra-coder reliability. One added layer of testing was added during the data analysis stage. The dataset went through extensive "data-cleaning" in order to get rid of possible mistakes during the coding process.

The coding process focused on two principal dimensions: (1) sustainability themes—including education, inclusion, transparency, collaboration, communication, monitoring, and energy—and (2) interactive elements**,** such as calls-to-action, hyperlinks, and question prompts. This allowed the analysis to capture both *what* organizations communicate (sustainability content) and *how* they communicate it (interactional design). The dependent variable, engagement, was operationalized as a binary measure (*LikesAV*), where posts higher than the mean of total reactions ("likes", "loves", and similar positive responses) were coded as high engagement (=1) and all others as low engagement (=0). This binary classification follows the approach of Oviedo-García et al. (2014) and Schivinski et al. (2016), who conceptualized engagement as an observable behavioral outcome on social platforms. Using the mean as a threshold identifies posts performing above the average engagement level of the dataset. While this reflects relative performance within the sample, it should not be interpreted as an absolute benchmark of "high" engagement.

The analysis was designed to identify which sustainability themes and interaction types predict audience engagement, and whether their effect depends on one another. The main inferential analysis employed binomial

logistic regression to estimate high engagement (*LikesAV = 1*) as a function of sustainability themes and interactive elements. A second model incorporated interaction terms between sustainability dimensions and interactive features to capture context-dependent effects. Model performance was evaluated using Akaike Information Criterion (AIC), model deviance, and McFadden's pseudo-R^2.

4. Results

4.1 Logistic Regression Analysis: Main Effects Model

The first logistic regression model examined the main effects of sustainability themes and thematic variables on the probability of achieving high engagement. Table 1 below summarizes the results.

Table 1: Binomial Logistic Regression

Predictor	Estimate	SE	Z	p
Intercept	**-1.2530**	**0.113**	**-11.1017**	**< .001*** **
1.Var.Access	0.0208	0.174	0.1191	0.905
2.Var.Educ.	**-1.5038**	**0.382**	**-3.9401**	**< .001*** **
3.Var.Incl.	**-1.0096**	**0.387**	**-2.6081**	**0.009** **
4.Var.Collab.	-0.0405	0.198	-0.2046	0.838
5.Var.Com.	-0.1607	0.388	-0.4137	0.679
6.Var.Trans.	0.1883	0.240	0.7848	0.433
7. Var. Mon.	**1.1884**	**1.049**	**1.0849**	**0.078***
8.Var.Energ.	0.1544	1.160	0.1331	0.894
9.Var.Bio	-13.3131	509.652	-0.0261	0.979
AIC	1325			
R^2McF	0.0269			

*Note. Estimates represent the log odds of "LikesAV = 1" vs. "LikesAV = 0" Significance: *** p < .001; ** p < .01; marginally significant.*

Among the thematic variables, education and inclusion emerged as significant negative predictors of high engagement. Posts coded as education-focused had significantly lower odds of achieving high engagement (β = -1.5038, $p < .001$). Similarly, inclusion-themed posts demonstrated lower engagement probability (β = -1.0096, $p = 0.009$). These findings suggest that while education and inclusion represent important dimensions of social sustainability, they may not resonate as strongly with general audiences on social media platforms, as compared to other types of content. Other themes, including Funding Sources (β = 1.1884, $p = 0.078$), displayed positive effects, hinting that posts highlighting financial transparency, or funding activity could stimulate interest. Educational and inclusive content are perceived as overly institutional, lacking the emotional appeal and visual immediacy that stimulate engagement on platforms like Facebook. In contrast, funding transparency can enhance organizational credibility and signal accountability to audiences increasingly concerned about institutional integrity. Such posts may also foster community ownership, especially when highlighting grants or public support, while generating anticipation about new projects and future programming. Overall, the results imply that engagement patterns may depend on more complex interactions between content structure, sustainability orientation and audience characteristics. This interpretation is consistent with subsequent interaction models, which reveal context-dependent synergies driving engagement. The main-effects model establishes baseline relationships between thematic content and engagement, confirming that not all sustainability narratives resonate equally with online audiences. Implicitly, we hypothesis towards the existence of a greater degree of heterogeneity in our sample. The following interactions represent a step forward from the main effects model; in an effort to capture some degree of this heterogeneity.

4.2 Interaction Effects Model

The second logistic regression model incorporated interaction terms between interactive elements and sustainability dimensions, resulting in a substantially improved model fit. Table 2 summarizes the results.

Table 2: Binomial Logistic Regression Interactions

Predictor	Estimate	SE	Z	p
Intercept	**-1.5343**	**0.169**	**-9.0780**	**< .001**
1.Var.Access	0.0247	0.179	0.1377	0.891
2.Var.Educ.	**-1.6323**	**0.386**	**-4.2258**	**< .001**
3.Var.Incl.	**-1.1193**	**0.392**	**-2.8527**	**0.004**
4.Var.Collab.	-0.0508	0.204	-0.2495	0.803
5.Var.Com.	0.0858	0.403	0.2129	0.831
6.Var.Trans.	**0.5448**	**0.245**	**0.9977**	**0.018**
7. Var. Mon.	**1.2195**	**1.055**	**-0.9662**	**0.034**
8.Var.Energ.	0.1269	1.183	0.1073	0.915
9.Var.Bio	-14.4173	819.021	-0.0176	0.986
1.Inter.Call to Action	**-1.1379**	**1.034**	**-1.4880**	**0.037**
2. Inter.Call+Link	**0.9718**	**0.186**	**5.2142**	**< .001**
3. Inter. Link	0.1057	0.179	0.5914	0.554
4. Inter.Quest.	-14.0659	375.676	-0.0374	0.970
5.Inter.Q+Link	-0.1462	0.564	-0.2590	0.796
Interaction Terms				
Inter. Call + Link*Envir.	**1.1562**	**1.018**		**0.006**
Inter.Link*Environm.	**-1.5647**	**0.122**		**0.007**
Inter.Link*Economic	**2.337**	**0.586**		**0.000**
Inter. Call+Link*Economic	**-1.737**	**0.996**		**0.000**

The intercept remained negative and highly significant (β = −1.5343, p < .001), confirming that, when all predictors are held constant, the baseline probability of a post achieving high engagement remains relatively low. This is consistent with the distribution of Likes across posts, where a limited number attracts above-median engagement. Among the sustainability-related themes, Education (β = −1.6323, *p* < .001) and Inclusion (β = −1.1193, *p* = 0.004) emerge as significant negative predictors, reinforcing results from the main-effects model. In contrast, Transparency becomes a positive and significant predictor (β = 0.5448, *p* = 0.018), suggesting that audiences respond favorably to posts emphasizing openness and accountability. Likewise, the variable related to Funding Sources (β = 1.2195, *p* = 0.034) shows a positive association, indicating that communication about financial or operational oversight can enhance audience trust and engagement. Regarding the interactive design, the presence of both call-*to-action combined with an embedded link* strongly increases engagement (β = 0.9718, p < .001). This confirms that multimodal interactive cues effectively encourage user response.

The interaction terms highlight the context-dependent nature of engagement. The positive interaction between Call + Link *and* Environmental Sustainability (β = 1.1562, *p* = 0.006) indicates that combined interactive elements amplify engagement when posts address environmental themes. Conversely, Link and Environmental interactions affect social engagement in a negative way (β = −1.5647, p = 0.007), showing that isolated links may dilute message effectiveness in environmental contexts. For *Economic Sustainability*, opposite patterns emerge: *Link × Economic* interactions are positive (β = 2.337, p < .001), whereas *Call + Link × Economic* interactions are negative (β = −1.737, p < .001). These findings suggest that concise, information-rich links promote engagement in economic posts, while excessive prompting reduces audience responsiveness. Several predictors in the interaction model displayed unusually large standard errors, particularly the variables Var.Bio and InterQuest. These inflated standard errors arise due to extremely low frequency of posts belonging to these content categories, which results in quasi-complete separation and very limited within-category variance. Overall, the interaction model underscores that engagement results from the synergy between sustainability framing and

interactive design rather than from independent content effects. This supports the argument that strategic alignment between message type and interactivity is essential for maximizing digital engagement among cultural organizations and their audiences.

5. Discussion

The findings of this study offer new insights into the determinants of social-media engagement within cultural organizations and contribute meaningfully to international debates on digital communication, sustainability, and audience interaction. The results demonstrate that engagement on social media is not driven by isolated variables but by a dynamic interaction between content characteristics, sustainability framing and interactive design. This observation supports earlier arguments by Barger et al. (2016) and Peltier et al. (2020) that engagement behavior is context-dependent and cannot be fully explained through a simple main effects model. By applying logistic regression with interaction terms, the study responds to calls for more rigorous and nuanced analytical approaches in digital-engagement research and provides empirical evidence of the complex mechanisms shaping online audience responses in the cultural tourism sector.

The results confirm that sustainability communication is a significant but multidimensional driver of engagement. In line with Hallock et al. (2019), sustainability framing emerges as an important determinant of digital visibility, yet our analysis reveals that not all dimensions of sustainability are equally effective in capturing audience interest for cultural organization in Greece. Posts focusing on social-sustainability aspects such as education and inclusion were associated with lower engagement, suggesting that audiences may perceive these themes as institutional duties rather than as participatory or emotionally compelling narratives. This finding contrast with common assumptions in cultural management that educational and inclusive content automatically resonates with audiences. This echoes Dessart's (2017) view that communication must balance organizational mission with audience relevance. Conversely, transparency proved to be a strong positive predictor of engagement, aligning with international literature emphasizing openness, authenticity and accountability as key factors in building trust and credibility online (Dessart, 2017). The positive association between transparency and engagement implies that audiences value clear communication about governance, funding and institutional decision-making processes, and that such content strengthens perceptions of integrity and legitimacy.

The results reveal that combining calls-to-action with hyperlinks to organizational websites or related web pages enhances engagement for environmental-sustainability content, while the same strategy reduces engagement for economic posts. In contrast, providing information links without explicit calls-to-action is more effective in economic contexts, suggesting that audiences prefer autonomy when engaging with financially oriented information. These results reinforce Peltier et al.'s (2020) argument that engagement derives from complex interdependencies among content attributes, rather than from uniform causal effects, and highlight the necessity of context-sensitive digital strategies.

By focusing specifically on cultural institutions, this study extends the scope of previous work and demonstrates that museums, foundations and heritage bodies act as key nodes within tourism ecosystems, shaping visitors' perceptions through strategic online communication. From a managerial perspective, these findings have clear implications on how cultural organizations design and implement their digital strategies. The varying effects of sustainability themes suggest that communication efforts should be strategically differentiated rather than standardized. Education and inclusion content may require creative reframing to foster participation and emotional connection, by presenting educational activities as co-creative opportunities or storytelling experiences rather than institutional programs. Transparency, on the other hand, naturally invites engagement. Thus, organizations could benefit from more proactive disclosure of governance practices, decision-making processes or behind-the-scenes operations. Such openness aligns with global shifts towards participatory governance and stakeholder accountability (Dessart, 2017).

Environmental communication appears most effective when combining calls-to-action with actionable links, while economic messages benefit from information-rich content without overt prompting. These insights challenge one-size-fits-all communication templates and support the development of content guidelines specifying appropriate interactive strategies for each sustainability dimension.

In addition to statistical significance, the magnitude of effects for key predictors and interaction terms highlights their practical relevance for cultural organizations. For example, transparency as a sustainability theme showed a strong positive influence on engagement, suggesting that clear, open communication boosts audience trust and interaction. Similarly, the interaction between calls-to-action combined with hyperlinks and environmental

content revealed a notable enhancement of engagement, emphasizing the effectiveness of pairing interactive elements with specific sustainability messages. These effect sizes suggest organizations can increase digital engagement by strategically focusing on these communication dimensions, rather than treating all content or features as equally impactful.

The study also has broader policy implications. Engagement metrics such as Likes, Comments and Shares can serve as diagnostic indicators for cultural policy makers and destination-management organizations seeking to assess the digital visibility of cultural assets. Institutions that achieve higher engagement contribute more effectively to the competitive positioning of tourism destinations. Consequently, policy-makers could encourage the integration of sustainability communication into cultural institutions' digital strategies, recognizing their capacity to influence public attitudes towards sustainable tourism practices.

Taken together, the results confirm that digital engagement in cultural tourism in Greece is multifaceted and contextually situated. The study both supports and extends existing international research by demonstrating that sustainability communication exerts differentiated effects, that interactivity enhances engagement only when aligned with content, and that transparency represents a universally engaging theme. It reinforces the theoretical argument that engagement is a relational and context-dependent phenomenon shaped by cognitive, affective and behavioural processes (Barger et al., 2016; Trunfio and Rossi, 2021). By focusing on cultural organizations within the tourism economy, the study adds empirical depth to ongoing discussions on how digital communication fosters sustainable audience relationships and positions cultural institutions as active agents within broader tourism ecosystems.

6. Conclusion

This study examined the determinants of digital engagement in cultural tourism by analyzing 1,350 social-media posts from ten Greek cultural organizations. Using logistic regression, the paper explores how sustainability dimensions, thematic categories and interactive elements influence the likelihood of achieving high engagement, measured through Likes. The findings show that digital engagement arises from the interaction between what organizations communicate and how they communicate it. Sustainability framing matters, but its effectiveness depends on the use of interactive elements such as calls-to-action and links. Engagement is therefore context-dependent: no single strategy applies universally across all sustainability themes. Cultural organizations must align message design and interactivity with the nature of the content to maximize engagement outcomes. The analysis also reveals that not all sustainability narratives perform equally. Education and inclusion, although central to institutional missions, attract relatively lower engagement, suggesting these themes may be perceived as formal or obligatory. Transparency, in contrast, consistently enhances audience response, indicating that openness and accountability are particularly valued by online audiences.

From a practical perspective, the results offer evidence-based guidance for strengthening the digital presence of cultural organizations. By adopting strategic, context-specific communication that links sustainability themes with appropriate interactive design, cultural institutions can enhance audience engagement, increase visibility, and contribute more effectively to sustainable tourism development. Overall, the study highlights the central role of digital platforms in shaping the attractiveness and competitiveness of cultural organizations within tourism ecosystems and provides a replicable methodological framework for analyzing engagement in diverse cultural and geographical settings.

Despite its contributions, the study acknowledges several limitations that indicate directions for future research. Focusing solely on Likes restricts analysis to one level of engagement; deeper forms such as comments and shares—representing dialogue and advocacy—should be explored to capture a fuller picture of online participation (Wu et al., 2018). The data, drawn from Greek cultural organizations, may not generalize across countries with differing cultural norms and language practices. Comparative and cross-cultural studies illuminate whether the observed patterns are globally consistent or locally contingent. Finally, temporal factors also merit attention: engagement may vary with seasonality, trends or external events (Wang and Kubickova, 2017).

Ethics Declaration

Ethical clearance was not required for this research.

AI Declaration

No artificial intelligence (AI) tools or generative AI systems were used in the design, data collection, analysis, interpretation, or writing of this research paper.

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Rapid 3D Digitization of Cultural Heritage Objects for Tourism Applications Using iPad LiDAR

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Abstract: The tourism industry increasingly relies on digital technologies to enrich visitor experiences, preserve cultural heritage, and strengthen destination marketing. Traditional promotional methods are often insufficient, while augmented reality (AR), virtual reality (VR), and digital twin applications are emerging as transformative tools. For these technologies to succeed, rapid, portable, and low-cost three-dimensional (3D) data acquisition methods are essential. Light Detection and Ranging (LiDAR) has long been recognized for its precision in generating dense point clouds; however, conventional terrestrial systems are expensive, bulky, and require expert operation. The iPad's built-in LiDAR sensor offers a practical alternative with portability, affordability, and ease of use, enabling fast and on-site digitization of cultural heritage assets. In this study, five representative objects were documented during a city tour using iPad LiDAR and processed through Reconstructor® for point cloud filtering and mesh generation. The resulting 3D models included: (1) a human statue (~0.8 × 0.8 × 1.6 m), (2) a violinist statue (~0.9 × 0.7 × 1.7 m), (3) a seated group around a table (~1.8 × 1.6 × 1.6 m), (4) an ancient stone pedestal (~1.2 × 1.0 × 0.8 m), and (5) an elderly couple on a bench (~1.8 × 0.8 × 1.5 m). Scanning sessions lasted 3–6 minutes, with processing times between 7–15 minutes. Point clouds contained between 480,000 and 1.25 million points, while meshes ranged from 85,000 to 210,000 faces. To quantitatively evaluate geometric quality, three core analyses were performed in CloudCompare (v2.12): (i) Roughness Analysis to measure local surface irregularities, (ii) Normal Deviation Analysis to assess orientation stability, and (iii) Point-to-Mesh (C2M) Distance Analysis to determine geometric accuracy and consistency. Across all models, mean roughness values ranged from 4.1–7.4 mm, normal deviations from 7°–27°, and C2M median accuracy from 4.8–7.9 mm, demonstrating that post-processing effectively compensates for raw LiDAR noise and alignment drift. These results confirm that iPad LiDAR can generate complete and metrically coherent 3D reconstructions in under 15 minutes per object, balancing practicality and geometric fidelity. The workflow offers a reproducible and accessible solution for rapid cultural heritage digitization, supporting immersive tourism experiences and the broader digital transformation of heritage preservation, interpretation, and public engagement.

Keywords: Tourism Technology; LiDAR; iPad LiDAR; 3D Modeling; Cultural Heritage.

1. Introduction

Tourism has entered an era of profound digital transformation, driven by the global rise of immersive media, mobile connectivity, and data-based storytelling (Kaakandikar et al., 2025). Destinations increasingly compete not only through physical experiences but also through their digital representations—how visitors explore, share, and remember places online (Li et al., 2023). As modern tourists seek richer and more interactive engagement with cultural assets, the demand for realistic and scientifically grounded three-dimensional (3D) digital content has grown exponentially (Hassan et al., 2019). These representations enhance pre-visit decision-making, support inclusive and remote access to heritage sites, and play a vital role in preservation, interpretation, and education (Kaakandikar et al., 2025). Within this context, technologies such as Augmented Reality (AR), Virtual Reality (VR), and Digital Twin systems have become powerful instruments for connecting visitors to heritage in innovative ways. Museums and cities worldwide now aim to translate physical spaces into digital ecosystems where users can virtually explore monuments or artworks with lifelike accuracy. However, achieving this transformation depends on one critical capability: the ability to capture high-quality 3D spatial data quickly, affordably, and outside controlled laboratory conditions (Li et al., 2023).

Three-dimensional digitization of cultural heritage has long relied on close-range photogrammetry and terrestrial laser scanning (TLS). While both yield sub-millimeter precision, they typically require static setups, expert operation, and time-intensive data processing. These limitations restrict their use in tourism scenarios—especially during outdoor walks, temporary exhibitions, or spontaneous documentation opportunities (Hassan et al., 2019). Furthermore, professional Light Detection and Ranging (LiDAR) scanners remain costly and logistically demanding, making them inaccessible for small institutions or local tourism organizations.

Recent advances in consumer-grade depth sensing have begun to close this gap. Devices such as Apple's iPad Pro incorporate LiDAR sensors that capture real-time depth maps and generate dense point clouds directly in

the field (Teppati Losè et al., 2022). This innovation redefines 3D data acquisition as an accessible, mobile, and user-friendly process, eliminating many of the constraints of traditional methods. Its portability and ability to operate under natural lighting make it particularly promising for on-the-go heritage recording, city tours, and open-air museums where flexibility is essential (Aljadire et al., 2024). Despite this potential, limited research has assessed the accuracy, completeness, and geometric reliability of iPad LiDAR data under authentic tourism conditions. Most existing studies focus on indoor architectural scanning or controlled test objects, leaving a gap in understanding its performance for outdoor heritage objects with irregular geometry and variable illumination (Teppati Losè et al., 2022).

This study aims to fill that gap by systematically evaluating the feasibility of iPad LiDAR for rapid 3D digitization of cultural heritage objects encountered during a city tour. Specifically, it investigates whether such low-cost, handheld systems can deliver geometrically validated and visually convincing 3D models suitable for AR/VR experiences, educational use, and digital archiving. Through the integration of quantitative analysis in CloudCompare and practical field testing, the research proposes a workflow that balances speed, portability, and quality—advancing the broader digital transformation agenda of the tourism industry.

Recent research highlights growing interest in low-cost sensing technologies for tourism and heritage applications. Studies using mobile or consumer LiDAR focus primarily on architectural interiors or controlled test environments (Teppati Losè et al., 2022; Aljadire & Khalaf, 2024), yet few explore outdoor heritage objects encountered during tourism circulation. Similarly, most digital tourism frameworks emphasize AR/VR content delivery but omit the acquisition challenges required to embed such assets (Li et al., 2023). Therefore, this work contributes to bridging this methodological gap by evaluating iPad LiDAR performance in real tourism settings.

2. Materials and Methods

2.1 Test Objects

Five representative cultural heritage objects were selected to evaluate the performance of iPad LiDAR for rapid 3D digitization in outdoor tourism environments. The selected models differ in geometry, material, texture, and surrounding conditions, allowing assessment of the sensor's performance under diverse surface and lighting situations. All objects were located in public urban spaces and scanned without any artificial lighting or physical stabilization setup.

Object 1 – Human Statue (Bronze Figure): A standing bronze sculpture approximately 0.8 × 0.8 × 1.6 m in size. The relatively simple geometry and matte surface provided an initial reference for evaluating baseline point density and model completeness. Scanning time averaged 3 minutes, and processing took 7 minutes, generating roughly 480,000 points and 85,000 mesh faces.

Object 2 – Violinist Statue: A dynamic bronze statue depicting a woman playing the violin, sized 0.9 × 0.7 × 1.7 m. The complex curvature of the violin and hands introduced higher geometric variability. Scanning took 4 minutes with an average of 620,000 points and 112,000 faces, processed in 9 minutes.

Object 3 – Seated Group (Three Figures and Table): A large installation representing three men sitting around a table (1.8 × 1.6 × 1.6 m). This model contained multiple occlusions between figures and furniture, testing the LiDAR's coverage performance. The scan lasted 6 minutes, producing 1.25 million points and 210,000 mesh faces after 15 minutes of processing.

Object 4 – Ancient Stone Pedestal: An archaeological fragment of carved stone approximately 1.2 × 1.0 × 0.8 m in size. The high-reflectance surface and partial shading made it a suitable case for assessing surface roughness and normal deviation. Scanning required 3.5 minutes, yielding 530,000 points and 98,000 faces, processed in 8 minutes.

Object 5 – Elderly Couple on a Bench: A life-sized sculpture group of an elderly couple sitting side by side (1.8 × 0.8 × 1.5 m). The metallic and wooden materials, along with horizontal bench structures, allowed investigation of textural and color blending accuracy. Scanning lasted 5 minutes with 1.02 million points and 190,000 faces, processed in 12 minutes.

Across all cases, the models represent a diverse set of tourism-relevant artifacts—ranging from cultural symbols and artistic compositions to heritage fragments—captured under typical daylight and public-space conditions. This diversity ensures a comprehensive evaluation of iPad LiDAR's suitability for real-world tourism

documentation and visualization applications. A detailed summary of all scanned objects and acquisition statistics is provided in Table 1.

Table 1: Summary of the scanned cultural heritage objects and acquisition statistics

Model ID	Object Name	Approx. Dimensions (m)	Scan Duration (min)	Processing Time (min)	Point Count	Mesh Faces
1	Human Statue	0.8 × 0.8 × 1.6	3	7	480,000	85,000
2	Violinist Statue	0.9 × 0.7 × 1.7	4	9	620,000	112,000
3	Three-Figure Group	1.8 × 1.6 × 1.6	6	15	1,250,000	210,000
4	Ancient Stone Pedestal	1.2 × 1.0 × 0.8	3.5	8	530,000	98,000
5	Elderly Couple on Bench	1.8 × 0.8 × 1.5	5	12	1,020,000	190,000

2.2 Equipment, Sensor Specifications and Processing Workflow

All 3D data acquisitions were carried out using an Apple iPad Pro (4th Generation, 12.9"), which integrates a LiDAR sensor based on the time-of-flight (ToF) principle. The sensor emits infrared pulses and measures the round-trip travel time to estimate distances, providing a maximum effective range of approximately 5 meters with an accuracy of ±2–3 cm under favorable lighting conditions. The LiDAR operates synchronously with the device's RGB camera and TrueDepth system, enabling the simultaneous capture of geometry and texture for realistic 3D reconstruction (Vlachos et al., 2022). The scanning was performed using the 3D Scanner App™ (Laan Labs, iOS), which utilizes Apple's ARKit framework and the internal inertial measurement unit (IMU) for real-time motion tracking and automatic alignment. Each object was scanned in handheld mode at an average distance of 1.5–2.5 meters, following a circular trajectory to ensure full coverage and minimize occluded areas. The real-time preview provided by the app allowed the operator to verify completeness during acquisition, reducing the need for repeated scans (Mohsin et al., 2024).

After acquisition, the raw datasets were exported in .PLY and .OBJ formats and imported into Reconstructor® Software (v4.5) for post-processing. Within this environment, the point clouds were filtered, cleaned of outliers, and aligned when necessary. Noise reduction and surface smoothing algorithms were applied to improve geometric consistency. Subsequently, the meshing process was also completed within Reconstructor®, using the iPad-derived point clouds as the base data. The associated RGB images captured during the LiDAR scanning were mapped as texture information onto the generated meshes, resulting in fully textured 3D models.

- The finalized meshes were imported into *CloudCompare (v2.12)* for quantitative evaluation. Three primary geometric analyses were performed to assess the accuracy and structural quality of the reconstructed 3D models:
- Roughness (5 cm kernel): computed to estimate local surface irregularities and evaluate the spatial noise level introduced by handheld scanning.
- Normal deviation: applied to quantify angular variations in surface orientation, providing insight into the stability and continuity of reconstructed geometry.
- Point-to-Mesh (C2M) distance analysis: calculated to determine internal geometric consistency and precision by comparing point cloud positions to the generated mesh surface.

These analyses collectively offered an objective basis for validating the visual fidelity and metric reliability of each model, while also quantifying the geometric limitations inherent to the iPad LiDAR sensor. The results from these metrics (roughness, normal deviation, and C2M accuracy) were later compared across all test objects to identify correlations between object geometry, surface reflectivity, and LiDAR reconstruction performance. This integrated workflow—combining iPad LiDAR data acquisition, Reconstructor®-based post-processing, and CloudCompare validation—proved to be a practical, portable, and reproducible solution for rapid 3D documentation of cultural heritage assets in tourism-oriented contexts, ensuring both field efficiency and analytical robustness.

3. Results and Analysis

3.1 Final 3D Reconstructions

The iPad LiDAR–based workflow yielded complete and visually convincing reconstructions for all five selected cultural heritage objects. For each object, dense point clouds were acquired in the field and converted into fully textured meshes through Reconstructor® post-processing. Figures 1–5 present the corresponding point clouds (top rows) and textured 3D models (bottom rows), allowing visual comparison between the raw and refined stages. Each model demonstrates a high degree of geometric completeness and realistic color reproduction, confirming the sensor's suitability for rapid documentation under outdoor tourism conditions.

The Human Statue (~0.8 × 0.8 × 1.6 m) reconstruction (Figure 1) achieved approximately 480,000 points and 85,000 mesh faces, preserving the overall geometry and fine surface details such as folds and contours. The Violinist Statue (~0.9 × 0.7 × 1.7 m) (Figure 2) produced 620,000 points and 112,000 faces, successfully representing the intricate bow and hand geometry with only minimal occlusion gaps.

The Ancient Stone Pedestal (~1.2 × 1.0 × 0.8 m) (Figure 4) yielded 530,000 points and 98,000 faces, preserving the carved motifs and curved surfaces with minor noise in reflective regions. The Seated Group with Table (~1.8 × 1.6 × 1.6 m) (Figure 3) was the most complex dataset, containing 1.25 million points and 210,000 faces; minor incompleteness was observed beneath the table, though spatial integrity remained high. Finally, the Elderly Couple on a Bench (~1.8 × 0.8 × 1.5 m) (Figure 5) resulted in 1.02 million points and 190,000 faces, accurately capturing both the metallic figures and the bench with strong texture consistency. Overall, the models demonstrate that iPad LiDAR can generate dense and analyzable reconstructions in less than 15 minutes per object, balancing field efficiency with visual quality. These outputs form the foundation for the quantitative analyses detailed in Section 3.2.



Figure 1: Point cloud (top) and textured 3D model (bottom) of the Human Statue



Figure 2: Point cloud (top) and textured 3D model (bottom) of the Violinist Statue



Figure 3: Point cloud (top) and textured 3D model (bottom) of the Seated Group with Table



Figure 4: Point cloud (top) and textured 3D model (bottom) of the Ancient Stone Pedestal



Figure 5: Point cloud (top) and textured 3D model (bottom) of the Elderly Couple on a Bench

3.2 Quantitative Model Evaluation

The analysis focused on surface roughness, normal deviation (gradient norms), and C2M distance, enabling a comprehensive assessment of both local noise behavior and global geometric consistency. Each object's local surface irregularity was quantified using a 5 cm kernel roughness filter, representing micro-topographic variations due to sensor noise or reflective distortion. Meanwhile, gradient norms expressed angular deviations in normal orientation, and C2M statistics (median, RMSE) were used to quantify overall internal precision and meshing accuracy. Figures 6–10 illustrate the normal deviation maps and their Gaussian histograms, showing spatial differences in geometric smoothness among models. Across all five objects, mean roughness values ranged from 4.1 mm to 7.4 mm, while 95th percentile roughness varied between 10.2 mm and 16.5 mm, confirming the system's centimeter-level stability for field digitization. The corresponding gradient norms ranged from 0.078 to 0.301, equivalent to angular variations of 7°–27°, and C2M median values between 4.8

mm and 7.9 mm indicated strong geometric alignment across datasets. A summary of all computed quantitative metrics is presented in Table 2, which consolidates the roughness, gradient, and C2M results for each scanned model. The Ancient Stone Pedestal (Figure 9) exhibited the lowest roughness (4.1 mm) and minimum angular deviation (0.078), highlighting the system's capability to capture compact stone surfaces with limited reflectance variation. In contrast, the Human Statue (Figure 6) presented higher roughness (7.4 mm) and mean deviation (0.301), primarily due to shadowed body regions and undercuts near the feet.

The Violinist Statue (Figure 7) also showed elevated angular variability (0.175) in areas of fine curvature such as the violin bow and hands, where thin geometry introduces irregular LiDAR returns. The Seated Group with Table (Figure 8) demonstrated an intermediate performance, balancing surface complexity and scanning coverage, while the Elderly Couple on a Bench (Figure 10) achieved moderate but visually stable results, with balanced roughness and deviation metrics.

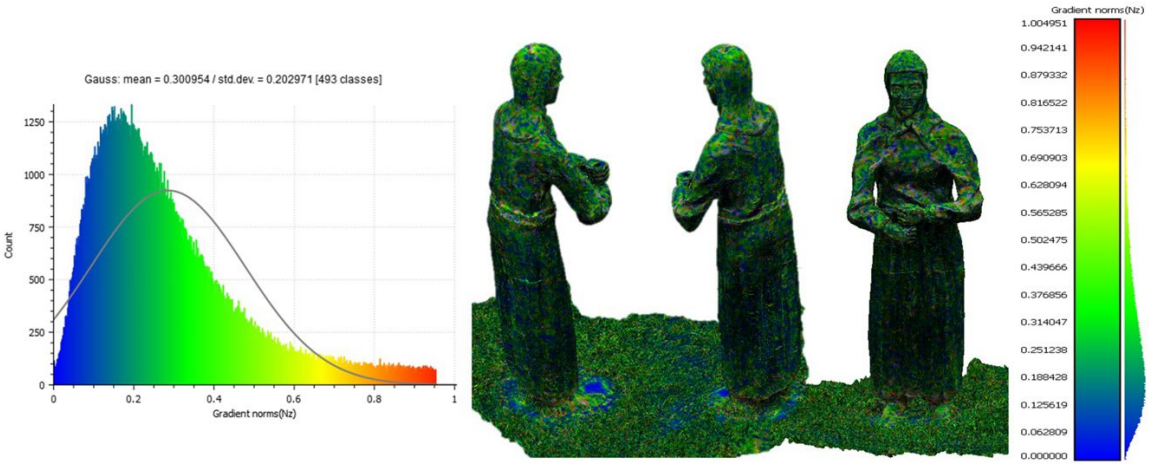


Figure 6: Normal deviation (Gradient Norms) map and histogram of the Human Statue

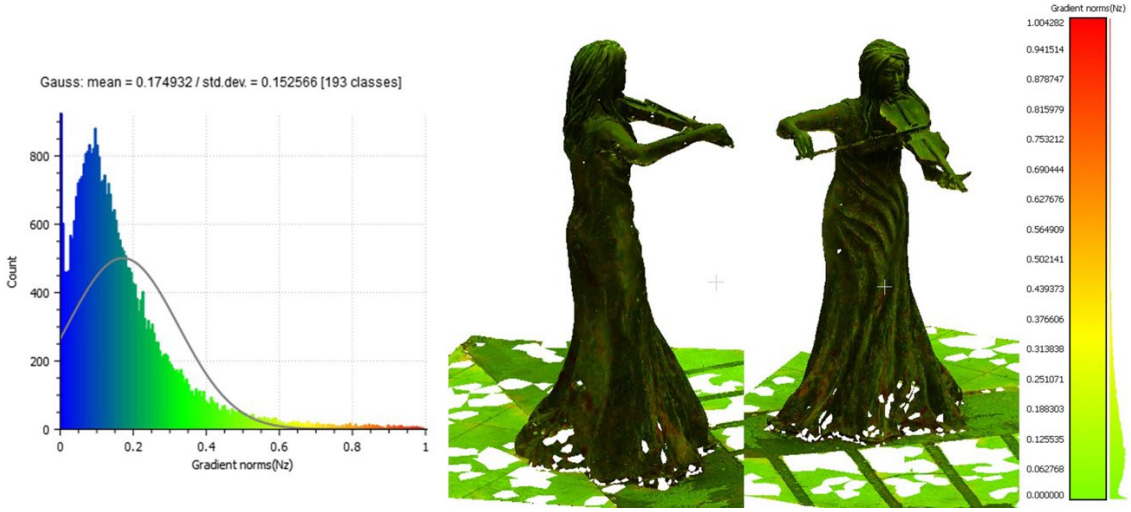


Figure 7: Normal deviation (Gradient Norms) map and histogram of the Violinist Statue

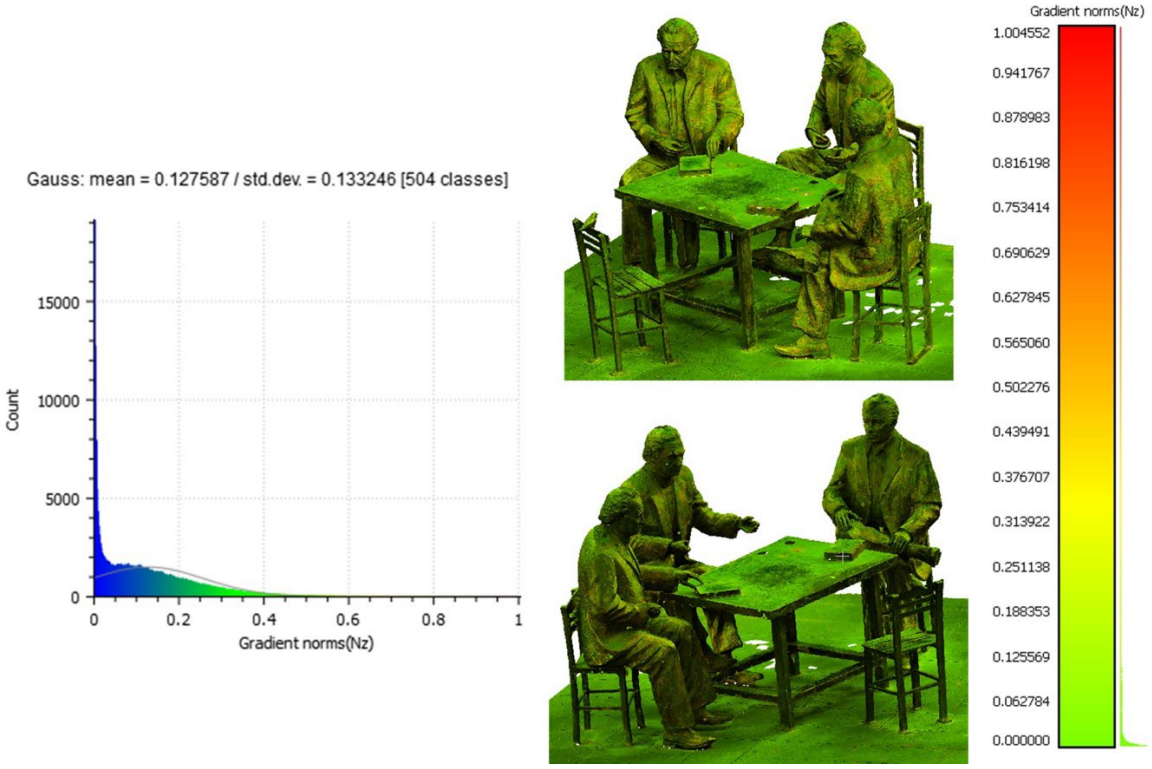


Figure 8: Normal deviation (Gradient Norms) map and histogram of the Seated Group with Table

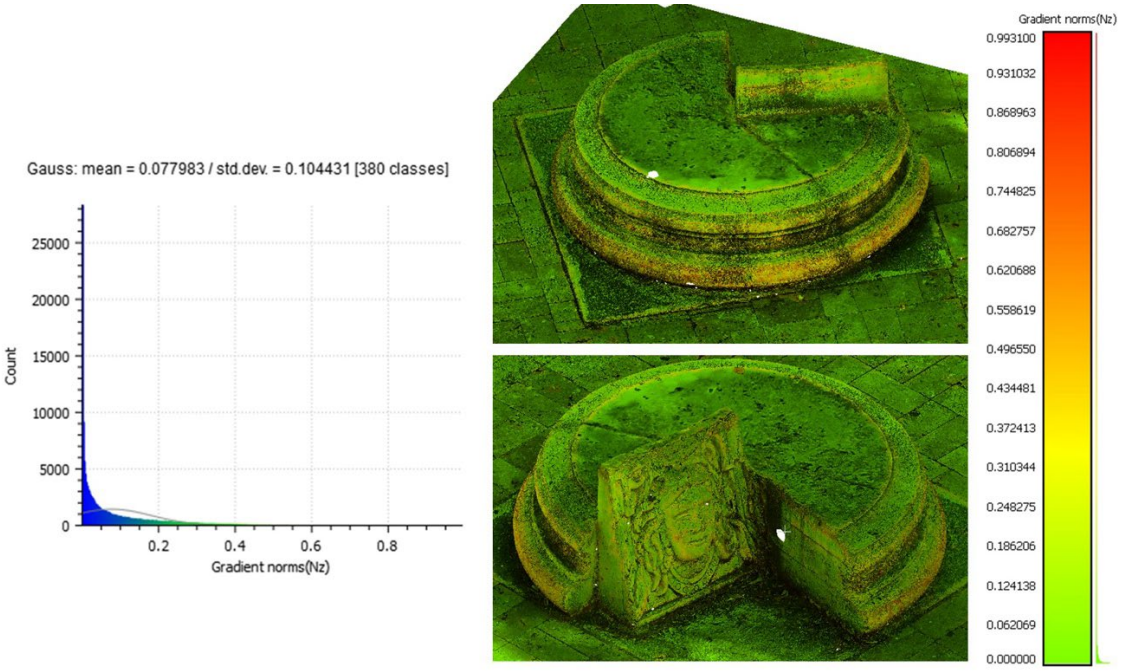


Figure 9: Normal deviation (Gradient Norms) map and histogram of the Ancient Stone Pedestal

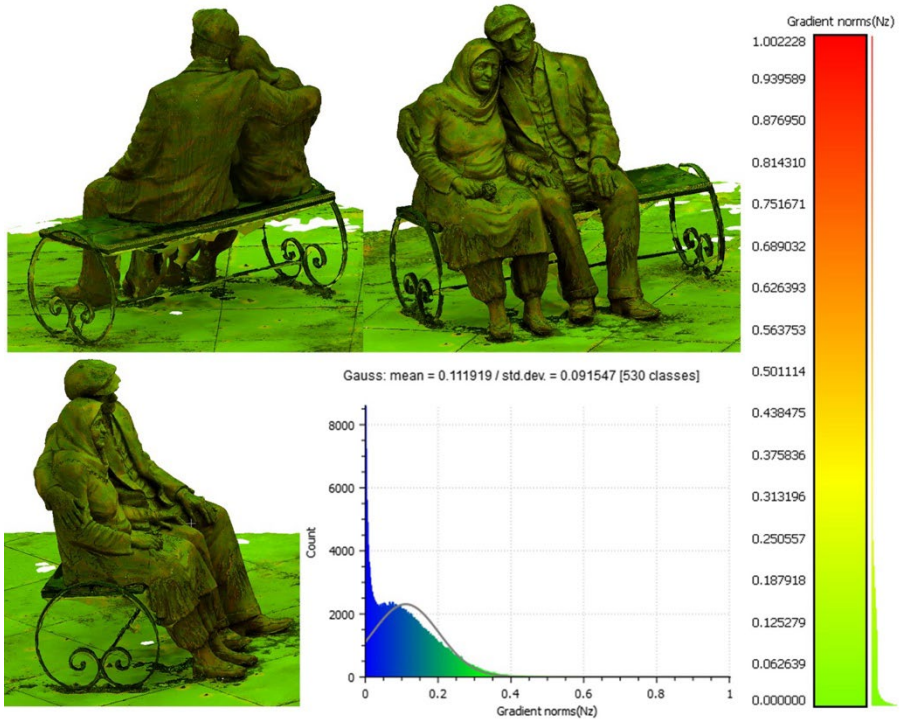


Figure 10: Normal deviation (Gradient Norms) map and histogram of the Elderly Couple on a Bench

Table 2: Summary of the scanned cultural heritage objects and acquisition statistics

Model ID	Object Name	Mean Roughness (mm)	95th Perc. Roughness (mm)	Mean Gradient Norm	Std. Dev.	Median C2M (mm)	RMSE (mm)
1	Human Statue	7.4	16.5	0.301	0.203	7.9	10.2
2	Violinist Statue	6.1	13.8	0.175	0.153	6.8	8.7
3	Seated Group with Table	5.2	12.4	0.128	0.133	5.9	7.6
4	Ancient Stone Pedestal	4.1	10.2	0.078	0.104	4.8	6.2
5	Elderly Couple on Bench	5.7	11.9	0.112	0.092	5.3	6.9

The overall trend observed across the five models (Figures 6–10; Table 2) indicates that surface geometry and environmental context significantly affect normal stability in iPad LiDAR–derived datasets. Sculptures with smooth and planar elements—such as the Ancient Stone Pedestal—produced tightly clustered normal orientations and lower roughness values (<5 mm), reflecting minimal angular noise and consistent sensor-to-surface registration. This demonstrates that the LiDAR sensor can reliably capture compact stone or metallic surfaces under favorable illumination. Conversely, models with fine or recessed details, such as the Human Statue and Violinist Statue, exhibited broader normal deviation distributions (>0.17) and increased roughness (>6 mm). These results arise from the combined effects of local occlusions, curvature transitions, and partially shaded areas where infrared reflectivity decreases. The violin bow and hand regions particularly show angular dispersion, emphasizing the iPad LiDAR's limitations with slender geometries and high-frequency details.

The Seated Group with Table presented intermediate behavior with mean deviation around 0.13 (≈11°) and RMSE ≈ 7.6 mm (Table 2), suggesting that while geometric complexity introduces partial occlusion noise, post-processing in Reconstructor® effectively reduces artifacts through smoothing and mesh optimization. Similarly, the Elderly Couple on a Bench achieved geometrically stable and visually convincing results, balancing roughness (5.7 mm) with angular coherence (0.11).

From a tourism documentation perspective, these findings confirm that iPad LiDAR, despite being a low-cost consumer sensor, can achieve consistent centimeter-level accuracy and visually realistic surface continuity suitable for AR/VR experiences, digital museum displays, or virtual heritage tours. The combined metrics of

roughness, gradient, and C2M analysis verify that when proper post-processing is applied, mobile LiDAR can deliver scientifically valid and visually immersive 3D assets for the tourism and cultural heritage sectors.

4. Discussion and Conclusion

This study demonstrated the feasibility of employing a consumer-grade LiDAR sensor, integrated into a tablet device, for the rapid three-dimensional digitization of cultural heritage objects in real-world tourism contexts. The findings reveal that, despite inherent limitations compared to professional terrestrial laser scanners, iPad LiDAR can deliver geometrically coherent and visually convincing 3D models that meet the essential requirements for heritage visualization, interpretation, and promotion.

The results discussed in Section 3 confirm that geometric performance is largely influenced by object morphology, surface material, and lighting conditions. As summarized in Table 2, roughness values between 4–7 mm and C2M median distances below 8 mm indicate centimeter-level reliability—adequate for immersive visualization and educational applications. These findings are consistent with recent studies emphasizing the growing potential of mobile and handheld LiDAR systems as rapid documentation tools for small- to medium-scale heritage assets. The analysis of normal deviation and surface roughness patterns also highlights specific operational constraints. Thin structures, reflective bronze surfaces, and occluded regions exhibit higher angular dispersion and local noise, reflecting the physical limits of short-range infrared sensing. However, the effect of such inconsistencies on visual interpretation remains minor. Post-processing in Reconstructor® successfully mitigated these anomalies through filtering and mesh regularization, while CloudCompare-based evaluation confirmed that geometric coherence can be maintained across heterogeneous materials and geometries.

From a methodological standpoint, this work introduces a portable, time-efficient, and replicable workflow that bridges the gap between professional heritage documentation and field-based tourism experiences. The complete 3D capture and processing of each object required less than 15 minutes, making it possible to digitize multiple heritage artifacts during a single guided tour or field visit. Such efficiency opens new opportunities for dynamic tourism practices, including live demonstrations of 3D scanning, interactive educational content creation, and rapid heritage archiving without the logistical complexity of traditional survey systems. Moreover, the approach contributes to the broader paradigm of digital transformation in tourism. By enabling on-site model generation and near-instant visualization, it fosters visitor engagement and participatory interpretation of heritage spaces. When integrated into augmented or virtual reality platforms, these models can extend visitor experiences beyond physical boundaries, promoting accessibility, inclusivity, and preservation awareness.

The experimental results establish that iPad LiDAR—when combined with systematic post-processing and validation—can achieve a balanced compromise between accuracy, speed, and practicality. Mean roughness values below 7 mm and C2M RMSE values near 1 cm validate the sensor's capability to generate metrically stable outputs for visual, analytical, and educational use. The proposed workflow thus serves as an effective, low-cost solution for rapid cultural heritage digitization, supporting sustainable tourism and public engagement with historical environments. A limitation of the present study is that it does not include visitor perception or usability testing; future work will integrate AR deployment and experience-based evaluations with tourism participants.

Future research may focus on extending this approach to larger and more complex outdoor structures, integrating multi-sensor fusion (LiDAR + photogrammetry) and semantic segmentation to improve fine-detail reconstruction. Additionally, the exploration of machine learning–based noise reduction and mesh optimization could further enhance geometric fidelity in mobile scanning. Overall, this study highlights that consumer-grade LiDAR technology can democratize 3D heritage documentation, transforming how tourism destinations record, interpret, and share their tangible cultural assets in the digital age. The proposed workflow can be directly adopted by tourism authorities, museums, and smart destination offices. For example, statues or artifacts can be digitized during guided tours or field visits and instantly integrated into AR/VR storytelling. The approach also supports rapid archive creation for promotional campaigns and visitor education. Future implementations may include live scanning demonstrations or mobile-based interactive heritage tours.

Ethics Declaration

In the study, the authors declare that there is no violation of research and publication ethics and that the study does not require ethics. The authors declare no conflicts of interest.

AI Declaration

Minor AI-based tools were used solely for language editing and grammar refinement purposes. No AI tools were employed for data analysis, research design, interpretation, or generation of academic content. All scientific ideas, methodologies, and conclusions are the original work of the authors.

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Blended Intensive Programmes in Tourism Education: Experiences on the go

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Abstract: This paper describes two blended intensive programmes (BIPs) involving wine, both as a tourism and a cultural heritage asset. Having taken place in Portugal, these programmes brought together students from Romania, Germany, Poland, and Spain and included a wide range of activities, whose main goal was to encourage participants to develop innovative concepts related to wine culture and wine tourism development. Focussing on the design, implementation, monitoring and outputs of the programmes, the authors take on reflective approach, which can be framed within the scope of the Scholarship of Teaching and Learning (SoTL), highlighting strategies that can potentially improve students' learning experience in tourism and wine education. Considering the programmes addressed two complementary thematic strands, specifically, the perceptions and engagement of younger cohorts, particularly Generation Z and Generation Alpha, towards wine culture and how it might be reinterpreted, as well as tourism experience design, the paper reviews existing literature, providing examples which support the adoption of international immersive experiences. Moreover, it describes goals, learning outcomes, key outputs and learning tasks, putting forwards the tools and methods used with and by the students, including digital tools, such as Padlet, as well as multisensory observation diaries, offering insights into their potential, particularly when it comes to promoting experiential learning in a multi- and intercultural setting.

Keywords: Blended Intensive Programmes, Collaborative Learning, Internationalization, Interdisciplinarity, Tourism Education, Wine

1. Introduction

A staple of the Erasmus+ 2021–2027 framework, Blended Intensive Programmes (BIP) have emerged as a model of blended mobility in higher education. Described as short-duration, immersive learning experiences that integrate virtual collaboration, BIPs involve higher education institutions from a minimum of three countries, aiming to extend and diversify participation in international mobility, offering inclusive and structured opportunities for cross-border exchange, while contributing to the development of intercultural, digital, linguistic, and transversal competences.

Overall, BIPs are perceived as being beneficial for participants and institutions, as they support student mobility, providing more inclusive and flexible learning experiences. In addition, by engaging in intercultural activities, BIP participants have the unique opportunity to broaden their cultural understanding, develop their language skills and establish international contacts and networks. Within the scope of Hospitality and Tourism, BIPs are also considered to boost regional tourism and encourage innovation, through co-creation and stakeholder collaboration.

This study examines the design and outcomes of two BIP centred on wine as both a tourism asset and a component of cultural heritage, drawing on experiential, participatory, and intercultural learning strategies. After framing the context for the programmes, the authors will provide a comprehensive report of the programmes' design and implementation, while describing the tools and methods used by participants. Reflecting on potential benefits, the authors put forward key takeaways, focussing both on student and program-level outcomes, hoping to inform future initiatives and inspire other practitioners.

2. Context and Methodology

This paper describes two different BIPs organized by the School of Hospitality and Tourism (ESHT, Portugal): "Generation Wine: Blending Flavours and Culture" and "WineX: Wine Experiences for Tomorrow", adopting a

a Scholarship of Teaching and Learning (SoTL) perspective. Regarding methodology, it is consistent with a qualitative case study, focusing on teaching and learning strategies and tools (Deale, 2019; de Prada et al., 2025).

Framed under the Erasmus+ 2021–2027 Programme, BIPs are "short, intensive programmes that use innovative ways of learning and teaching, including the use of online cooperation" (European Commission, 2021, p.52). Considered to play a significant role in diversifying international mobility, fostering inclusivity and enhancing intercultural, digital and language skills (Laine et al., 2024), BIPs must involve a minimum of three institutions from different countries, acting as design and implementation partners.

In Tourism and Hospitality literature, you can find studies focussing on this kind of programme, with researchers reflecting on their affordances and perceived benefits, specifically the fact that they enhance student mobility, making it possible for students to have more enriching learning experiences, through exposure to new cultures and perspectives, thus supporting the development of communication and intercultural skills. In addition, the virtual component of BIPs, the fact they encompass short physical mobility periods, creates more flexible learning opportunities and settings, paving the way for broader participation and the strengthening of international partnerships and cooperation (Laine et al., 2024, Muller, 2023), Prior research also suggests that these programmes hold substantial potential for boosting regional tourism, as they increase the visibility of local attractions and enhance cultural awareness among host communities and in generating tangible advantages for local tourism industries. Other benefits include the enhancement of students' participation and engagement, with recent studies highlighting the role played by participants in coming up with innovative proposals, underlining the benefits of interdisciplinarity and experiential learning within this scope, as well as the multi-faceted pedagogical approaches which help bridge the gap between theory and practice. (Cobelli, 2025. De Prada et al., 2025, Jing & Loang, 2024).

Drawing on this premise and examining how collaborative and immersive design-thinking pedagogies support student learning in international contexts, this paper focuses on the implementation and achievement of learning outcomes, drawing on previous research regarding BIP and tourism education, as well as on the analysis of students work and observation, to inform future programmes and other practitioners. The findings are also expected to lead to adjustments in future iterations of the programmes, as well as to provide a starting point for other initiatives, creating a dialogue between research and theory.

As mentioned earlier, this paper describes two different BIPs organized by the School of Hospitality and Tourism (ESHT, Portugal) in June 2025: "Generation Wine: Blending Flavours and Culture" and "WineX: Wine Experiences for Tomorrow". Despite having foreseen different outcomes, focussing on distinct perspectives, both projects shared the same core principles, having relied on similar approaches to engage students and foster their creativity, teamwork and communication skills. As a result, both programmes dealt with issues pertaining to hospitality and tourism and comprised a virtual component (with an estimated 20-hour workload to be completed before the onsite activities) and a physical component, which took place in Portugal. In addition, the programmes addressed the topic of wine, not merely as a product, but as a multidimensional cultural resource, having challenged participants to actively co-create meaningful wine-related experiences by placing a strong emphasis on storytelling and sensory engagement. As a result, to facilitate implementation and cost management, the onsite activities were held in parallel, sharing facilities and resources, albeit with different tasks and outputs (see Table 1). Similarly, the materials also differed, having been adapted to each course's specific objectives and expected outcomes.

Table 1: Activities Outline – BIPs 1 and 2

	BIP 1		**BIP 2**	
	Activities	Tasks	Activities	Tasks
Online	Ice-Breaker Programme presentation Seminar	Portfolio: Task 1 – Research Activity – good practices (wine tourism)	Ice-Breaker Programme presentation Seminar	Portfolio: Task 1 – Research Activity - Profiling national tourists
Onsite – Day 1	Welcome Session	Portfolio: Task 2 –	Welcome Session	Portfolio: Task 2 – Immersive Field

	BIP 1		**BIP 2**	
	Activities	Tasks	Activities	Tasks
	Group Presentation (Virtual Mobility Assignment) Seminars: Introduction to wine tourism: concepts and principles History and growth of wine tourism; Key wine-producing regions and global wine routes Economic and cultural impact of wine tourism Typologies, motivations and demographic and psychographic profiling Customer journey mapping techniques Cultural Activities	Immersive Field Activity "Sensing Traditions – A Sensory Journey Through Wine Tourism & Festive Culture"	Group Presentation (Virtual Mobility Assignment) Seminars: Introduction to wine tourism: concepts and principles History and growth of wine tourism; Key wine-producing regions and global wine routes Economic and cultural impact of wine tourism Typologies, motivations and demographic and psychographic profiling Customer journey mapping techniques Cultural Activities	Activity "Sensing Traditions – A Sensory Journey Through Wine Tourism & Festive Culture"
Onsite – Days 2 &3	Field Trips (Vineyard and Museum)	Portfolio: Task 3 – Customer Journey map Portfolio: Task 4 – Photo & Sensorial log	Field Trips (Vineyard and Museum)	Portfolio: Task 3 – Customer Journey map Portfolio: Task 4 – Photo & Sensorial log
Onsite – Day 4	Seminar: Design-thinking principles and methods Workshops: Design thinking Creating an effective pitch Wine-based cocktails	Final Pitch: Marketing Wine Tourism to Gen Z tourists	Seminar: Design-thinking principles and methods Workshops: Design thinking Creating an effective pitch Wine-based cocktails	Final Pitch: Designing tailored tourist experiences focussing on wine as a tourism product
Onsite – Day 5	Mentoring session Final Pitch		Mentoring session Final Pitch	

In addition to contributing to the programmes' sustainability, this combined approach also facilitated expert involvement (as experts could hold simultaneous sessions and/or concentrate activities, making it easier to manage their time and availability) and intercultural exchange, as the different groups had contact with each other, as well as a common social program, thus enhancing their experience. Additionally, the assessment methods used were also similar, with both groups of participants being assessed based on: 1) a Portfolio of Activities compiling outputs from each module making up the programme – 40% and 2) a final pitch – 60%.

These assessment methods were designed to align constructively with the stated learning outcomes. The portfolio assessed students' ability to gather, curate and critically analyse information, demonstrate technical knowledge of wine and its cultural context, and apply storytelling and experiential design principles. Evaluation criteria for the portfolio included depth of research, integration of theory and practice, creativity and originality, intercultural collaboration, and clarity of written and visual communication. The final pitch, on the other hand, assessed higher-order competences, particularly the ability to synthesize information, apply experiential tourism principles, prototype innovative concepts, and communicate clearly and effectively in a diverse (and international) setting. This pitch was assessed based on coherence and feasibility, as well as storytelling effectiveness, teamwork dynamics, and delivery.

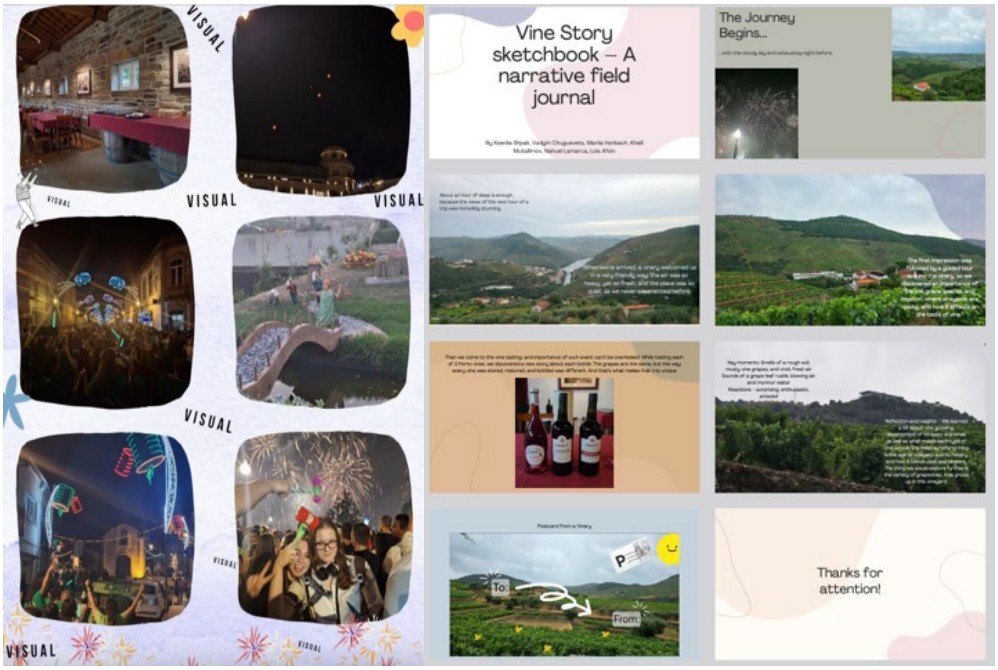
2.1 Generation Wine: Blending Flavours and Culture

Having been designed in collaboration with the University of Vigo (Spain) and the Bucharest University of Economic Studies (Romania) this BIP's main goal was to introduce Gen Z tourism and hospitality students to the world of wine and wine culture through an interactive, design-thinking approach that fostered creativity, curiosity, and experiential learning. As a result, working in international groups, participants (17 students, ages 19-26, stemming from Romania –7, Poland – 5, Germany –3, and Spain – 2) were challenged to come up with innovative strategies to promote wine tourism and culture, drawing from their experiences and exchanges with their peers and with industry partners. Participants were selected based on their interest in tourism, having been enrolled in tourism and management courses. Each partner university was responsible for selecting participants, according to their specific regulations, based on the previously defined programme.

Considering this premise, throughout the program, participants had the opportunity to explore the history, production, and sensory aspects of wine, while engaging in hands-on activities, which resulted in them being able to : 1) analyse the context of current wine consumption patterns and the importance of wine culture from the perspective of generation Z consumers; 2) assess opportunities offered by the existing media to promote wine culture and wine tourism in creative ways and identify areas for innovation relevant to solving a real challenge within this scope; 3)understand the concept of storytelling and its importance with regards to wine tourism and culture; 4) demonstrate technical knowledge of wine and its cultural significance; and 5) gather, select and analyse information, integrating it into a final pitch.

Considering the activities planned, following an online session, students were asked to carry out a research task focussing on local/national good practices within the scope of wine tourism, gastronomy and tourism promotion. The results of their work would then be shared onsite, during the physical mobility component of the programme, as well as integrated into the final portfolio.

After arriving in Portugal and attending introductory seminars that framed the ensuing activities, participants took part in three immersive field activities. First, taking advantage of the local festivals taking place that week, participants were challenged to engage in real-time observation and participation, while exploring how the five senses shape authentic experiences in wine tourism and cultural festivities, collecting data towards a collective sensory board (Figure 1). Following that, based on two field trips to a wine-making region, they also had to work on "Wine Stories Sketchbook" – A multimodal Narrative Field Journal reflecting their experience (Figure 2).



Figures 1 and 2: Examples of students' outputs: sensory board and digital sketchbook

The examples showcase students' participation and the creative approaches used to complete the tasks.

2.2 WineX

This BIP was designed in collaboration with the University of Vigo (Spain), Bialystok University of Technology and Warsaw School of Tourism and Hospitality Management (Poland), and IST-Hochschule für Management (Germany) and involved 16 participants and 6 facilitators. With ages between 19-28, the participants were enrolled in Tourism, Management and Hotel Management programmes with 5 stemming from Germany, 5 from Poland, 5 from Romania and 1 from Spain.

The programme's main goal was to challenge participants to co-create wine-themed travel itineraries that incorporated original concepts and events. The program was designed based on interdisciplinary principles, crosscutting different perspectives, having included multiple tasks, such as design-thinking workshops, sensory tastings and field work, leading up to a final presentation, based on a model developed by the students (Figure 3).

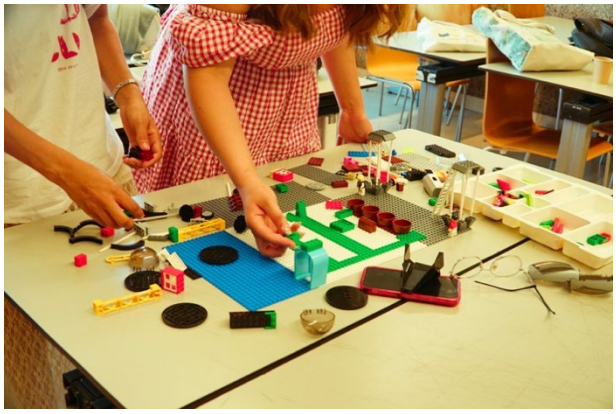


Figure 3: Examples of students' outputs: collaborative lego model (experience prototyping)

Acting as storytellers and experience designers, participants explored tools such as empathy and digital journey maps (Figure 4), having collaborated on prototyping activities that reviewed the narratives and multiple layers of winemaking traditions.



Figure 4: Examples of students' outputs: digital customer journey map

With a structure similar to that of the previously described BIP, this programme was, however, more focussed on capacitating students to: 1) recognize emerging tourism trends and generational shifts to design wine tourism experiences; 2) understand techniques and methods that facilitated the assessment of wine-related visitor experiences; 3) apply principles of experiential tourism to develop immersive, story-driven wine-related offerings that enhance emotional connection, cultural engagement, and destination appeal; 4) evaluate the role of wine tourism in shaping destination identity and local economies, with a focus on innovation, authenticity, and co-creation in response to evolving travel motivations and trends; 5) understand and apply the power of storytelling to craft meaningful, memorable tourism experiences that resonate with contemporary travellers and enrich destination branding; 6) demonstrate a working knowledge of wine and its cultural context, enabling thoughtful interpretation and 7) collect, curate, and synthesize information to ideate and prototype new wine tourism concepts.

Predominantly, participants tackled the concept of tourist experience by collaborating on designing innovative experiences focussing on wine culture and heritage. The activities integrated digital collaboration – resorting to

multimodal activities and outputs that were uploaded into Padlet (making up a digital portfolio) – with field-based methodologies, such as multisensory observation diaries, as a way of supporting experiential learning.

Drawing from the programmes' outputs, i.e., student-generated artefacts, including good practices reports (9), tourist profiles (6), sensory journals (5), sketchbooks (5), empathy and customer journey maps (9) and final presentations (9) and instructor reflections and field notes (6), authors resorted to qualitative content analysis approach (using ATLAS.ti) to examine how co-creation-oriented pedagogies support learning in wine tourism education. The qualitative content analysis followed a systematic and iterative procedure, with the authors having identified recurring themes that emerged from the data. As a result, two key tiers were identified: student learning outcomes and programme-level outcomes, with the latter being less prominent and stemming essentially from the facilitators' observations.

The initial open coding phase was conducted independently by two members of the research team, who collaboratively developed a preliminary codebook. This codebook was then refined through iterative discussion, clustering related codes into higher-order tiers. Although a formal intercoder agreement coefficient was not calculated due to the exploratory and interpretive nature of the study, coding discrepancies were reviewed and reconciled through peer discussion until consensus was reached. The identified tiers were also crosscut with existing literature on tourism education, co-creation pedagogies and experiential tourism, as well as the programmes' framing documents. Considering that the authors and members of the research team acted as facilitators in the BIPs, reflexivity was an integral component of the research process. The dual role of facilitator-researcher may have influenced participant engagement, data production, and interpretation. To mitigate potential bias, student outputs were anonymised prior to coding, with the analysis having been conducted after programme completion. Peer debriefing among all members of the research team acted as an internal audit mechanism. Furthermore, emerging themes were reviewed by two researchers who were not directly involved in the day-to-day facilitation of each of the programmes. This aspect was instrumental in enhancing the study's transparency and assuring methodological rigor.

3. Key Takeaways

3.1 Student Learning Outcomes

Considering the learning outcomes, the examined BIPs were expected to support the development of creative, collaborative and reflective skills relevant to wine tourism and tourist experience design, while promoting and exploring the product's multiple layers.

The tentative analysis showed that most outputs showcased creativity, in that students built on the provided templates, often augmenting the information provided by incorporating additional multimedia elements. Overall, a total of 30 student-generated artefacts were analysed, with 26 featuring some kind of multimedia element (video, image and/or image), being that 22 featured images captured and/or generated/altered by the students. Despite having had access to the same guidelines regarding the tasks, participants' artefacts also revealed a wide range of creative approaches, with the outputs taking on different designs and layouts (including videos, memes and collages). Overall, the most prominent theme throughout the different outputs pertained to the sensory and emotional dimensions of tourist experience.

Crosscutting the data with the expected learning outcomes, the incorporation of different media stands out as a key aspect, with participants having assessed and tested different formats and means of expression. In addition to creativity, these findings can also be linked to the development of communication skills, something that is highlighted in the literature (Simonova, 2018, Tritter et al. 2026). As for emotional connection and cultural engagement, they also emerged as key topics in students' outputs, with the models proposed having focussed on the use of technology, innovation and authenticity (supported by storytelling elements).

When it comes to reflexive skills, the most noticeable themes emerged from the analysis of the final pitches, with the uploaded artefacts and notes highlighting the fact that participants succeeded in conceptualising wine as a cultural and experiential resource, having critically assessed and reinterpreted it, based on their personal experiences and expectations. In the final pitches, technology, sustainability and the integration of sensory and storytelling elements into experience design arose as the key topics.

3.2 Program Level Outcomes

Drawing from the facilitators' observations and notes from the field, the most emergent themes within this scope related to the pedagogical value of BIPs for experiential learning, with a frequency analysis also suggesting that the pedagogical model and course design supported creativity and engagement. Overall, the programmes are believed to have supported student agency, at the same time they provided a deeper understanding of the affordances of combining the use of digital platforms and field-based methods, as an effective way of collecting meaningful data and monitor students' progress and learning.

From the facilitators' perspectives, the activities fostered the development of transferable skills, particularly intercultural communication, cultural awareness and reflective thinking, having a positive impact on students learning experiences.

4. Final Remarks

This paper aimed to provide a comprehensive analysis of two BIPs dealing with the topic of wine as a tourism product and cultural heritage resource, which relied on interactive methods and a strong connection to the territory. Focussing on the enhancement of tourism and wine education, the activities and tasks included in these programmes combined digital collaboration with fieldwork, positioning wine and wine culture as more than just an economic driver, showcasing its role in expressing cultural identity and intangible heritage. By challenging students to become experienced designers and storytellers, the learning experience and ensuing analysis aimed to connect pedagogical practices with key concepts in tourism education, including the potential of co-creation and sensory engagement within this scope.

The preliminary analysis generated context-sensitive insights suggesting that intercultural and co-creative learning strategies can enhance students' understanding of wine tourism and foster their creativity and reflexive competences. In addition, the data also points towards the relevance of culturally significant experiences as a way of promoting engagement.

From a pedagogical point of view, the blended structure of the programme fostered dynamic forms of communication, with online activities paving the way for multisensory activities taking place onsite. Together, these experiences demonstrated how heritage can become as a catalyst for intercultural competence, offering models for integrating content, task-based pedagogy and co-creation into higher education curricula.

Having relied on limited data and interpretive analysis, the findings, albeit tentative and not easily transferable, are in line with the literature, making a case for further research that can inform similar activities. Overall, key programme components – such as design-thinking methodologies, experiential fieldwork, portfolio development, and co-creation-based assessment – are pedagogically transferable and adaptable to other contexts. Notwithstanding, the programmes were implemented in a Portuguese wine tourism destination, partly coinciding with local festivals, which, even though enriched sensory immersion and real-time observation, may be difficult to replicate in another setting.

In general, the key takeaways emphasize the role of digital technologies in supporting not only creativity and learning, but also heritage awareness and communication, showcasing how these elements can be combined in curating authentic and innovative educational experiences.

Ethics Declaration

This study did not involve sensitive personal data. As such, ethical approval was not required in accordance with the relevant institutional and national guidelines. Nevertheless, participants were informed, both verbally and in writing, that their learning artefacts (e.g., portfolios, visual outputs, prototypes and presentations) could be used for research purposes. Written consent was obtained prior to data analysis, and students were given the option to decline participation without academic penalty. All artefacts were anonymised prior to coding.

AI Declaration

Artificial intelligence (AI) tools were used during the preparation of this manuscript for language editing and content analysis purposes. Specifically, tools such as ChatGPT and ATLAS.ti's integration with OpenAI were employed. ATLAS.ti's AI-assisted features were employed at an exploratory stage to help identify potential patterns and semantic clusters. All codes, category refinements, and thematic interpretations were subsequently reviewed, validated, and refined manually by the research team. ChatGPT was used exclusively for

language refinement and structural editing of the manuscript, not for data analysis, coding, or interpretation. No student-identifiable information was uploaded to public AI platforms at any stage of the research process. All substantive intellectual contributions are the original work of the authors.

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Visa Policies: The Belt and Road Initiative and Status-Seeking

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Abstract: How do visa policies function as infrastructural mechanisms within the Belt and Road Initiative (BRI) framework? This question investigates how mobility policies facilitate controlled labour flows and urban development to reconfigure global power centres. While China leverages visa policies to gain status and redirect economic activity, it remains subject to Western mobility regimes. Cases such as Sino-Serbian relations illustrate how Western-imposed mobility domination persist even as China ascends in global influence, and China is seeking strategic destination replacement to shift power away from the West. The Chinese government strategically facilitates visa liberalization agreements to promote cultural exchange, economic interdependence, and geopolitical alignment with participating countries. This paper argues that visa policies can be used as an important infrastructural tool to reshape global orders in the BRI to increase China's international status. China's pursuit of favourable visa policies within BRI states is a deliberate status-seeking strategy. By situating visa policies within the broader discourse on migration infrastructure and global mobility divides, this study contributes to understanding how states employ non-material infrastructural tools to advance strategic objectives. Through an interdisciplinary lens that incorporates political science, migration studies, and international relations, this research underscores the significance of visa diplomacy in shaping the evolving global landscape under the BRI. This paper is structured as follows. Existing scholarship on migration infrastructure, global mobility divides, and China's visa diplomacy within the BRI framework is examined, and it identifies visa policies as a key yet overlooked aspect of international status-seeking. I seek to tackle this issue using the socio-psychology framework of Social Identity Theory with modifications: Firstly, China seeks favourable visa policies to increase its citizens' comparative status within its sphere of influence to project state social mobility and social creativity. Secondly, the concept of destination replacement is introduced with the case study of Serbia, where BRI is a strategic instrument for China to enhance its reputation by countering the influence of Western states. The paper concludes with a brief discussion on the motivation of BRI participants to engage with both unilateral and bilateral Chinese visa diplomacies and calls for more future research on visa diplomacy and global order-building within specific frameworks of regional geopolitics.

Keywords: Chinese Diplomacy, Belt and Road Initiative, Visa Policies, Global Mobility, Status-Seeking, Soft Power.

1. Introduction

China's pursuit of favourable visa policies within BRI states is a deliberate status-seeking strategy. By situating visa policies within the broader discourse on migration infrastructure and global mobility divides, this study contributes to understanding how states employ non-material infrastructural tools to advance strategic objectives. Through an interdisciplinary lens that incorporates political science, migration studies, and international relations, this research underscores the significance of visa diplomacy in shaping the evolving global landscape under the BRI.

I seek to tackle this issue using the socio-psychology framework of Social Identity Theory with modifications: Firstly, China seeks favourable visa policies to increase its citizens' comparative status within its sphere of influence to project state social mobility and social creativity. Secondly, the concept of destination replacement is introduced with the case study of Serbia, where BRI is a strategic instrument for China to enhance its reputation by countering the influence of Western states. The paper concludes with a brief discussion on the motivation of BRI participants to engage with both unilateral and bilateral Chinese visa diplomacy and calls for more future research on visa diplomacy and global order-building within specific frameworks of regional geopolitics.

2. Literature Review

China's diplomatic success in securing favorable visa policies for its citizens contributes to constructing a new BRI sphere of international order. Contrary to popular belief, the BRI is not a rigid, hierarchical organization but rather an abstract concept that the Chinese government promotes. While flagship projects are initiated by the state and state-owned enterprises, local organizations, private businesses, and even individuals engage with the BRI narrative independently (Han and Webber, 2020). In its second decade, the BRI narrative shifted from focusing on physical infrastructure to broader international order-building.

Within the context of the BRI, Rezaei et al. further emphasise the concept of "circular mobility" and the creation of talent flowscapes. They examined how BRI-related policies facilitate the movement and exchange of skilled labor across borders, suggesting that talent mobility is orchestrated through deliberate policy frameworks

(Rezaei and Mouritzen, 2021). The debate within BRI scholarship regarding the impact and intention of Chinese international diplomacy on the existing post-WWII Western liberal order is largely focused on the analysis of economic policies and political consequences. Jones, for example, argues that the BRI's normative challenge to the existing global order is unintentional and that it is primarily intended to externalize China's surplus capital and industrial capacity (Jones, 2020). Contrarily, scholars like Shafi view the BRI as an example of neo-mercantilism, with the American-led world order being replaced by a more multipolar vision (Shafi et al., 2023). Granted, the BRI was first introduced with a heavy narrative focus on economic and physical infrastructural projects to create a "multi-dimensional infrastructure network" (Xi, 2017). But a detailed analysis of the role of non-economic policies and an examination of the evolving aims of the BRI more than 10 years since its introduction can further enhance the analysis. In particular, the public perceptions of China in the international community, as well as the legitimacy of the government domestically, can be affected by social mobility within the established framework of the BRI. Thus, a new analysis of China's motivation and intention to affect the existing West-centric international order is needed.

While states seek to increase the flows of goods and people as a necessity for economic, social, and cultural development, states also seek to control non-immigration mobility infrastructure in ways that align with national interests. Mau introduces the concept of the "Global Mobility Divide" through the analysis of mobility data across the 20th and 21st centuries (Mau et al., 2015). His findings of an increasing divide in mobility between the Global North, where mobility increased, and the Global South, where mobility remained or even decreased, show a parallel to states' international status. Cranston et al. further argue that mobility produces an "elite subject positioning" at both national and regional levels (Cranston and Duplan, 2023).

The gap in current literature mainly consists of bridging the global mobility divide with China's status-seeking policies, and a lack of analysis on China's soft power on the global south from a mobility perspective. With China's attempt to shift the global order towards the East through its BRI, it is important to analyze Chinese visa diplomacy in the context of international status-seeking and new order-building to counter Western spheres of influence. After all, as Barkonyi and Darwich suggest, infrastructures are always at the heart of power asymmetries (Bakonyi and Darwich, 2024).

3. Mobility as Status-Seeking

This paper aims to answer a key question that remains under-analyzed in existing literature: Why does China seek favorable visa policies for its citizens from BRI states?

First and foremost, status-seeking is a central concept when analyzing Chinese foreign policy. Although anarchy-centered approaches have dominated the field of international relations for years, reapproaching an increasingly interconnected international environment with contemporary actors such as independent, regional, cooperative, and global organizations through a hierarchy-centered approach becomes more appropriate. Such an approach emphasizes the logic of trade-offs, positionality, and productivity (Mattern and Zarakol, 2016).

Furthermore China is heavily dependent on the desire for esteem and "face" (Xue, 2023). While the desire for "face" is dominant with individuals in Chinese societies, it can most efficiently be translated into state status on an international scale. Status can be defined as "social recognition," which "concerns identification processes in which an actor gains admission into a club once they follow the rules of membership" (Duque, 2018). In the case of China, such social recognition is achieved through the Belt and Road Initiative foreign policy framework.

Fundamentally, China seeks favorable visa policies as part of its status-seeking strategy. These policies serve as both a diplomatic tool and a mechanism for economic and geopolitical influence. Internationally, visa liberalization enhances China's ability to leverage its BRI projects, creating a reciprocal dynamic where economic investments facilitate greater mobility rights and vice versa. By securing easier travel access for its citizens, China fosters deeper economic ties, encourages cross-border business activities, and strengthens its soft power influence in partner states.

BRI states often accept non-reciprocal Chinese visa policies as part of their strategic interests, viewing enhanced mobility for Chinese visitors as an opportunity for economic growth and political alignment (Busbarat et al., 2023). Many BRI countries, particularly those seeking infrastructure investment and trade partnerships, offer favorable visa arrangements to attract Chinese tourists, students, and business professionals. This asymmetry in visa policies allows China to shape regional migration patterns and reinforce its centrality within the BRI framework.

Thus, the new emerging global mobility divide is a result of international status-seeking and is of key importance in the Belt and Road Initiative. Instead of being a side effect of the BRI state negotiations, the increase in mobility of Chinese citizens is a goal of the BRI state.

4. Methodology

Larson and Shevchenko are some of the first scholars to use the framework of social identity theory (SIT) in international politics. First used in the field of sociology and psychology for understanding the relationship between social group behaviors, SIT emphasizes three main behaviors that individuals and groups act in a hierarchical order: "(1) joining a higher-status group (social mobility); (2) mobilizing resources to improve the group's relative standing (social competition); or (3) reevaluating the meaning of the group's negative features or finding new dimensions on which the group is superior (social creativity)" (Larson and Shevchenko, 2003). As international relations scholars also begin to understand the world as a hierarchy, such methodology of categorization can also be adapted for political analysis.

In the case of Gorbachev's foreign policy, Larson and Shevchenko argued that the implementation of New Thinking—a social creativity strategy—successfully increased the international status of the USSR in ways that military power would never have. In the case of China, the BRI takes a multi-dimensional approach that shows multiple behaviors justified by the SIT. This historical usage of the SIT remains to be relevant today, especially concerning scholarships around China's rising international influences.

With such a framework in mind, I seek to first argue that the BRI's purpose is beyond economic and geopolitical; instead, it is a status-seeking project with increasing citizen mobility at its core: State status mobility and social creativity from a developing third-world country to a global power are achieved through increasing its citizens' relative status in its sphere of influence. Secondly, destination replacement is used to mobilize resources to improve the group's relative standing (social competition) and decrease the influence of former and current global powers in the West. Lastly, the paper concludes with a reverse analysis of BRI participating states, which will be examined using Wohlforth's smaller states' status aims and calls for further research directions (Wohlforth et al., 2018).

5. Status Mobility through BRI Visa Diplomacy

China's pursuit of favorable visa policies within the Belt and Road Initiative (BRI) states is not merely a diplomatic courtesy but a strategic tool that enhances its influence in global economic and political negotiations that can directly translate into state status in the international community. Visa diplomacy operates as a reciprocal mechanism—China offers economic investment, infrastructure development, and trade incentives to BRI states, and in return, these countries grant more favorable mobility conditions for Chinese citizens. This mutually beneficial arrangement reinforces China's international standing, strengthens economic interdependence, and solidifies political alliances through increasing diplomatic leverage.

The existence of a social hierarchy has been supported by contemporary scholars in the 21st century, which justifies many state behaviors, especially occasions when states focus on soft power status standing instead of traditional realist military/economic/demographic powers. Stolte defines the global order twofold: "There is a social hierarchy in international relations, and Great Powers enjoy the highest status within that social hierarchy; and states strive for higher status in the international social hierarchy and apply different status-seeking strategies in order to achieve that goal" (Stolte, 2015).

At the core of these strategies is the idea that visa liberalization enhances soft power and enables a higher international status. While every destination wants China's tourist population due to the massive income, it has a more significant political and social impact in modern China under Xi's new rhetoric. This is parallel to the power of cultural restoration projects introduced by Yanık and Subotić (2021), where infrastructural policies shape socio-cultural norms and perceptions of states. The regime has emphasized "world-leading strength and influence" as a primary goal for its grand strategy heading towards the new era, with goals set to be reached by the middle of the century (Lee et al., 2023). The narrative also makes economic progress and national strength/influence inseparable, establishing a collective notion of state hard/soft power that can be best conceptualized as state status. This expresses a desire not only to match material prosperity with national identity and perception, but also to define itself as a "modern" power with "international influence leading the world" (Lee et al., 2023). Such influences that are deemed as necessary for the status-seeking of a great power are tied to citizens' mobility rights. Neumayer argues that states seek to control access to foreign citizens'

mobility to maintain their international status (Stolte, 2015). Given the relative nature of status in a hierarchical international order, such an argument can be reversed to suggest that seeking to increase the state's citizen mobility is an effort to raise its status.

Furthermore, many scholars would argue for the importance of economic interdependence as one form of status (Barth, 2000). In addition to soft power, economic incentives are another aspect behind the motivation for visa diplomacy to be an important factor in China's BRI framework for status-seeking and identity enhancement. Mobility can be understood as access to markets, and China has comparatively little access to other states that hold great power status, with access to only 7% of the global GDP visa-free, compared to the 43% for American passport holders (Steffen, n.d.).

Thus, given the importance of markets for China, especially in the wake of an increasingly isolationist United States under Trump's second presidency, visa policies have become the backbone for shifting economic dependence from the West to its own BRI sphere of influence. By negotiating non-reciprocal visa agreements—where Chinese citizens enjoy easier access to BRI states without necessarily offering the same privilege in return—China creates an asymmetry that benefits its long-term strategic interests. These policies, in turn, facilitate deeper socio-economic integration between China and BRI member states, ensuring that Chinese businesses, professionals, and workers can operate with fewer restrictions. As a result, countries that rely on Chinese investments and trade opportunities are incentivized to adopt lenient visa policies for Chinese tourists, students, and business travelers.

Lastly, China also seeks to mobilize its own status as a great power in the form of diplomatic leverage through visa diplomacy. The BRI itself has been defined and narrated in close relation to the Silk Road, and governments involved in diplomatic relations, or those who seek to improve economic and social ties with China, have been attracted through the cross-section of geo-cultural identity between the historic Silk Road and the BRI. Such is argued by Tim Winter as a "platform for China to accumulate power and influence by building connectivities and entanglements across multiple sectors" (Winter, 2021). While Winter explains Chinese focus on cultural and historical narratives with the concept of China as a "civilization state" (Xia, 2014), such narratives have only surfaced and increased after the initiative took effect. Alternatively, it can be best argued that China is redefining and justifying its foreign policy, which has the fundamental goal of increasing status in the international hierarchy through historical and cultural narratives. Such social creativity with a cultural lens supports visa diplomacy as a tool to strengthen, or reshape ties between states. One effective case is relations with Africa, where China redefines itself as an anti-colonial power, and a former victim of European colonialism (Karugia, 2023). With the largest outbound tourist market in the world, and an urgent goal to shift from a labor-intensive to a capital-intensive economy (Yu, 2024), China resorts to visa diplomacy by easing travel restrictions to approach African states that respond well to the victimhood mentality.

Thus, China's visa diplomacy within the narrative and structural framework of BRI acts as a vital infrastructural project to increase its international status through social mobility and creativity in the global order. Building on top of this framework, another critical dimension of visa diplomacy emerges: the manipulation of visa infrastructure to control and redirect its own outbound tourists.

6. BRI and Destination Replacement (Case Study: Serbia)

To solidify its status and elevate in the global hierarchy, the government needs to effectively control the massive tourist and student population that generates wanted incomes for all foreign tourist destinations. While tourists and exchange students are temporary visitors, they can often become new investors and migrants to these states after positive travel experiences. This is within the framework of social competition, which suggests that countries compete for resources to gain status. In this case, China needs to effectively control or influence its population, which is a resource for other competitors. While the state must increase citizen mobility as an effort to obtain a status as a liberal, globalized, and free trade power, it can alter the behavior of its people through the manipulation of infrastructural incentives.

Namely, the convenience for travel determined by immigration infrastructures can play a significant role. This is not a new phenomenon. Colonial powers that sought to establish their self-sustaining sphere of influence across the globe built their intra-empire mobility infrastructures around the goal of altering their citizens' preferences within their sphere of influence. Scholars such as Castro argue that European imperial policy encouraged travel within their spheres of influence and aimed to "(re)define their territory geographically" and act as "a privileged means for legitimating the overseas provinces and for spreading propaganda about them" (Castro, 2017).

One major difference between China and European empires is that China still lives in the shadow of Western colonial centers. European colonial empires sought to project a power imbalance between citizens and colonial subjects through deliberate infrastructural systems that contributed to the global mobility divide today. On the other hand, China's policy is a reaction to such a mobility divide and seeks to free itself by establishing a new framework (Mau et al., 2015). Such a global mobility divide reveals the weakness of the Chinese passport, which in turn weakens the infrastructural mechanisms of the Chinese state to maintain its domestic narrative and control.

A key strategy used by China is destination replacement: a strategic shift in tourist patterns through visa diplomacy. By facilitating mobility, China redirects tourist preferences away from high-status core states of the Western global order toward non-Western states that offer greater economic and political leverage. This approach strengthens alternative global networks and fosters deeper ties between China and its partner nations. Serbia's visa-free policy for Chinese tourists has positioned it as a more accessible and cost-effective European destination, effectively replacing traditional Western European hotspots for Chinese travelers.

Serbia's dependence on BRI projects and Chinese tourism also makes it a valuable target for the strategy of destination replacement. As a non-EU state that is not directly under any sphere of influence from the West, contemporary Serbian-Chinese relations have been mostly bilateral. Serbia's dependency on early BRI projects is shown in its tangible economic and social benefits at the local level and a large trade deficit with China (Stojanović et al., 2023). Such leverage that China has over Serbia with BRI projects is later translated into visa diplomacy, when a mutual visa exemption treaty was signed to take effect in 2017 (Republic of Serbia, 2016).

Another key strategy China uses within the framework of geo-cultural power is shared victimization through history (Winter, 2021). Memory politics come into play when specific historical sentiments are emphasized and fueled by diplomatic narratives, shaping a particular bond between the victims. Thus, victimhood nationalism, which often is the founding narrative of the regime in power in various developing countries that faced recent economic and security troubles, is evoked socially with the approval of those in power (Lim, 2010). In the case of Serbia, the national victimization narrative from the Yugoslav Wars, specifically the NATO bombing of Belgrade and the bombing of the Chinese embassy in 1999, is used by both states to establish a historical shared victimhood (Zhou, 2022). Such historical sentiments act as grounds for BRI projects and further social cooperation.

Fast forward to 2025. During the speech of President Vucic at the 46th International Tourism Fair in Belgrade, he emphasized Chinese tourism as "our biggest success." In 2024 alone, Chinese tourists accounted for 6.5% of all foreign visitors to the country (Xinhua News, 2025). This not only highlights visa's infrastructural convenience as a dramatic appeal to Chinese tourists, but also suggests a reciprocal reliance that makes Serbian-Chinese cooperation inseparable under the BRI framework.

The BRI serves as a tool for China to build its own international reputation and establish a new non-Western-centric global order. Scholars have argued that China has been staying within the liberal-capitalist theoretical framework of the existing international order (de Graaff et al., 2020); it is more apparent that China is seeking to replace the Western-centric order through a reconfiguration of status. The economic, cultural, and technological dominance of core states in the Global North has attracted migration patterns to shift towards the EU, with China losing its talent and resources needed to shift from a labor-intensive market to capital-intensive societies. Western states have capitalized on this movement and increased their citizens' relative mobility by seeking favorable visa policies to increase their international status. While China can not directly counter this, destination replacement can increase China's relative international status and control the flow of market forces, especially in tourism, in a framework within its economic-political influences.

7. Conclusion

Visa diplomacy has proven to be the key for China to mobilize its international status to a great power and change its global identity to one that supports a multi-centric, liberal, anti-colonial global order. It also employs its BRI resources to alter mobility infrastructure for its citizens and create new destination replacements to free itself from the influences and reliance on Western states that are competitors for the highest status in the global order. By focusing on mobility infrastructure, scholars may better understand the power dynamics between China, the Global South, and the West in a changing world order. Through the case of China, this paper further exemplifies the usage of the Social Identity Theory in an international relations context, which provides a solution to the methodological gap in soft power comparative analysis.

Then comes the question: Why would states willingly cooperate with China's non-reciprocal mobility treaties? Wohlforth effectively summarizes the incentive for smaller states to compromise with greater powers in order to also increase their status-aims: "On the one hand, they seek standing in one or more peer groups of similar states. On the other hand, they might seek recognition by great powers, as useful allies, impartial arbiters, or contributors to systems maintenance" (Wohlforth et al., 2018).

With the first justification, China indeed has a comparatively different approach to European colonial powers in the 18th and 19th centuries. Instead of acting as a developed state, it uses various approaches, including historical ties and anti-colonial approaches (Chan, 2019), to redefine itself as a peer with similar experiences, interests, and goals. Although this paper outlines the importance and significance of visa diplomacy within the BRI for China, more research is needed to understand the driving forces behind states that compromise Chinese policies through not only a socio-economic lens but also through the perspective of status. A revisit to earlier investigations of tourist industries of BRI states, such as those in Tunisia (Nadhif, 2024), in Serbia (Stojanović et al., 2023), or in Africa as a whole (An et al., 2023), might benefit from considering the domestic sentiments of Chinese tourist markets and Chinese international status seeking.

Ethical and AI Declaration

Ethical clearance was not needed; AI was not used.

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Unfolding the Process of Transformative Experience through Tea-Culture Tourism: A Qualitative Study in Wuyishan, China

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Abstract: Transformative tourism has received increasing scholarly attention as a form of travel that produces lasting changes in travelers' values and lifestyles. While previous studies have mainly examined transformation in contexts such as religious, volunteer, and nature-based tourism, little empirical research has focused on complex experience structures in which multiple practices are integrated and meaningfully reinterpreted by travelers themselves. This study investigates how travelers undergo transformative experiences through tea-culture tourism in Wuyishan, Fujian Province, China. Focusing on the intersection of cultural rituals, immersion in natural landscapes, and interactions with local residents, it explores how travelers reconstruct their meaning systems through these multidimensional engagements. Semi-structured interviews were conducted with four travelers who reported transformative experiences. Their narratives were analyzed using the steps for coding and theorization method. The findings suggest that the transformative process can be structured into three stages: (1) entry through extraordinary landscapes, (2) awareness of an ideal self, and (3) rediscovery of everyday life. Rather than occurring by chance, these experiences emerge through active meaning-making by travelers who are psychologically prepared for transformation. Additionally, the perception and reinterpretation of "relational authenticity," facilitated by emotional interactions with others through cultural practices, played a crucial role. By highlighting how transformation is shaped through layered cultural and relational dimensions, this study contributes to a deeper understanding of the structure of transformative tourism experiences. Theoretically, it extends existing frameworks by introducing the concept of the "prepared self" and by positioning relational authenticity as a co-created resource, thereby enriching debates on authenticity and transformation in tourism. Practically, the study provides insights for destination managers and cultural practitioners seeking to design tourism experiences that foster self-reflection, intercultural connection, and sustainable relationships between travelers and host communities. Future research could further examine cross-cultural cases and employ longitudinal or mixed-method designs to capture the dynamic and reciprocal nature of transformative processes.

Keywords: Transformative Tourism, Transformative Experience, Tea Culture Tourism, Self-transformation, Authenticity, Social Relatedness

1. Introduction

In recent years, increasing scholarly attention has been directed toward the phenomenon in which tourism experiences create lasting changes in travelers' self-understanding, values, and even lifestyles. This has led to theoretical development of the concept of transformative tourism (Kirillova, Lehto, and Cai, 2016; Lean, 2012; Zhao and Agyeiwaah, 2023). Within this framework, profound internal transformations—such as ontological insights and the reconstruction of identity that transcend mere entertainment or learning—are central themes. For instance, experiences such as participation in rituals, a sense of oneness with nature, and engagement with local communities are believed to have the potential to become turning points in travelers' lives (Pung, Gnoth, and Di Chiappa, 2020; Ross, 2005, 2010).

Previous studies have explored transformative experiences in contexts such as religious, volunteer, and nature-based tourism. These types of tourism are often shaped by specific motivations or purposes—faith, service, or healing—and have been regarded as relatively unidirectional in terms of experiential structure (Jiang et al, 2023; Kirillova, Lehto, and Cai, 2016; Kontogeorgopoulos, 2017). In contrast, tea-culture tourism, the focus of this study, involves a layering of diverse experiences including sensory awareness in natural environments, interactions with local residents, participation in tea-related rituals, physical labor, and cultural learning. These experiences are interwoven throughout the journey, not functioning in isolation but influencing one another (Cheng et al, 2010; Zhou et al, 2023). In both China and Japan, tea culture has historically developed as a spiritual practice infused with religious and philosophical meanings (Liu, 2019; Lu, 2011), suggesting the potential for travelers to deepen their ways of sensing and meaning-making through such multifaceted engagements.

This study examines how various elements of tea-culture tourism interconnect to generate meaningful changes and insights for travelers. Specifically, it focuses on the relational and emotional dynamics between travelers and local residents mediated by cultural practices, aiming to elucidate how transformative experiences are not accidental but are gradually constructed through travelers' active processes of meaning-making. Thus, the study seeks to advance theoretical understanding within transformative tourism research.

2. Literature Review

2.1 Elements and Triggers of Transformative Experiences

Chirico et al. (2022) reviewed conceptualizations of transformative experience across anthropology, philosophy, psychology, neurobiology, and education. They defined it as a brief yet exceptionally distinctive experience that produces lasting and sometimes irreversible effects on one's self-concept, worldview, perception of others, and personal identity. Such experiences are characterized by two core phenomenological features: epistemic expansion, understood as a new form of knowledge concerning the self, others, and the world; and heightened emotional complexity, marked by variability, intensity, and the coexistence of complex emotions. Transformative experiences are typically vividly remembered and contribute to enduring personal change.

Building on this theoretical understanding, scholars in tourism have explored how such deeply affective and cognitively expansive experiences manifest through travel-related contexts. Transformative experiences in tourism are increasingly recognized not merely as forms of entertainment or learning but as profound experiences involving the redefinition of one's identity and way of life. Recent studies have particularly focused on the constituent elements and triggering factors of such experiences. Ross (2005, 2010), for example, identified transformative travelers' typical experiences, including participation in rituals, a sense of unity with nature, self-exploratory practices such as yoga and meditation, interactions with local residents, and volunteer activities. These experiences, he suggested, can be structured as rites of passage or spiritual journeys, serving as opportunities to question one's boundaries and acquire new meaning frameworks.

Kirillova, Lehto, and Cai (2016) conceptualized transformative experiences as a form of existential transformation, arguing that the existential anxiety and desire for authenticity evoked during travel may later manifest as cognitive changes through post-trip reflection. Furthermore, Kirillova, Lehto, and Cai (2017) proposed that spontaneity, aesthetic experiences, and self-development functioned as triggers for transformation, emphasizing that emotional peaks toward the end of a journey might lead to shifts in worldview.

In addition to these internal processes, recent research has highlighted the significance of emotional and relational dynamics involving interactions with others and places. Jiang et al (2023), for instance, quantitatively demonstrated that emotional bonding among tourists in religious tourism could mediate prosocial behavior. Richards (2020) showed that a creative atmosphere could influence place-making and foster self-transformation. Kabra and Singh (2025), using structural equation modeling, found that interactive authenticity, emotional authenticity, and novelty served as key factors in facilitating self-transformation.

Ivanovic (2022) further argued that the core of transformative experiences lay in the perception of authenticity, whereby a sense of alignment between the true self and the experience became transformative when associated with transmodern values such as spirituality, harmony with nature, and interdependence. This perspective suggests that transformative tourism should be understood not only as individual introspection or emotional response but also within broader cultural and philosophical value systems.

Overall, these discussions indicate that transformative experiences are complex processes involving not only cognitive shifts or introspection but also emotional responses, interpersonal relationships, embodied practices, and interactions with spatial environments. Such experiences are shaped by a traveler's state of readiness and motivation, as well as by contextual factors such as cultural background, relational frameworks, and situational conditions during the stay (Teoh et al, 2021). However, many studies have focused on specific tourism types or isolated experiences, lacking a systematic understanding of the conditions, structures, and triggers that give rise to transformation (Zhao and Agyeiwaah, 2023).

To address this gap, this study qualitatively explores how transformative experiences are formed in the context of tea-culture tourism—a setting where cultural, bodily, and relational experiences overlap, and where travelers flexibly ascribe meaning to diverse and layered engagements.

2.2 Tea-culture Tourism as a Multidimensional Tourism Experience

Tea-culture tourism comprises a wide range of overlapping activities, including tea tasting and tea-making experiences in natural environments, interactions with tea masters and local residents, ritual practices, and opportunities for cultural learning. These experiences are not unified by a single purpose or motivation but are instead flexibly interpreted and given meaning by travelers based on their individual interests and modes of engagement.

For example, Liu (2019), based on fieldwork on Chinese tea ceremonies, reported that the staged atmosphere of the tearoom evoked a sense of the extraordinary in participants, functioning as a space for self-reflection and reconstruction. Lu (2011), through a comparative study of Chinese and Japanese tea cultures, showed that both physical pleasure and spiritual cultivation were embedded in these practices, suggesting that the integration of bodily and spiritual dimensions could serve as a trigger for internal transformation. Cheng et al's (2010) empirical research revealed that travelers who were already familiar with tea culture in their daily lives experienced changes in values and lifestyle through tea-related tourism activities. Zhou et al (2023) highlighted the layered nature of tea-culture tourism, noting that it incorporated elements of agritourism and ecotourism while also providing cultural, service-based, and environmental value. Similarly, Bohne (2021) presented a case from East Frisia, Germany, where regional identity and ritualized practices surrounding tea have been leveraged as tourism resources.

In addition to its impact on travelers, tea-culture tourism influences local communities. Su, Wall, and Wang (2019) demonstrated that in Hetu Town, China, tea-mediated tourism encouraged community participation, contributed to the diversification of livelihoods, and improved residents' quality of life.

These studies collectively point to the multifaceted nature of tea-culture tourism and its diverse impacts on both travelers and host communities. However, it remains unclear how these varied experiences are internally connected and interpreted by travelers as meaningful transformations. In particular, a need arises to explore how transformative experiences emerge through cultural practices and interpersonal relationships, as reflected in travelers' narratives.

3. Methodology

3.1 Research Site: Wuyishan

This study was conducted in Wuyishan, Fujian Province, China. Wuyishan is renowned as the production area for Wuyi rock tea, one of China's top ten famous teas, and represents a unique cultural region where the tea industry, tea culture, and tourism are closely intertwined. Tea-culture tourism is actively practiced in this area, involving a wide range of activities such as tea picking and processing and tea-ceremony experiences. These activities are conducted through interactions with tea farmers, tea artisans, and local guides, offering tourists opportunities for self-reflection and cultural reconnection.

In particular, Wuyishan combines rich natural landscapes (e.g., the Wuyi Mountains and Nine-Bend Stream) with tea culture, providing an environment that strongly evokes both spatial authenticity and embodied/emotional experiences. These conditions correspond closely with the catalytic elements for transformative experiences identified by scholars such as Kirillova, Lehto, and Cai (2016) and Richards (2020). Given this combination of cultural, physical, and relational elements, Wuyishan was deemed a highly suitable field site for this study, which aims to explore the process of transformation through tourism.

3.2 Data Collection

To investigate transformative experiences in tea-culture tourism, this study employed a narrative-oriented qualitative approach, using semi-structured interviews as the primary data-collection and analysis method. The appropriateness of qualitative methods in exploring transformative tourism has been supported by prior research (Kirillova, Lehto, and Cai, 2016; Pung and Di Chiappa, 2020; Zhao and Agyeiwaah, 2023).

Participants were selected from among nine individuals who had taken part in tea-culture tours in Wuyishan. Four were chosen based on the following criteria: (1) having participated in tea-culture tourism in Wuyishan at least once; and (2) having reported a perceived change in their values or worldview as a result of the experience. The fieldwork was conducted from July to September 2025, and participants were recruited through local tea-tourism facilities and social-media platforms (see Table 1).

Participants' "understanding of tea culture" was categorized into four levels, based on a pre-interview questionnaire and interview responses: (1) deep understanding (possessing expert knowledge about tea); (2) general understanding (regular tea consumption with an ability to distinguish flavor differences); (3) limited understanding (drinking tea occasionally when offered by others); and (4) no understanding (disliking or lacking interest in tea). These classifications aimed to assess how prior knowledge and experience might influence the emergence of transformative experiences.

The interviews were conducted either in person or online, lasting approximately 60 minutes per participant.

The main interview questions included the following: “What moments challenged your worldview or values?” “How did your encounter with tea culture affect your self-understanding?” “How do interactions with people and places remain in your memory?” These questions were designed to explore both the triggers and facilitating factors of transformation within tea-culture tourism. All interviews were audio-recorded, transcribed verbatim, and used for analysis with participants’ consent and confirmation.

Table 1: Participant profiles

Number	Gender and age	Occupation	Understanding of tea culture	Number of visits for tea-culture tourism	Transformation experience (Yes/No)
A	M/32	Office worker	General understanding (drinks tea regularly; can discern taste differences)	2	Yes
B	M/53	Self-employed	Deep understanding (collects tea leaves as a hobby; knowledgeable about tea history)	3	Yes
C	F/44	Freelancer	No understanding (dislikes tea; not interested)	1	Yes
D	F/21	Student	Limited understanding (does not drink tea voluntarily but accepts when offered)	1	Yes

3.3 Data Analysis

This study employed steps for coding and theorization (SCAT), a qualitative data-analysis method developed by Otani (2011). SCAT is particularly effective for extracting theoretical meaning structures from small-scale narrative data. Following its four-step process, the study analyzed the experiences of travelers who had undergone self-transformation.

In Step 1, emotionally charged, repetitive, or striking phrases relevant to transformation were extracted from the narratives. In Step 2, synonyms, antonyms, and supplementary expressions were added to clarify the meanings intended by the speaker. Step 3 involved deriving underlying constructs or themes (e.g., “emergent self-image,” “rediscovered everydayness”) based on recurring patterns across the extracted and rephrased content. In Step 4, temporal and causal relationships among these constructs were identified to build a coherent storyline of the transformative process.

Through this process, three phases of transformation were identified: (1) entry into the extraordinary through natural landscapes, (2) awareness of the ideal self through tea ritual practices, and (3) rediscovery of the everyday self through relationships with local residents. SCAT's theorization process was found to be particularly effective in revealing the temporal and emotional structure embedded in the narratives, thereby enabling the construction of a framework that explained how transformation was not accidental but instead formed through meaning-making by a prepared self. This method has been recognized as effective in transformation tourism research focusing on subjective meaning systems (Ivanovic, 2022; Pung, Gnoth, and Di Chiappa, 2020), and its applicability was reaffirmed in this study.

3.4 Ethical Considerations

Ethical approval was obtained from the Hokuriku University Research Ethics Committee (Approval No. 2025-21), and fieldwork was conducted through semi-structured interviews and participant observation. Before data collection, written documents outlining the research purpose, methodology, voluntary participation, anonymity, and data usage were distributed. Informed consent was obtained in writing after providing a thorough explanation. Participation was voluntary, and withdrawal was permitted at any time. Audio recording and transcription were conducted only with explicit consent. All data were anonymized, de-identified, and securely stored under password protection.

4. Findings

4.1 Landscape Experiences as a Preparation for Transformation: Nature as a Sensory Transition to the Extraordinary

Several participants reported experiencing a sense of detachment from their urban daily lives immediately on arriving in Wuyishan. In particular, the natural scenery—such as mist-covered rocky mountains and expansive tea fields—evoked a strong sense of extraordinariness through visual impact, offering an opportunity to mentally distance themselves from the noise and stress of everyday life. For instance, Participant A (general understanding of tea culture; two-time visitor) remarked, "I felt enveloped by nature here, and it forced me to focus on the experience, whether I liked it or not" (A4), suggesting that the immersive quality of the landscape compelled a heightened attentiveness to the present experience. Similarly, Participant D (limited understanding; first-time visitor) stated, "Just being surrounded by mountains made time feel completely different—no rush, no pressure," indicating that the natural environment altered their perception of time.

These landscape experiences functioned as what may be termed liminal triggers—transitional stimuli that temporarily suspend one's urban self while opening up the senses and emotions. In the early stages of transformation, such spatial and sensory detachment played a critical role in facilitating a reflective state, thereby laying the groundwork for subsequent meaning-making. In this sense, the experience of nature served not only as a visual backdrop but as a catalytic environment that enabled the internal conditions necessary for transformation to unfold.

4.2 Awareness Through Tea Rituals: Reconstructing the Ideal Self and Personal Values

For several participants, the tea-ceremony experience in Wuyishan involved more than simply engaging in a cultural activity; the precise movements of preparing tea and sequence of ritualized actions prompted reflection on their ideal self and personal values. The nature of this impact varied depending on the participants' prior understanding of tea culture.

For those with limited or novice-level familiarity, the tea ceremony was perceived as an extraordinary cultural practice, often interpreted through contrast with their everyday lives. For example, Participant C stated, "I did not know that it took so much time just to drink tea. But it was a truly meaningful time—through the rituals, I was given a space to deliberately think and feel. Until now, I was just caught up in a fast-paced life. Perhaps I have always longed for this kind of lifestyle" (C11). This narrative suggests that the embodied "ritual gestures" sharpened the senses and led to a reappraisal of time, creating the conditions for a reflective state. Such realizations functioned as structural elements that deepened the transformation process by prompting introspection, value reconstruction, and even a longing for an ideal way of life.

In contrast, participants with a general or deep understanding of tea culture and multiple prior visits tended to already possess a vision of their ideal self. Their tea-tourism experiences served as opportunities to reaffirm and enact that vision. For instance, Participant B (second visit) stated, "Coming here helped me reorganize what I truly want. Through interactions with tea artisans and locals, I felt validated in the tea knowledge I have gained, and it made me want to learn even more" (B6).

These forms of realization and affirmation through tea rituals went beyond mere acquisition or application of knowledge. They supported a deeper transformation by revalidating the ideal self and its embodied practice. Participants engaged in the physical and relational dimensions of tea practices were internally reorienting their values and moving toward a more desirable version of themselves.

4.3 Rediscovering Everydayness in an Extraordinary Space: Social Connectedness and the Repositioning of the Self

Although participants were immersed in the extraordinary setting created by natural landscapes and tea rituals, several also reported experiencing intimate and ongoing relationships with local tea farmers that transcended conventional tourism boundaries. These interactions—such as tea-picking activities, simple communal meals, and casual greetings or conversations—offered participants a sense of familiarity and belonging. For instance, Participant D (male, 30s, first-time visitor) remarked, "For the four days I was here, everything revolved around tea—it felt like tea had become part of my everyday life," indicating the experience of a "second everydayness" within a non-ordinary environment. Such experiences suggest that temporary immersion in local life can help

travelers regain their authentic rhythm and provide a chance to reengage with their life trajectory and social roles through relational encounters.

In particular, the structured routines, sense of cooperation, and familial bonds observed in the lives of tea farmers evoked a feeling of belonging and wholeness often lost in urban life. Participant A (female, second-time visitor) reflected, "Talking with people here afforded me a sense of reassurance—it made me reconsider where I truly belong," demonstrating how these moments led to more than temporary emotional resonance; they prompted deeper transformation involving reevaluation of one's social identity and sense of affiliation.

In these experiences, participants perceived both relational and experiential authenticity by engaging with the lived world of locals—not as staged performances but as genuine ways of life. Thus, the "rediscovery of everydayness in an extraordinary space" can be understood as a transformative experience in which travelers reconstruct their relationship with the world through interpersonal encounters mediated by authenticity. The connection with local residents was not merely a supplementary element but rather functioned as a relational trigger for self-reconstruction and transformation. In this sense, transformative experiences are redefined not solely as internal processes but as socially co-created through interactive engagement with host communities.

5. Discussion

The transformative process observed in tea-culture tourism, as revealed in this study, unfolds through the layered intersection of nature-based, cultural, and spiritual tourism elements, all centered on the cultural medium of tea. This finding aligns with Ross's (2010) argument that transformative experiences are often compatible with multiple tourism forms and are particularly likely to occur when nature, spirituality, and culture are interconnected.

First, encounters with natural landscapes served as "introductory triggers" for transformation by enabling a sensory departure from urban routines and altering participants' perception of time. This supports Lu's (2011) assertion that the fusion of bodily experience and spiritual reflection acts as a catalyst for transformation.

Second, the ritualistic practice of tea ceremonies heightened participants' sensory awareness through immersion in a spatially extraordinary environment and focused gestures. This facilitated the reconstruction of their ideal self and personal values. As Liu (2019) argues, the tea room functions as a space for self-reflection and reinterpretation. Furthermore, Cheng et al (2010) suggest that prior familiarity with tea culture can deepen transformative awareness—an observation echoed in the present study.

Third, interactions with local residents fostered a sense of "alternative everydayness" through collaborative life experiences, which supported deeper transformation through the perception of relational authenticity. This finding reinforces the work of Pung and Di Chiappa (2020), Ivanovic (2022), Jiang et al (2023), and Richards (2020), who emphasize that transformative experiences are socially co-constructed through relationships with others.

In addition, this study illuminates the evolving meaning of tea itself within the tourism experience. Tea was reinterpreted not merely as a beverage but as a "tool for human connection" and even a "wisdom for living," functioning as a mediator across sensory, spiritual, and intellectual dimensions. This process of semantic evolution has often been overlooked in previous research. The observation that prior knowledge of tea influenced the depth of transformation suggests that transformation is not entirely spontaneous but involves the presence of a "prepared self," carrying significant theoretical implications.

These findings align with the conceptualization proposed by Chirico et al. (2022), who described transformative experience as involving epistemic expansion—a new way of knowing the self, others, and the world—together with heightened emotional complexity. The redefinition of tea observed here exemplifies such epistemic and emotional broadening: through sensory immersion and cultural engagement, participants developed new layers of understanding and emotional resonance within their lived experience.

In summary, transformation in tea-culture tourism is a dynamic process in which authenticity is constructed across bodily, sensory, and relational dimensions. Far from being limited to internal personal change, it emerges as a complex phenomenon shaped through interaction with broader social and cultural contexts.

Despite its strengths, this study has certain limitations. It was based on a single case study in Wuyishan, China, with a small number of participants, and the qualitative design and single fieldwork period limit the generalizability of the findings. Future research should examine comparative cases across diverse cultural and religious contexts and consider longitudinal or mixed-method approaches. Moreover, transformative

experiences should be explored as potentially co-constructed processes involving both travelers and local communities, with attention to how relational authenticity emerges through such mutual interactions.

6. Conclusion and Future Directions

This study aimed to explore the process through which travelers underwent transformation in the context of tea-culture tourism. Based on qualitative interviews conducted with participants in Wuyishan, China, several key findings emerged.

First, natural landscapes served as a mechanism for sensory detachment and entry into introspection, functioning as a preparatory stage for transformation. Second, ritualized tea experiences facilitated a re-awareness of the ideal self and acted as a deepening mechanism for transformation. Third, interactions with local residents contributed to profound transformation through the reconstruction of a sense of belonging, mediated by the perception of relational authenticity. Moreover, the meaning of "tea" was found to evolve across dimensions of knowledge, sensation, spirituality, and wisdom, revealing its dynamic role as a cultural mediator.

The theoretical contributions of this study can be summarized in three key points. First, it structurally clarified how transformative experiences emerged within a tourism context where sensory, ritual, and relational practices intersected. Second, it introduced the perspective of the "prepared self," showing that prior knowledge and cultural literacy influenced the depth of transformation, thereby challenging the assumption that such experiences are purely spontaneous. Third, it positioned the concept of relational authenticity as a theoretical unit that could be reconfigured through interaction with ritual practices, offering a complementary perspective to existing authenticity research.

By conceptualizing transformative experience not merely as an internal insight but as a dynamic process constructed through spatial, ritual, and social contexts, this study extends the theoretical scope of transformative tourism research. In particular, the articulation of two core principles—the "prepared self" and "perception of relational authenticity"—provides practical implications for designing meaningful tourism experiences and fostering sustainable relationships between travelers and host communities.

Ethics Declaration

The ethical clearance for this research is described under Subsection **3.4 Ethical considerations**.

AI Declaration

The authors used ChatGPT (OpenAI) solely to refine English expressions. All ideas, analyses, and conclusions are the authors' own.

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PhD Research Papers

Resource Efficiency and Emission Reduction in Hotels: The Role of Supply Chains – A Systematic Literature Review

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Abstract: This study conducts a Systematic Literature Review (SLR) to examine resource efficiency and emission reduction in the hotel sector, with a particular focus on the neglected role of supply chain–related emission linkages. Drawing on 41 peer-reviewed publications from 2005 to 2024 indexed in Scopus, the review integrates the Greenhouse Gas (GHG) Protocol framework with Stakeholder Theory to analyse how hotel–stakeholder interactions shape emission management across Scopes 1, 2, and 3. Despite growing attention to hotel sustainability, findings reveal that the existing body of research remains heavily concentrated on operational emissions mainly energy, water, and waste while indirect, supply chain–based (Scope 3) emissions are conceptually underdeveloped and methodologically fragmented. The review identifies three dominant thematic clusters: (1) Measurement and Monitoring, which highlights the absence of standardized methodologies and fragmented reporting across emission scopes; (2) Sustainability Practices and Strategies, which documents managerial and operational initiatives such as energy conservation, water efficiency, and waste minimisation, yet finds limited integration with supply chain collaboration; and (3) Barriers and Governance Challenges, which point to financial, informational, and institutional constraints that hinder systematic emission management. Collectively, these patterns underscore a persistent imbalance between hotels' internal sustainability actions and their external supply chain relationships, limiting progress toward holistic carbon accountability. Building on these insights, this paper develops a theory-informed conceptual framework linking stakeholder pressures—regulatory, normative, and voluntary to hotels' operational and supply chain practices that collectively determine environmental performance outcomes. The model positions hotels as intermediaries between external and internal actors who shape the adoption, measurement, and governance of emission practices. By embedding Stakeholder Theory within the GHG Protocol's three-scope architecture, the framework advances an integrated understanding of how accountability and resource interdependence operate across hotel value chains. This review contributes to sustainability and hospitality management scholarship in three key ways: first, by offering the first Stakeholder Theory–informed synthesis of hotel emission management across Scopes 1–3; second, by conceptualising multi-stakeholder pathways for improving resource efficiency and emission governance; and third, by proposing a research agenda that emphasises supply chain collaboration, digital monitoring tools, and cross-country policy benchmarking. The study concludes that achieving net-zero targets in hospitality requires the extension of emission measurement beyond hotel premises to encompass suppliers, logistics, and post-consumption processes transforming sustainability from a property-level initiative into a value-chain-wide governance system.

Keywords: Sustainable Hotels, Hotel Supply Chain Management, Hotel Greenhouse Gas Emissions

1. Introduction

In the last two decades, tourism-related activities and the hospitality industry have had a negative impact on the environment (Khan *et al.*,2021). Tourism industry accounts for almost 8% of global carbon emissions (Lenzen *et al.*,2018) and hospitality industry not only represents 1% of global emissions but also contributes to water consumption, which is reaching up to 5% (Khan *et al.*,2021). Furthermore, hotels account for a large amount of waste production and food consumption. GHG emissions is a key factor in global climate change and reducing emissions has emerged as the world's most important task (Mikhaylov *et al.*,2020).The hospitality industry is a significant contributor to global environmental impacts, including greenhouse gas (GHG) emissions, waste generation, and resource consumption (Huang *et al.*,2015; Lai,2015; Odeku,2018). Hotels, in particular, are energy-intensive operations with complex supply chains (Huang *et al.*,2015). The growing awareness of environmental issues has led to increased research on sustainability within the hotel sector (Al-Aomar and Hussain,2017; Al-Aomar and Hussain,2018; Hussain *et al.*,2019).

In consideration of all the research on sustainable tourism, the issue of hotel emissions has received considerable critical attention and UNWTO targeted to reduce tourism greenhouse gas emission by 50% by 2030 and achieve net zero by 2050 (UNWTO,2021) which is needed to involve supply chain management to achieve it. Currently, hotels hold a share of 21% of the carbon footprint of the tourism industry (UNWTO,2021), but it is projected that, until 2035, it will increase to 25% (de Grosbois and Fennell,2022)

Contrary to the significant role of hotels in GHG emissions, there is currently a lack of an integrated approach for comprehensive measurement and monitoring of emissions in the hotel industry. To effectively measure and

monitor resource efficiency and emissions in hotels, it is crucial to explore existing studies and identify the gaps in knowledge in the role of supply chain management and improve hotel green performance.

Based on the identified gaps, several guidelines and recommendations can be proposed for future research in this area. To frame this study conceptually, Stakeholder Theory (Freeman, 1984) provides a useful lens for understanding the interconnectedness between hotels and their external and internal actors in achieving sustainability. Hotels operate within a complex web of stakeholders including suppliers, contractors, guests, employees, regulators, and local communities whose expectations and actions shape the environmental outcomes of hotel operations. In the context of emissions and resource efficiency, Stakeholder Theory underscores the idea that sustainable performance cannot be achieved through isolated managerial actions, but rather through collaborative alignment and shared accountability across the supply chain. This theoretical lens allows the study to go beyond descriptive mapping and examine how stakeholder pressures influence the evolution of sustainability research in hotels. By doing so, it bridges the gap between environmental performance measurement and stakeholder accountability a connection largely absents from prior systematic reviews.

This study contributes to sustainability and hospitality management scholarship in three ways: (1) it provides the first Stakeholder Theory informed synthesis of hotel emission management research across Scopes 1-3; (2) it introduces a conceptual framework linking stakeholder influence to emission reduction practices; and (3) it outlines a future research agenda for integrating supply chain collaboration and stakeholder accountability into emission measurement systems.

This study set out to clarify the most important aspects of measuring emissions of hotels in academic papers and the role of supply chain management. This study builds on Systematic Literature Review (SLR) and future research direction on hotels' emissions and resource efficiency to answer following research questions:

Q1: What is the current state of academic publications related to the role of supply chain management in carbon emissions in hotels?

Q2: What practices have been identified in hotels to reduce emissions and increase resource efficiency?

Q3: What are the barriers to adopting green practices and strategies to reduce emissions in hotels and through supply chain management?

Q4: What gaps have been identified within the area of green hotel supply chain management?

To explore these research inquiries, the study utilizes SLR of data extracted from the Scopus database, focusing on resource efficiency and emission reduction in hotels.

Hotels can effectively reduce their Scope 3 emissions by implementing a variety of green practices and strategies. These initiatives not only enhance supply chain management but also contribute to the overall sustainability performance of the hotels.

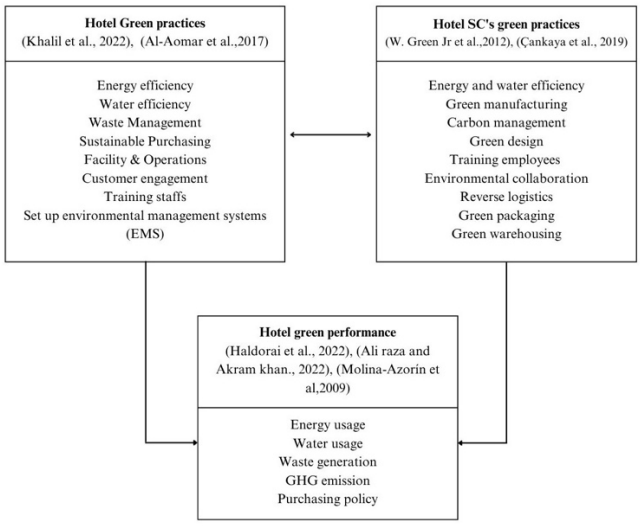


Figure 1: Conceptual framework of Interactions Between Hotel practices and Supply Chain Green Practices and Their Impact on Hotel Green Performance

This paper contributes to the literature by offering the first systematic and theory-informed synthesis of how stakeholder relationships influence hotel emission management across Scopes 1–3. It integrates the Greenhouse Gas (GHG) Protocol framework with Stakeholder Theory to identify where hotels and their supply chain partners interact, where accountability gaps persist, and how collaborative strategies can enhance sustainability performance. In doing so, it advances both theoretical understanding and practical approaches to managing Scope 3 emissions within the hospitality industry.

The remaining sections of this paper are structured as follows: Section 2 outlines the research methodology employed. Section 3 presents the findings and corresponding discussion. Lastly, Section 4 is conclusion and outlines potential avenues for future research.

This study contributes to hospitality sustainability scholarship by clarifying conceptual fragmentation, integrating stakeholder perspectives into emission classification, and proposing a theory-driven framework for aligning operational and supply chain sustainability practices.

2. Method

This study is classified as applied because of its descriptive goals and qualitative methodology. The SLR was utilised for the technical processes. When compared to alternative review techniques, the SLR approach has a few benefits. First, SLR techniques minimise bias while facilitating a simple, observable, and trustworthy search and identification of pertinent material (Littell, 2006; Reim et al., 2015). Second, it makes it simple to find gaps to further future lines of inquiry (Sharma et al., 2020).

The systematic review begins with the data collecting phase. This process should identify the different documents and publications that will be examined and evaluated. This study's data sample was obtained by querying the Scopus core databases for publications from 2005 to 2025. “A systematic search was conducted in the Scopus database on 12 July 2025 using the following keyword combinations: “*hotel*” AND “energy” OR “water” OR “food*” OR “plastic” OR “waste” OR “Resource efficiency” OR “Fuel efficacy” OR “electricity” OR “oil” AND “*emissions*” OR “measuring emissions” OR “monitoring emissions” OR “GHG emission” OR “Net zero carbon emission” OR “carbon footprint” OR “carbon indicator” OR “carbon audit” OR “carbon density” OR “supply chain*” OR “Green supply chain”.

Results from Web of Science and Scopus overlaps have been manually eliminated. The following standards were used to manually assess the chosen articles' relevance: eliminate the articles related to (a) cruise ships, (b) guest perception, and (c) cost and finance. We found 200 studies on Scopus and 186 studies on WoS. In the filtering articles, 175 studies were duplicated, and through manually assessing articles, 41 studies were chosen for thoroughly analysing.

A PRISMA-style protocol guided the systematic review process, ensuring transparency in study identification, screening, eligibility, and inclusion. Each study was coded based on publication year, geographic focus, emission scope (1–3), and stakeholder category (internal, external, or supply chain actor). This coding framework allowed for thematic synthesis aligned with Stakeholder Theory, highlighting how different stakeholder groups contribute to or hinder emission management.

The SLR approach is particularly appropriate for this research as it enables a structured synthesis of fragmented studies across multiple stakeholder groups and emission categories. Integrating Stakeholder Theory into the review process allows for a theoretically grounded coding and interpretation of evidence, rather than a purely descriptive aggregation of findings. This approach enabled the synthesis of empirical and conceptual patterns in how stakeholder relationships condition emission measurement and mitigation practices.

3. Results and Findings

The chart illustrates the annual distribution of articles published from 2005 to 2024, showcasing the evolving focus on sustainability research in the hospitality sector over the years.

The increase in publications after 2015 aligns with global policy developments such as the Paris Agreement and the UN Sustainable Development Goals, reflecting rising institutional pressure on hotels to disclose and mitigate emissions. This trend illustrates how external stakeholder expectations particularly from regulators and investors are shaping the research and managerial focus on sustainability in the hospitality sector.

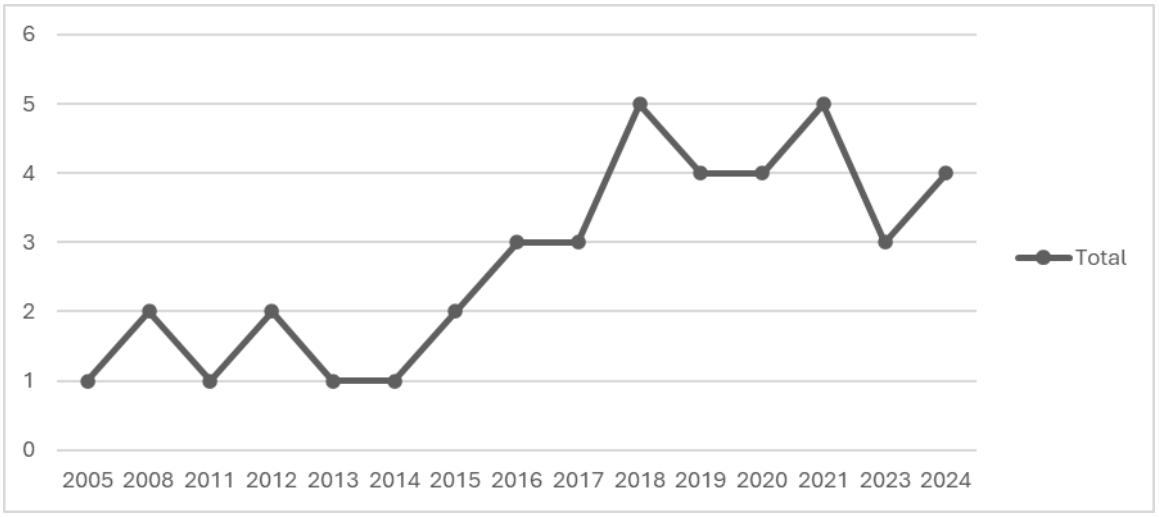


Figure 2: Annual publications of the selected studies

In reviewing the selected studies, the following journals emerged prominently. World Leisure Journal published a total of 4 articles, reflecting a strong focus on leisure studies. Following closely, the Tourism Management journal also featured 4 articles, indicating its relevance in the field of tourism research. Lastly, Sustainable Development contributed 3 articles, highlighting the journal's emphasis on sustainability issues within various contexts.

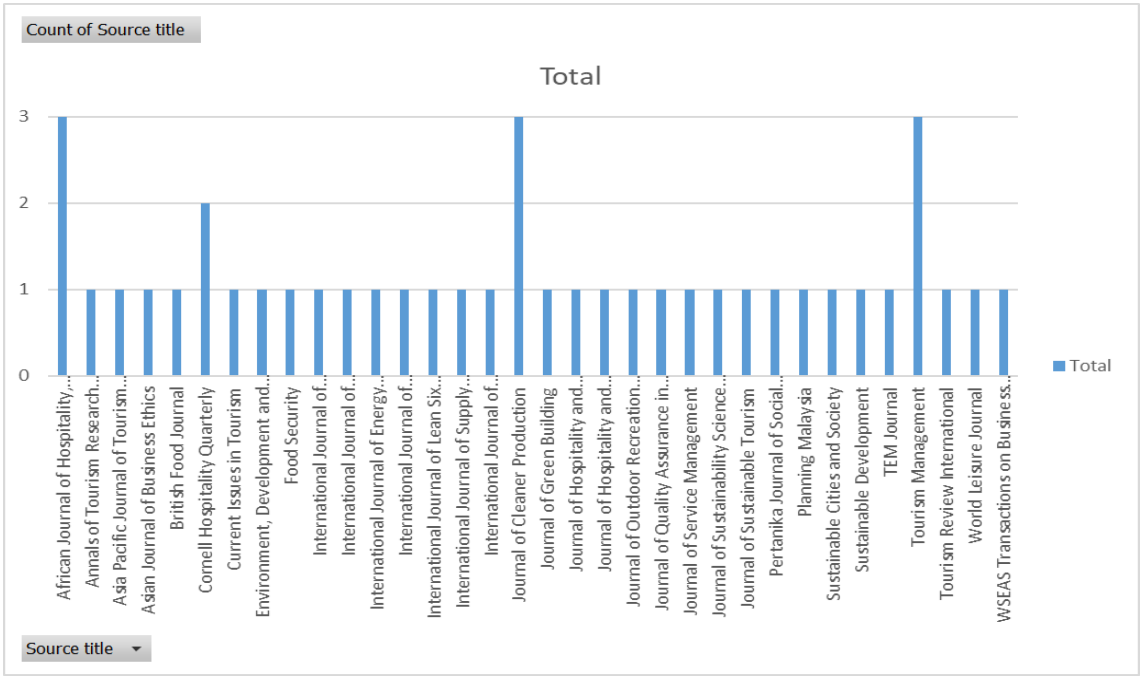


Figure 3: Publications in journals of the selected studies

The chart presents the distribution of articles reviewed based on their country of origin. This analysis highlights the contributions of various countries to the sustainability research in the hospitality sector.

The United Arab Emirates (UAE) leads with five publications, reflecting its investments in sustainable tourism. The U.S., Spain, and Kenya each contributed four articles, influenced by Spain's tourism industry and Kenya's eco-tourism focus. Collaborative research across multiple countries indicates a trend toward international partnerships in addressing sustainability. Overall, these findings highlight a growing emphasis on sustainability in the tourism sector.

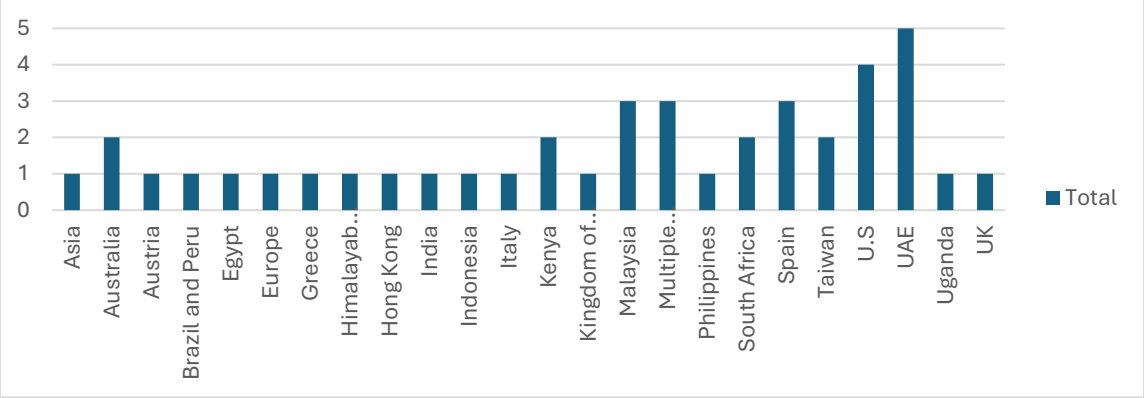


Figure 4: Countries with the most publications

A qualitative analysis was conducted to systematically explore and identify major trends and research gaps within the existing literature. This analysis revealed several key areas where research is lacking, particularly in the context of emerging topics.

In this study, research articles were categorized into three focus areas to better understand their contributions to sustainability in the hospitality sector and hotel supply chain management.

Synthesizing across the 41 studies reveals that the evolution of sustainability research in hotels has been driven by shifting stakeholder pressures from regulatory compliance to voluntary environmental management. However, the literature still portrays fragmented engagement among key actors, with limited integration between hotels and their suppliers in addressing indirect emissions.

Measurement: This category includes studies that quantify environmental impacts, such as greenhouse gas (GHG) emissions and energy consumption (Huang *et al.*,2015; Filimonau *et al.*,2021). It's about establishing metrics and using them to understand the scale and sources of environmental issues. These studies measure energy consumption (Maleviti *et al.*,2012), water usage (Alonso,2008) and waste generation (Chalak *et al.*,2018; Filimonau and De Coteau,2019; Diaz-Farina *et al.*,2023; Chawla *et al.*,2024).

Due to comprehensively identify the gaps in MMRE in hotels, it is necessary to thoroughly understand the aspects of measuring and monitoring emissions. The calculation methodology of the GHG Protocol involves adding up the life-cycle emissions of all a company's products, as obtained by combining scopes (scope 1, scope 2, and scope 3). These "scopes" help to distinguish between direct and indirect emission sources, increase transparency, and provide utility for various organizational types.

Scope 1 is covered direct GHG emissions are from sources that the company owns or controls. Scope 2 accounts for the greenhouse gas emissions produced when the company generates the electricity it purchases and uses (Green House Gas Protocol,2010).

All other indirect emissions may be treated under Scope 3, Despite coming from sources that are not under the company's ownership or control. Scope 3 actions include things like using producing resources that were purchased, transporting fuel that was purchased, and so on (Green House Gas Protocol,2010). While scope 3 emissions from hotel's supply chain are an important consideration for management of climate impacts, measurement of these emissions is particularly complex.

Table 1: Types of Emissions and Their Classification in Hotels

Emissions type	Definition	Scope	Source	Degree of measuring difficulty	Example
Direct emissions	Emissions from operations that are owned or controlled by the reporting company	1	Combustion of primary fuels onsite	Low	the natural gas consumed, fuels combustion
		1	Fugitive emissions from refrigerant leakages	Medium	Purchase of ongoing consumables

Emissions type	Definition	Scope	Source	Degree of measuring difficulty	Example
		1	Transportation of guests arranged by the hotel within the destination	Medium	hotels may organize charter planes, private jets, boats, helicopters, or other means required to transport the guest
Indirect emissions	Emissions from the generation of purchased or acquired electricity, steam, heating, or cooling consumed by the reporting company	2	Purchased heating and cooling	Low	Use of purchased electricity, steam, heating, or cooling
	All indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions	3	Upstream emissions from ongoing consumable F&B (food and beverage) and OS&E (Operating Supplies & Equipment)	High	The purchase of ongoing consumables can number in the hundreds or thousands.
		3	Emissions from outsourced laundry wash	Medium	outsource laundry wash to offsite facilities not owned or operated by the same entity
		3	Emissions from downstream waste disposal	High	quantity of waste disposed, disposal method, and waste composition due to upstream purchases
		3	Embodied carbon emissions of the building, land use change, and upstream FF&E (Furniture, fixtures & equipment)	High	
		3	Employee commuting	Medium	employee commuting of hotel property staff
		3	T&D (Transition & Distribution Losses) losses from purchased electricity	Low	
		3	Business travel	Low	Company employee's business travel

Source: adapted and modified from (protocol,2011; view,2023)

This table provides a comprehensive overview of the activities in hotels that contribute to GHG emissions. By knowing the activities, measuring and monitoring resource efficiency and emissions would be more accessible and it helps to identify practices to impact green supply chain practices.

A significant focus of measurement-oriented studies is on Scope 1 and 2 emissions, which encompass direct emissions and indirect emissions from purchased electricity (Huang *et al.*,2015; Lai,2015; Migdadi,2023) which often the predominant contributors to a hotel's carbon footprint (Huang *et al.*,2015; Lai,2015). However, there is a marked gap in the literature regarding Scope 3 emissions, which represent all other indirect emissions occurring throughout the supply chain. These emissions include those from supplier activities, food and beverage, staff commuting, and embodied emissions in goods and services (Migdadi,2023). While some studies briefly address waste and materials, a systematic analysis of Scope 3 emissions including both indirect and embodied impacts remains largely unexplored (Filimonau *et al.*,2021; Migdadi,2023). This oversight underscores the need for further research in this critical area. There is a pressing need for standardized methodologies to accurately measure Scope 3 emissions in the hotel sector. Future research should examine the entire life cycle

of hotel operations and the impact of green practices across supply chain. The fragmentation in emission measurement across Scopes 1–3 reflects weak institutional coordination among stakeholders, supporting Stakeholder Theory's premise that sustainability outcomes depend on shared standards and mutual accountability across interconnected actors.

Practices and Strategies: This group encompasses studies that explore practices and specific sustainability initiatives and management approaches like implementation of Environmental Management Systems (EMS) and environmental certifications (Al-Aomar and Hussain,2018; John Nyide,2019). In addressing the second question, practices can be effectively categorized into several key areas: energy efficiency measures (Omune *et al.*,2021), water conservation practices (Barakagira and Paapa,2024), waste management strategies (Ahn and Pearce,2013), green purchasing policies (Migdadi,2023), sustainable site development (Hastuti and Assriyani,2020) and adopting green technologies (Al-Aomar and Hussain,2017). adoption of lean and green practices (Al-Aomar and Hussain,2018; Hussain *et al.*,2019; John Nyide,2019), employee training and engagement in environmental management (Barakagira and Paapa,2024), customer involvement in green initiatives (Ahn and Pearce,2013), use of and development of environmental policies and programs (Omune *et al.*,2021) and exploring green supply chain management (Al-Aomar and Hussain,2017; Migdadi,2023). The dominance of managerial and internal initiatives over collaborative efforts indicates that environmental progress in hotels remains constrained by limited stakeholder engagement, reinforcing Stakeholder Theory's assertion that enduring sustainability requires alignment between internal managerial actions and external stakeholder expectations.

Impact Assessment: Here, studies evaluate the effects of environmental management practices on hotel performance and overall sustainability (Hussain *et al.*,2019; Migdadi,2023). This category focuses on evaluating hotel performance, measuring environmental impact, and assessing overall sustainability.

To answer the third question regarding the barriers to adopting green practices and strategies for reducing emissions in hotels and their supply chains, the following challenges are identified: 1. High implementation and maintenance costs (Aripin *et al.*,2018), 2. Lack of knowledge and awareness (Omune *et al.*,2021), 3. Cultural challenges (Al-Aomar and Hussain,2017; Al-Aomar and Hussain,2018), 4. Lack of government support (Odeku,2018; John Nyide,2019), 5. Lack of cooperation from suppliers (Al-Aomar and Hussain,2017), 6. Technological issues (Odeku,2018; Omune *et al.*,2021), and 7. Infrastructure issues (Osiako and Reddy,2020) . These barriers highlight the urgent need for effective frameworks and methodologies to facilitate the transition toward greener practices. The absence of cohesive partnerships between hotels, suppliers, and policymakers' underscores Stakeholder Theory's insight that environmental innovation emerges from interdependent relationships where stakeholder trust, communication, and shared incentives determine the success of emission reduction strategies.

On the other hand, while there are studies evaluating the green practices within hotel supply chains and lean techniques (Al-Aomar and Hussain,2017; Al-Aomar and Hussain,2018; Al-Aomar and Hussain,2019; Migdadi,2023), a comprehensive theoretical and analytical framework for assessing these green practices across the entire hotel supply chain is still lacking. Addressing this gap is essential for developing actionable strategies that can effectively mitigate the identified barriers and promote sustainability in the industry.

4. Discussion

Building on the synthesized findings and informed by Stakeholder Theory, this study proposes a conceptual framework illustrating how hotel sustainability outcomes are shaped by multi-stakeholder interactions across operational and supply chain boundaries. The model links key stakeholder pressures (regulatory, market, internal) to the adoption of emission management practices (energy, waste, procurement) and their resulting environmental outcomes across Scopes 1-3.

In the proposed model, stakeholder influence is categorized into three domains:

1. Coercive pressures (regulators, certification agencies) (Gunarathne and Lee,2019).
2. Normative pressures (customers, investors, associations) (Durand *et al.*,2019).
3. Voluntary pressures (internal leadership, sustainability advocates)(Rivera,2004; Hyatt and Berente,2017) .

These forces drive hotels to adopt both operational practices (energy and waste reduction) (Ahn and Pearce,2013; Omune *et al.*,2021; Barakagira and Paapa,2024) and supply chain practices (green procurement, collaboration, circularity) (Al-Aomar and Hussain,2017; Al-Aomar and Hussain,2018; Al-Aomar and

Hussain,2019; Migdadi,2023) . The alignment between these practices determines the extent of emission reduction across Scopes 1–3, reinforcing the central tenet of Stakeholder Theory that sustainability performance emerges from interdependent relationships rather than isolated actions. Building on these findings, this study develops a conceptual framework (Figure 2) illustrating the interactions between hotel operational practices, supply chain collaboration, and stakeholder pressures in determining green performance outcomes. The framework integrates insights from the GHG Protocol and Stakeholder Theory, positioning hotels as intermediaries that mediate between regulatory, normative, and voluntary stakeholder forces across the value chain.

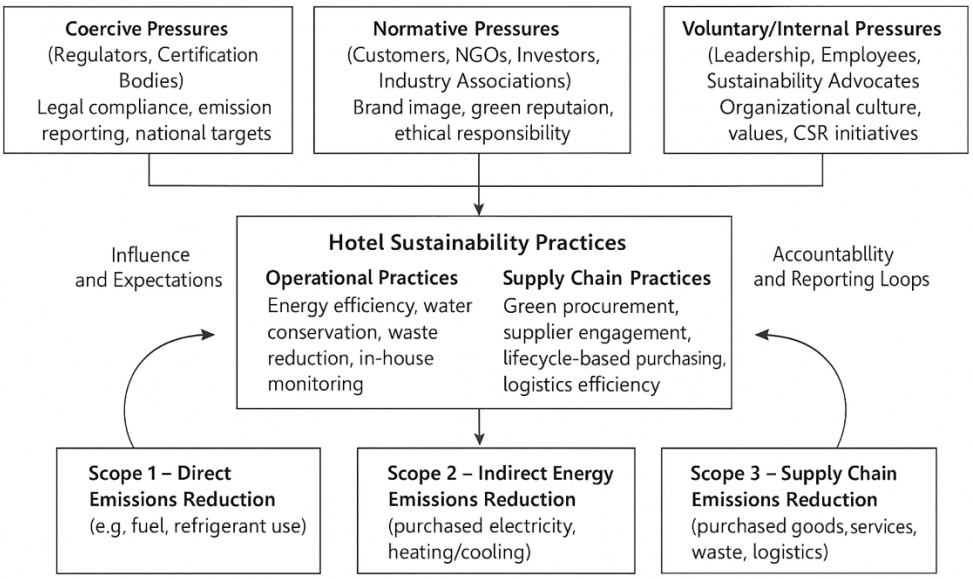


Figure 5: Conceptual Framework: Stakeholder Influence and Emission Management Across Hotel Operations and Supply Chains.

5. Conclusion

This systematic review underscores the theoretical and methodological fragmentation that continues to constrain emission measurement in the hotel sector. Current studies primarily focus on operational impacts (Scope 1 and 2), neglecting critical environmental effects within the supply chain (Scope 3). To achieve green hotel, the hotel sector must adopt a more comprehensive approach that encompasses the entire value chain and all emission types. Additionally, there is a gap in understanding how hotels can effectively collaborate with suppliers to implement green practices. There needs to be more research on how to develop green procurement strategies and ensure that suppliers meet environmental standards.

Looking ahead, five research priorities emerge to advance sustainability understanding and practice in the hotel sector. First, there is an urgent need to standardize Scope 3 emission accounting frameworks tailored for hotels, enabling consistent measurement of indirect supply chain impacts. Second, future studies should explore how supplier sustainability metrics can be systematically integrated into hotel performance management systems, aligning procurement and environmental goals. Third, cross-country comparative analyses are required to examine how varying regulatory contexts, such as the EU CSRD and other disclosure regimes, influence environmental reporting and accountability. Fourth, researchers should investigate the adoption and effectiveness of digital tools and real-time emission monitoring technologies, assessing their role in improving accuracy, transparency, and decision-making. Finally, empirical studies should test the causal relationships between supply chain collaboration and emission reductions, offering evidence-based strategies for hotels to achieve net-zero ambitions. Together, these directions establish a forward-looking research agenda that connects theory, policy, and managerial practice in pursuit of a low-carbon hospitality industry. By linking the GHG Protocol with Stakeholder Theory, this study offers a conceptual foundation for future empirical and comparative work on multi-scope emission governance in hospitality.

Acknowledgments

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Ethics Declaration

This research did not involve human participants, animals, or primary data collection. The study is based entirely on secondary data obtained from publicly available academic sources. Therefore, formal ethical approval was not required.

AI Declaration

AI tools were employed only for surface-level linguistic improvements (grammar, syntax, clarity). Substantive academic content, interpretation, and argumentation were developed independently by the author.

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Street Art and Sustainable Tourism: A Case Study of Bogotá, Colombia

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Abstract: Street art presents an alternative to traditional tourist attractions, contributing to urban regeneration and economic diversification in marginalized areas. However, as with any form of tourism, without proper planning, it can negatively affect the quality of life of local communities. Bogotá, the capital of Colombia, is currently recognized as one of the leading street art destinations in Latin America, attracting significant interest from international visitors. This study explores the sustainability of street art tourism in Bogotá's historic center, based on the perspectives of key tourism stakeholders, addressing a gap in academic literature on this emerging cultural tourism practice. Fieldwork was conducted using a mixed-methods approach that combined qualitative and quantitative techniques. In-depth interviews were held with members of the local community, street artists, tourism entrepreneurs, and representatives from the local public administration of culture and tourism. Additionally, the study included tourist surveys, participant observation during street art tours, and mapping exercises. Findings indicate that visitors perceive Bogotá's street art as an authentic and distinctive experience that deepens their understanding of local culture, values, and history. Interviewees from the host community generally express a positive view of street art tourism, as it is associated with supporting local businesses and enhancing perceptions of safety in the area. Notably, the street art tours that appear to deliver the most significant socioeconomic benefits to residents are those organized through community-based tourism initiatives, supported by public institutions. The study results suggest that street art tourism in Bogotá might have significant potential to enhance the city's image, attract cultural visitors, and diversify traditional tourist offerings through authentic experiences. Coordinated efforts by public administrations could help realize this potential, including promoting street art, expanding tours beyond the historic center, and improving infrastructure and mobility to support tourism in new urban areas. Furthermore, the sustainability of street art tourism depends on collaboration among public institutions, private tourism actors, local communities, and street artists, which might help mitigate potential negative impacts on the local community.

Keywords: Street Art Tourism, Alternative Tourism, Creative Tourism, Community-based Tourism, Sustainable Tourism

1. Introduction and Framework

Tourism has the potential to promote economic, social, and cultural development within host communities. However, without adequate planning, it may adversely affect residents' quality of life and cause harm to cultural heritage and biodiversity (WTO, 2018). To mitigate these risks, tourism development must be strategically planned and implemented in a sustainable manner. The World Tourism Organization (WTO) defines sustainable tourism as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities" (WTO, 2018).

Increasing awareness of sustainability's significance for the planet's future, coupled with globalization and mass tourism, has prompted many tourists to seek more engaging and meaningful activities that preserve ecosystems while supporting local culture and economies (Richards, 2018). Within this context, street art emerges as an attractive alternative for travelers pursuing distinctive experiences and opportunities to connect with the culture and everyday life of host communities, beyond conventional and overcrowded tourist attractions (Klein, 2018).

1.1 Street Art Tourism

Street art is a subcategory of public art that encompasses contemporary graffiti and non-commercial murals. It is recognized as an artistic form that can contribute to reshaping the image of cities by beautifying public spaces and fostering community integration. In various locations around the world, open-air galleries have been established where murals can be viewed without restrictions on opening hours or entrance fees (Klein, 2018).

Street art has gained popularity as a form of alternative tourism through which mature destinations might offer novel experiences and help alleviate congestion in traditional tourist areas (Best, 2012). Similarly, smaller cities lacking significant material heritage resources have embraced street art as a cultural and artistic offering that enables them to attract tourists and diversify their economies (Insch and Walters, 2017). Street art itself can also serve as a major tourist attraction, particularly appealing to travelers who are art enthusiasts and those seeking distinctive urban experiences (Best, 2012). The growing interest in choosing destinations and tourist sites for their street art has led to the recognition of "mural tourism" as a niche within cultural tourism (Skinner and Jolliffe, 2017).

The increasing popularity of street art has created an opportunity to attract tourists interested in participating in tours focused on street art and murals in urban settings. During these tours, guides assist in interpreting the artworks, bringing tourists closer to the experiences, realities, and social and political issues of local communities. Moreover, these tours allow visitors to explore works located in marginalized neighborhoods in a controlled and safe manner (Klein, 2018).

1.2 Street Art Tourism in Bogotá

In Bogotá, Colombia, the uncontrolled growth of graffiti and street art led the local government to regulate the "responsible practice of graffiti" in 2013. The regulation specifies prohibited locations for painting and establishes penalties for violations. It also introduces educational strategies and initiatives to promote street art and create spaces for participation and dialogue between local authorities and urban artists (IDARTES, 2023).

For the past fifteen years, street art has also been employed by Bogotá's local government as a tool for urban regeneration, social integration, and economic development in marginalized areas. This approach has not only created opportunities for urban artists but has also influenced public acceptance of their work. Today, street art in Bogotá has achieved international recognition, and many foreign tourists participate in street art tours (IDARTES, 2023).

1.2.1 La Candelaria Neighborhood and the Historic Center

Although significant street art interventions can be found across all districts of Bogotá, tourism centered on these works is particularly concentrated in the La Candelaria neighborhood, located in the historic center. Many graffiti writers and artists favor this sector because of the great visibility their projects can achieve, since the historic center is visited daily by a diverse range of people, including residents from all areas of the city and tourists.

In addition to street art tours, historical walking tours in La Candelaria include several murals and street art expressions along their routes. Because the murals in this area are characterized by themes related to the indigenous mythology, the region's fauna and flora, and the traditional music and gastronomy, the guides of historical tours use the interventions to explain the local history and culture.

2. Methods

This research aims to explore the perspectives of the various stakeholders on street art tourism in Bogotá and to assess whether this activity is being developed sustainably. Fieldwork was carried out between November of 2024 and March of 2025, using a mixed-methods approach that combined qualitative and quantitative techniques.

In-depth interviews: Key leaders and representatives of the local community, street artists, tourism entrepreneurs, and senior officials of the local public administration of culture and tourism were identified and invited to participate in the study, resulting in fifteen in-depth interviews. Additionally, twelve short informal interviews were conducted with residents of La Candelaria to gather their opinions on street art and its associated tourism in the area. These informal interviews were conducted with vendors and customers at the local public market.

Table 1: Description of participants in in-depth interviews

Participants in In-Depth Interviews		
Sector	**Organization**	**Job title/Role**
Local Government	Bogotá Secretariat of Culture, Recreation and Sports (SCRD)	Senior officials responsible for street art related initiatives
	Bogotá Institute of the Arts (IDARTES)	
	Bogotá Institute of Tourism (IDT)	
	Bogotá Observatory of Tourism	
	La Candelaria Local Mayor's Office	
Local Community	La Candelaria public market vendors (La Concordia)	Public market vendors' leader

Participants in In-Depth Interviews		
Sector	**Organization**	**Job title/Role**
	Traditional Artisans of La Candelaria	Traditional Artisans' leader
Tourism companies	Capital Graffiti Tours	Co-founders, tour guides
	Breaking Borders	Co-founder, tour guide
Street artists	Local Graffiti Roundtable of La Candelaria	Official leader
	Local street artists	Including male and female artists, new and experienced

Participant observation in walking tours: the study also included systematic participant observation during ten street art tours and five historic walking tours in La Candelaria's neighborhood. Participation in these tours made it possible to identify logistical aspects of the routes and observe the behaviors of tourists, guides, and members of the local community.

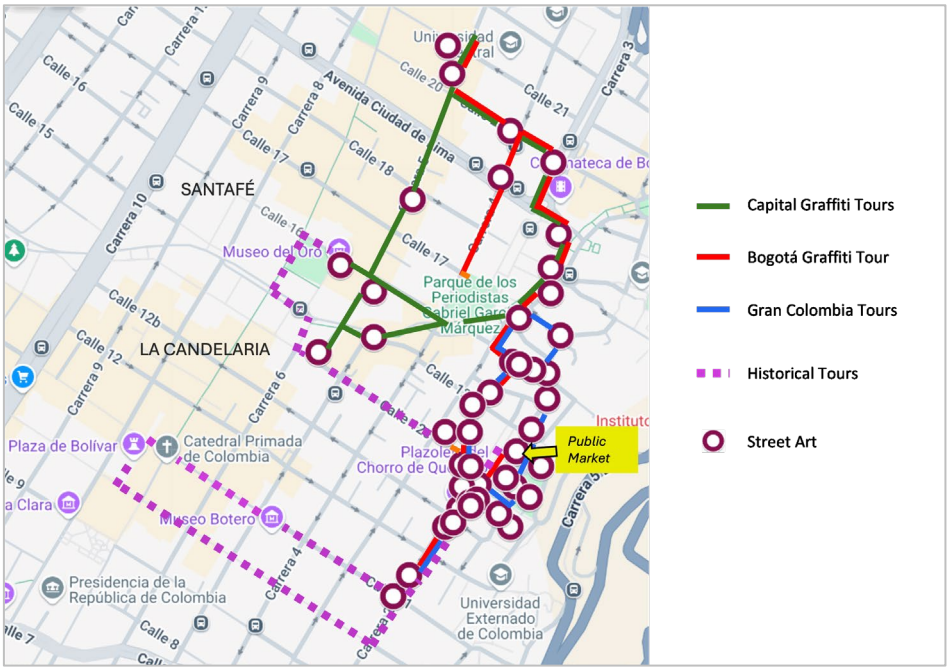


Figure 1: Street art tours and historical tours routes in Bogotá's historic center. Author's own creation on Google Maps

In-person surveys with tourists: Ninety-six in-person surveys were completed with participants in street art tours and historical tours using two different questionnaires. Participant observation during the tours helped establish trust with tourists, thereby facilitating the administration of a survey at the conclusion of each guided visit. Two distinct self-administered questionnaires were employed for participants in each type of tour.

It is important to note that the sampling process for the tourist surveys may involve a potential bias, as it focuses on tourists participating in street art and historical tours, excluding self-guided tourists or those engaged in other types of tours or activities.

Table 2: Tourist surveys' main questions and scales

Survey	Section	Questions/Scales
Participants in street art tours	Motivations for participating in the tour.	Multiple-choice question
	Level of satisfaction with the tour (including logistical aspects) and the tour guide's performance.	5-point Likert scale (5 = Very Satisfied) for 16 unique statements
	Perceived benefits of the tour for tourists and the local community.	5-point Likert scale (5 = Strongly Agree) for 8 unique statements

Survey	Section	Questions/Scales
	Perception of environmental conditions of the tour (including noise, air pollution and overcrowding).	3-point Likert scale (5 = Strongly Agree) for 5 unique statements
Participants in historical tours	Tourist attractions that motivated the visit to Bogotá	Multiple-choice question
	Satisfaction with La Candelaria's main tourist attractions, including street art.	5-point Likert scale (5 = Very Satisfied) for 6 tourist attractions
	Perception of street art potential to improve Bogotá's image as a destination	5-point Likert scale (5 = Strongly Agree) for 5 unique statements

3. Results

3.1 Participants in Street Art Tours

The tourist survey sample included 38 participants in street art tours. Most respondents rated the street art tour they attended and its logistical aspects positively, using a 5-point Likert scale (figure 2).

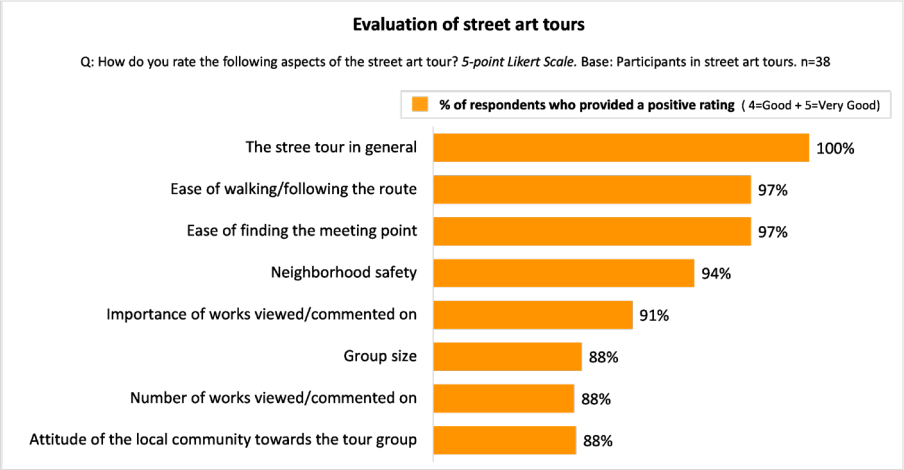


Figure 2: Evaluation of street art tours in Bogotá.

Respondents also perceived that street art tours benefit both participants and the local community. Using a 5-point Likert scale (5 = Strongly Agree), 97% of respondents agreed or strongly agreed that street art tours contribute positively to the local community. Similarly, more than 90% of respondents stated that these tours offer an authentic experience and unique perspectives on local culture, as well as opportunities to learn about local history. Additionally, 76% of respondents indicated that the street art tour helped improve their perception of Bogotá (figure 3).

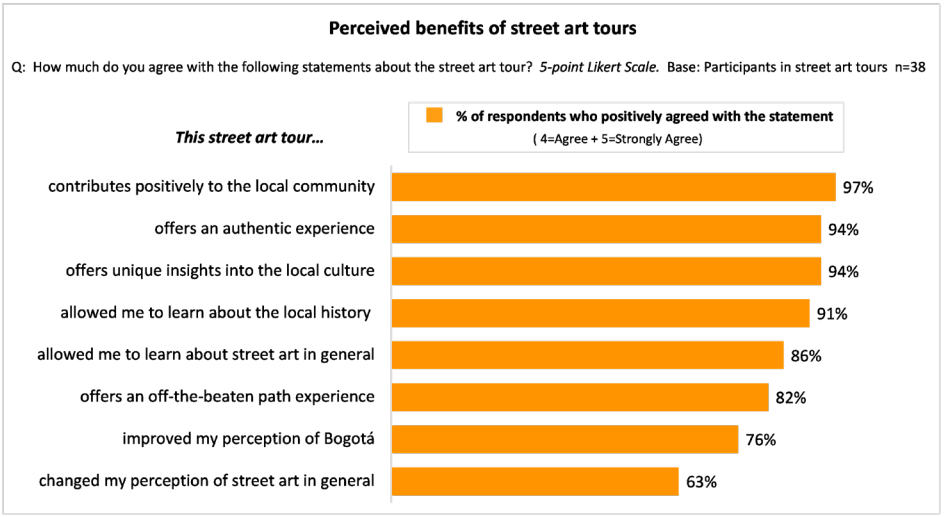


Figure 3: Perceived benefits of street art tours in Bogotá.

3.2 Participants in Historical Tours

The tourist survey included a sample of 58 participants in historical tours. Respondents were asked to rate their satisfaction with Bogotá's street art and five main attractions in the historic center using a 5-point Likert scale (5 = Very Satisfied). Results indicate that 91% of respondents were satisfied or very satisfied with street art, a level comparable to the satisfaction reported for some of the city's principal and traditional attractions (figure 4).

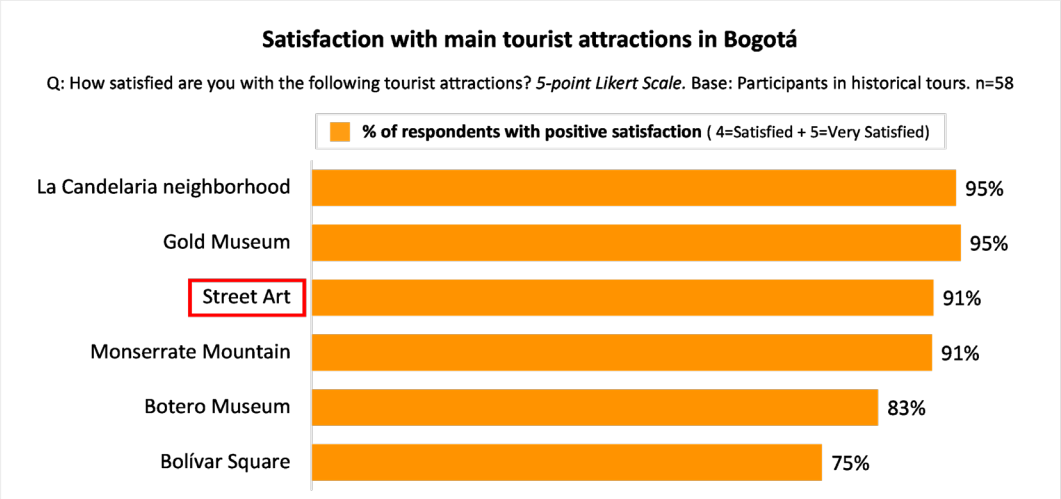


Figure 4: Satisfaction with main tourist attractions in Bogotá.

Regarding other benefits of street art, respondents were asked to indicate their level of agreement with five statements using a 5-point Likert scale (5 = Strongly Agree). A total of 86% of respondents indicated that Bogotá's street art helped them understand local history and culture, and 81% agreed that it improved their image of Bogotá. Moreover, over half of the respondents (54%) believed that street art enhances the quality of life of the host community and distinguishes Bogotá from other tourist destinations. Additionally, 51% perceived street art as one of the city's best tourist attractions (figure 5).

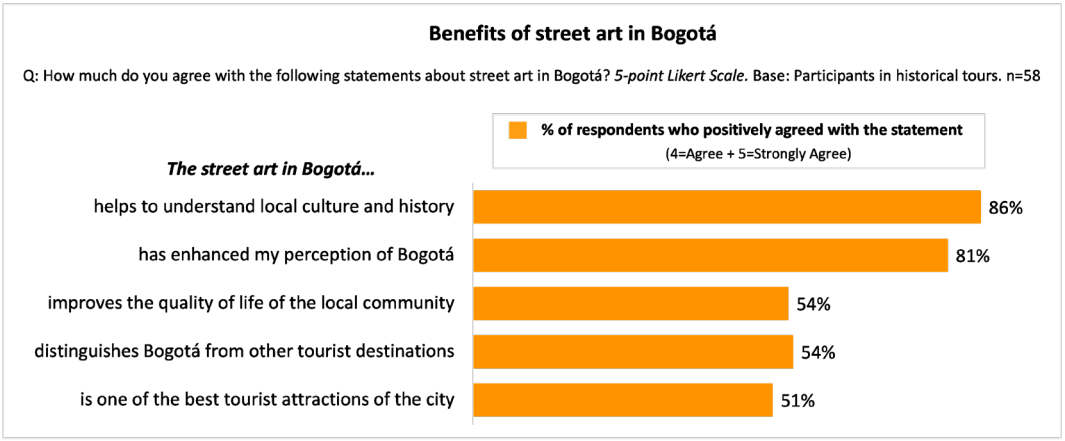


Figure 5: Perceived benefits of street art in Bogotá.

3.3 Street Art Tours Companies

According to the interviews with the founders and tour guides of street art tours companies, the main challenges for street art tourism initiatives are the lack of entrepreneurial training among operators, the country's low level of bilingualism, the limited institutional promotion of street art as a tourist attraction, and the rigidity of regulations requiring formal certifications to work as a guide, which excludes many artists. One interviewee expressed: *"If Bogotá is known as a graffiti city, why not give artists the opportunity to be the guides, instead of people who have nothing to do with culture."*

Some participants noted that the perception of insecurity in areas outside the historic center limits the possibility of conducting tours in other parts of the city. One interviewee stated: *"Tourists generally stay in La Candelaria and in the areas they have been told are safe for them, and they do not venture into other neighborhoods."* Additionally, participants indicated that another challenge for street art tourism is the variability in public administration's attitude toward graffiti, which depends on the mayor in office and can negatively affect companies offering such tours.

Apart from the street art tours in La Candelaria, there are community tourism projects based on street art, such as Breaking Borders in the Egipto neighborhood (adjacent to the historic center) and Bogotá Colors Tours (in the district of Ciudad Bolívar), which provide direct benefits to the local community—for example, by employing young people and former gang members as tour guides. The cofounder of Breaking Borders explained that the tours they offer have improved safety in the area, promoted the development of other local economic enterprises, and helped change the social dynamics of the community while reducing the stigma associated with marginalized areas of the city: "*We are pioneers in Bogotá in developing community tourism in the toughest neighborhoods, because our neighborhood used to be considered a dangerous area, marked by violence and crime. Now, we have been bringing foreigners here for nine years; it is something very beautiful."*

3.4 The Local Community

According to members of the La Candelaria community interviewed, residents are accustomed to tourism and graffiti, which have long been present in the area. However, over the past decade, they have witnessed a shift from graffiti to a legal practice and the rise of tourism. Many community members believe that the murals have beautified the neighborhood and stimulated the growth of local businesses. One vendor from the public market stated: *"Street art helps all the businesses here in the market and La Candelaria grow. We have grown thanks to tourism and thanks to all the arts, because foreigners really like art."*

Some participants also consider that street art tourism has served as a tool for social transformation, enabling young people to move away from illegal activities and integrate into cultural and tourism projects. For others, the murals in La Candelaria reflect the identity, history, and traditional culture of the city and may have even influenced the type of tourism the area attracts—shifting from party-oriented tourism to a more cultural focus. *"That mural changed the use of space and tourism in this square. There has always been a lot of tourism in the neighborhood, but much of it used to focus on partying and excess. It was not common to see entire families and such large tourist groups before."*

Additionally, some community members noted that changes in the sector's aesthetics and the growth of tourism have improved security, emphasizing an increased police presence for visitor protection, which also benefits residents. Regarding the negative impacts of tourism, residents identified gentrification (the transformation of neighborhoods and displacement of original communities through the influx of wealthier residents) and touristification (the conversion of spaces to serve tourism, altering local life and economy) as threats but did not associate these phenomena directly with street art tourism. Overall, they believe that tourism in the sector brings more benefits than risks to the local community.

3.5 Street Artists

In 2011, the city government established Local Graffiti Roundtables in each district, creating spaces for dialogue between artists and authorities. These groups are self-managed and receive no direct government funding, though they can access public resources through grants and competitions. According to the leader of the Local Graffiti Roundtable of the Historic Center, these groups face challenges such as low participation among graffiti artists and diverse interests among their members. While some artists oppose using street art for advertising and commercial purposes, others view it as a legitimate way to earn financial compensation for their work.

Regarding tourism, the leader of the Local Roundtable stated that many artists criticize tour companies for profiting from street art without benefiting the artists and for guides providing visitors with incorrect or incomplete information about the works and their authors: *"Tours almost never contact the artists who created the interventions. They make up stories about the murals for tourists but do not take the artists into account."* However, most street artists prefer to focus on their art and have neither the interest nor the time to become certified and work as guides on these tours.

Nevertheless, most of the artists interviewed support community tourism in neighborhoods such as Egipto and Ciudad Bolívar, where street art has helped generate job opportunities and foster social inclusion. One artist

stated: *"I think it's great that tours are organized in these spaces because they also help change the perception foreigners have of these neighborhoods, which are often associated with insecurity and negative aspects. These kinds of tours transform that image and teach residents that there are other ways to earn a living."* Likewise, some artists believe that street art tourism should expand beyond La Candelaria and the historic center to decentralize tourism benefits and share the history and culture of less visible communities.

As for female participation in Bogotá's street art scene, although the number of women in the sector has increased in recent years, they remain a minority, reflecting a global trend. Female street artists interviewed cited local factors such as sexism and the greater risks—both real and perceived—that women face when painting in public spaces. Additionally, they mentioned that women often bear more family responsibilities, which limits their time available for painting. Even so, some female artists view these challenges as a source of empowerment and emphasize that many local women artists have achieved national and international recognition: *"These sexist dynamics put us in very difficult situations. But at the same time, I feel they empower us a lot too, like 'I can do this.' When I paint, people notice the energy and instead approach me with respect and admiration."*

3.6 Public Administration

Since 2012, the public administration of art and culture in Bogotá, represented by the Secretariat of Culture, Recreation and Sports (SCRD) and the District Institute of the Arts (IDARTES), has promoted the responsible practice of graffiti through regulations, artists incentives, access to approved walls for painting, and pedagogical strategies. According to a senior official of IDARTES interviewed for this study, these measures have facilitated the professionalization of street artists, encouraged the creation of elaborate murals, and contributed to positioning Bogotá as an international benchmark in this field.

The official explained that between 2016 and 2019, the Mayor's Office of Bogotá promoted street art as a tourist attraction by creating the large-format mural area known as "Distrito Grafitti," with significant participation from international artists. However, after the Covid-19 pandemic, priority shifted to supporting local artists and promoting street art interventions across all city districts, aiming to improve public spaces as a means of fostering social transformation within local communities. Large areas of street art interventions were also developed along road corridors visible to visitors. The interviewee further noted that the current public administration continues to strengthen the Open Museum of Bogotá, aiming to showcase the city's street art internationally through initiatives such as artist exchange agreements and the Virtual Museum of Street Art and Graffiti project: *"One of the specific objectives of the Open Museum of Bogotá is to make Bogotá a key destination on the Latin American tour that any tourist interested in learning about the continent's artistic practices should undertake."*

Regarding street art tourism, the representative from IDARTES stated that the institution acknowledges the tourist potential of these artistic expressions. Although it occasionally offers free guided tours as part of its cultural appropriation initiatives, it does not collaborate with private street art tour companies. The entity does not consider street art tourism a direct cause of gentrification; on the contrary, it has observed growing interest among communities in various neighborhoods to participate in the co-creation of murals with artists and in developing tours as a source of income.

The District Institute of Tourism (IDT) promotes tourism in Bogotá and supports specific community-based tourism projects that contribute to local development, including some involving street art interventions. A senior official from IDT interviewed for this study explained that the institution has recently presented street art initiatives at sector events, highlighting the work of street artists who have fostered economic development in their communities through murals: *"For the IDT, it is important to position tourism as a driver of development; therefore, community projects have been supported, such as the 'Casas de Colores' in Ciudad Bolívar and 'Calle del Color,' which have used art and tourism to boost the local economy and generate opportunities for social development."*

Additionally, the Local Mayor's Office of La Candelaria supports participatory processes with street artists through the Graffiti Roundtable. According to the official responsible for tourism development in La Candelaria, the local community values tourism—including street art—as a source of income and supports its growth: *"Community members welcome tourists because this is literally a tourist locality. Most businesses here depend on tourists and visitors from other areas of the city."*

4. Discussion

Based on the research findings, the following section presents an assessment of multiple dimensions of sustainable development in Bogotá's street art tourism and highlights key challenges and opportunities.

4.1 Economic Sustainability

According to the interviewees, street art tourism in La Candelaria and Bogotá's historic center has positively contributed to the development of local businesses and enterprises, such as restaurants and handicraft sales. In addition, it has generated employment, particularly in community-based tourism, where residents themselves become guides and hosts.

Participants in street art tours in Bogotá report high levels of satisfaction, which is a key factor in the economic sustainability of this tourist activity. Likewise, survey results indicate that street art helps improve the city's image as a tourist destination, differentiating it from other Latin American cities, and has the potential to contribute to the growth of cultural and creative tourism.

Nevertheless, the findings suggest that the economic sustainability of street art tourism in Bogotá faces several potential challenges. One of the most significant is that street artists—who create the core resource for street art tours—do not receive direct economic benefits from this activity. Structural barriers may also limit street artists from working as tour guides, such as strict regulations for guide certification and low levels of bilingualism, particularly English proficiency. Furthermore, the continuity of street art tourism largely depends on the institutional stance toward these artistic expressions, which may vary according to the public administration in power, introducing uncertainty regarding the viability of tourism projects based on street art.

4.2 Social Sustainability

The social component appears to be one of the strongest pillars of street art tourism. According to interviewees from the local public administration, the co-creation methodology between artists and the local community has fostered greater appropriation of street art, strengthening the sense of identity, pride, and community cohesion. Additionally, the members of the local community interviewed perceive that street art and its associated tourism have contributed to improving security in their neighborhoods.

The findings suggest that community-based tourism provides the greatest social benefits to the local community, serving as a tool for inclusion, particularly for young people in vulnerable situations. By engaging in artistic and tourism projects, these young people may find alternatives for personal and professional development, distancing themselves from contexts of illegality. Likewise, street art tourism can help change the negative perception of traditionally stigmatized areas, transforming them into safer spaces associated with creativity and self-improvement.

4.3 Cultural Sustainability

The study indicates that street art tourism in Bogotá fosters cultural sustainability, as murals not only enhance the urban landscape but also help preserve and disseminate local history, identity, and culture, serving as a vehicle for collective expression and the construction of historical memory. Survey participants, including those who joined street art tours and historical tours, reported that street art in La Candelaria facilitated their understanding of local history and culture. Furthermore, when international tourists share photographs of Bogotá's murals on social media, they may contribute to expanding the global audience for local artists.

4.4 Environmental Sustainability

Street art tourism in Bogotá offers potential environmental advantages. As it is mainly conducted on foot or by bicycle, it produces limited carbon emissions, aligning with the principles of sustainable mobility. Moreover, this type of tourism may encourage the cleanliness and conservation of public spaces by fostering community appropriation of these areas. Consequently, the environmental impact of street art tourism in Bogotá could be comparable to that of traditional cultural tourism in the city's historic center. It does not require large-scale infrastructure or generate significant waste, making it an environmentally friendly option.

4.5 Territory Management and Governance

For the past fifteen years, Bogotá's local government has implemented public policies promoting "the responsible practice of graffiti and street art" through regulations, incentives, and pedagogical strategies. It has also introduced participatory governance mechanisms, such as "graffiti roundtables," which provide artists with a platform to engage with public institutions. Local communities have participated in designing artistic interventions through co-creation laboratories.

Additionally, the public administration supports community-based tourism projects aimed at local development, contributing to the decentralization of tourism beyond the traditional neighborhood of La Candelaria. However, street art is not yet officially recognized as one of the city's main tourist attractions, which may limit its development potential and result in the underutilization of a significant tourism resource.

Although not exclusively linked to street art tourism but to tourism in general, Bogotá faces potential risks of gentrification and touristification, particularly in La Candelaria. Effective planning and regulation at both district and local levels are essential to prevent tourism growth from displacing original residents and altering neighborhood social dynamics, which could compromise the authenticity and sustainability of the city's tourism sector.

5. Conclusion

Research findings indicate that street art tourism in Bogotá contributes positively to the well-being of host communities. Furthermore, the results suggest that street art possesses significant tourism potential beyond specialized tours and visitors with a strong interest in the subject. It can enhance the city's image, differentiate it from other destinations, and attract cultural tourists more broadly. It also provides an opportunity to diversify traditional tourist products through an activity perceived as authentic and distinctive, enabling visitors to engage with local history and culture from a unique perspective. To capitalize on this potential, public administrations at both local and national levels could strengthen the promotion of street art in Bogotá and encourage the development of tours in areas beyond the historic center, many of which already feature notable interventions that remain underutilized for tourism purposes.

Furthermore, this study indicates that public administration plays a fundamental role in the sustainability of street art tourism by regulating and promoting tourism activities and developing infrastructure and mobility services that enable tourism development in new urban areas and help disperse visitor concentration. Additionally, the sustainability of street art tourism might be strengthened through coordinated collaboration among public administrations, the private tourism sector, local communities, and street artists. Such comprehensive cooperation is essential to mitigate potential negative impacts of tourism and foster inclusive development.

5.1 Limitations

This study has potential limitations. First, the small sample size of surveys and interviews restricts the generalizability of the findings to a broader population. Second, the sample was overrepresented by tourists participating in street art and historical tours, which may not accurately represent the experiences of tourists engaged in other types of activities. Finally, the geographic scope of the fieldwork was limited to Bogotá's historic center, hindering the extrapolation of results to other destinations.

Future studies may include larger and more diverse samples of tourists and tourism stakeholders. Additionally, expanding the geographic scope beyond Bogotá to include multiple destinations would enhance the generalizability of the findings and enable comparative analyses across different urban and cultural contexts.

Ethics Declaration

This research was conducted in accordance with the ethical principles established in the Code of Integrity in Research of the University of Barcelona, which follows the guidelines of the European Code of Conduct for Research Integrity. Informed consent was obtained from all participants, and the confidentiality of their data was guaranteed throughout the process.

AI Declaration

I used M365 Copilot to translate the paper's original text from Spanish to English. The generated output was then revised and edited by me. No content generated by AI tools has been presented as my own work.

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The Customer Perspectives of KwaZulu-Natal Tourism Brand Image and Brand Loyalty

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Abstract: Sub-Saharan Africa's tourism destinations have become increasingly similar, and competition among them has become quite intense. As such, destinations with strong brands may perform better and hold more value than those with unbranded offerings. This research aims to measure the tourists' perceptions of the brand image associated with KwaZulu-Natal attractions in South Africa, and to determine their level of loyalty. A questionnaire survey of 411 respondents revealed that the majority of travellers are attached to the KwaZulu-Natal destination and are more likely to return. As a result, KwaZulu-Natal tourist destination marketers should capitalise on the destination's brand features to further strengthen its status as a cultural and natural destination in South Africa and around the world. Further recommendations for enhancing this destination brand and its communication are presented in this paper.

Keywords: Tourists' Perceptions; Brand Image; Brand Loyalty; KwaZulu-Natal; South Africa

1. Introduction

Tourism destinations are growing more and more similar, particularly in sub-Saharan Africa. As a result, there is now intense rivalry. In order to keep visitors loyal, a destination's brand image has to be effectively managed. In sub-Saharan Africa, South Africa is a popular travel destination that takes pride in providing both domestic and foreign visitors with cultural and natural experiences. One of South Africa's provinces, KwaZulu-Natal, provides genuine natural and cultural experiences because of its rich culture and mostly beautiful natural surroundings. A successful brand, according to Ataniyazova, Friedman, and Kiran (2022), is a recognisable offering that is presented in a way that the customer or consumer considers as relevant, unique, and adding value in relation to fulfilling their needs. Visitors do not pay for services. Instead, they may be paying for tourism-related service brands (Giannopoulos, Piha, & Skourtis, 2021; Mhlongo & Ezeuduji, 2021). Destinations with strong brands are likely to perform better and retain more value than those with unbranded offerings. Therefore, it can be argued that consumers' perceptions of a tourist destination's brand image are likely to influence their decision to choose the destination in the future as well as their post-selection perception of the destination (Mhlongo & Ezeuduji, 2021; Ezeuduji, Deen, de Klerk & Mhlongo, 2024). Brand loyalty to a destination is considered to be an attitudinal construct. It can be argued that travellers' loyalty to a destination is influenced by their experiences there, which are influenced by a variety of factors (Yen, Quynh, Dinh, Mai, Duyen, Hong, & Duc, 2024; Mhlongo, 2020). As competition and the importance of loyal tourist's increase, destination loyalty has gained greater recognition in destination management and marketing research (Chen, Huang, Wang & Chen, 2020; Kusumah, 2024; Matyusupov, Bande & Castro-González, 2024; Mariutti & Giraldi, 2020).

The literature on destination brand loyalty is explored in the academe (Behboodi, Arabshahi & Danishwar, 2024; Sobaih, Gharbi, Brini & Aliane, 2025; Singh & Bashir, 2024). However, there is a dearth of literature on tourists' brand loyalty to sub-Saharan African regions, such as KwaZulu-Natal. This research aims to measure the tourists' perceptions of the brand image associated with KwaZulu-Natal attractions in South Africa, and to determine their level of loyalty. This study is significant since its findings will support Tourism KwaZulu-Natal's marketing efforts to continue to attract and retain valuable tourists and improve tourists' spending in the local economy. Destination managers will have a better understanding of how tourists perceive KwaZulu-Natal as a tourism destination before launching direct marketing campaigns to reinforce positive perceptions and improve offerings to counter negative feedback. This study will also add to the body of knowledge on destination promotional strategies in similar sub-Saharan African or international destinations. The impact of brand image and loyalty on the selection of a destination, product, or service has been extensively studied, but largely outside of Sub-Saharan Africa (Gli, Tweneboah-Koduah, Odoom, & Kodua, 2024; Matiza, 2022; Mohammed, Mahmoud, & Hinson, 2022). Tourism has a significant impact on the local economy in KwaZulu-Natal (KZN), one of South Africa's nine provinces. According to Statistics South Africa (2023), KZN contributes approximately 16.4% to South Africa's national Gross Domestic Product (GDP), surpassing the Western Cape's 15% but falling considerably short of Gauteng's 35% contribution. Many local communities in South Africa are implementing tourism development strategies as one of the main components of their local economic development initiatives, as tourism is widely recognised as a viable tool to boost local economies in sub-Saharan Africa (Ijatuyi, Yessoufou

& Patrick, 2025; Strydom, Mangope & Henama, 2019). In order to enhance marketing tactics and competitive advantage, the study attempts to determine the elements that draw tourists to KwaZulu-Natal and how they view the province's brand. It focuses on measuring how visitors perceive the destination's accessibility, physical ambience, affective meanings, symbolic representations, and brand loyalty. These perceptions were also contrasted with the profiles of tourists. The literature review of the key concepts associated with the field of research is given in the following section. In this study 'tourists', can also be referred to as 'customers', or 'travellers'.

2. Overview of Literature

2.1 Tourism Destination Brand Image

Brand image, according to Baùbuła (2024), represents how travellers perceive a specific brand, which involves all of the brand associations that customers have in their minds (Ghorbani & Westermann, 2025). A strong brand image sets one brand apart from competitors and is necessary for attracting tourists (Yavuz & Madran, 2024). KwaZulu-Natal (KZN) is internationally recognised for its vibrancy, cultural diversity, elegance, and natural beauty. It is regarded as entertaining, culturally rich, calming, and inspirational. The province's name, meaning "place of the Zulu people," symbolises its strong cultural identity, drawing tourists interested in Zulu customs and traditions, such as the Reed Dance ceremony held in Nongoma every August. Major events such as Durban July, Fact Durban Rocks, and the Pietermaritzburg Royal Show serve as important attractions, reducing seasonality and increasing tourist numbers (Connell, Page, & Meyer, 2015). Customer perceptions and attitudes of a destination influence purchase behaviour and brand support (Luo, Dey, Yalkin, Sivarajah, Punjaisri, Huang, & Yen, 2020; Mariutti & Giraldi, 2020).

A positive destination image promotes favourable attitudes and repeat visits (Suban, 2025). A key element of tourism marketing, destination brand image has been extensively researched (e.g., Mandagi, Pasuhuk & Kainde, 2024; Zhang, Mustafa & Lin, 2025; Li, Hyun & Kim, 2024; He, Yang, Wu & Zou, 2025). It acts as a pull element that differentiates one destination from another (Zolak, 2024; Liro, 2021). Travellers' perceptions have a significant effect on the variety of attractions KwaZulu-Natal has to offer, including national parks, museums, and beaches. Customers' experiences are shaped by their views of destination features, which have an impact on brand image (Güzel, Ünal & Şahin, 2024; Tahir, Adnan & Saeed, 2024). A destination's image is influenced by a variety of information sources (Kovalenko, Dias, Pereira & Simões, 2023) as well as past experiences or knowledge (Hamdy, Zhang & Eid, 2024). Overall, destination brand image is important in attracting visitors and influencing their behaviour, determined by factors such as physical atmosphere, accessibility, emotive meanings, and symbolic representations (Yuan & Vui, 2023). In this study, it is theorised that positive destination brand image will foster destination brand loyalty.

2.2 Tourist Destination Brand Loyalty

Customer loyalty, according to Leung, Chang, Cheung, and Shi (2022), is distinct from brand image, trust, commitment, and equity and results from post-consumption experiences. As defined by Sharma (2024), brand loyalty is characterised by commitment and recurrent purchasing behaviour together with favourable feedback about the brand. Travellers' opinions of a destination have a strong impact on whether or not they will return (De Los Reyes & Dael, 2023). Brand loyalty is essential in the tourism industry (Abouseada, Hassan, Saleh & Radwan, 2023; Suhan, Nayak, Nayak, Spulbar, Vidya Bai, Birau & Stanciu, 2022; Zhao, Cui & Guo, 2022). Positive brand perceptions boost loyalty, according to studies (Abbas, Islam, Hussain, Baqir & Muhammad, 2021; Dam & Dam, 2021; Budiman, 2021). As stated by Mohammed, Mahmoud, and Hinson (2022), brand loyalty is the dedication of consumers as demonstrated by their attitudes and repeated purchasing patterns. As noted by Suban (2025), destination brand influence tourists' attitudes, motivation, and contentment, which affects their intention to revisit. Singh and Bashir (2024) distinguish three types of destination loyalty: behavioural (future visit intentions), attitudinal (emotional attachment and recommendations), and composite (a combination of the two).

3. Methodology

A quantitative research method was employed to collect data for this study, which measures visitors' perceptions of KwaZulu-Natal destination brand image and loyalty. The survey was conducted using a structured questionnaire, with some questions obtained through the authors' personal knowledge of the destination and

the majority of the variables/questions drawn from the literature study. Researchers use questionnaires to collect quantified data from survey respondents, according to authors like Pregoner (2024), Simaremare and Siregar (2024), and Veal (2011). Travel is a common phenomenon. As a result, collecting and analysing quantitative data is suitable to aid in decision-making. Both domestic and foreign visitors were surveyed at the major tourist destinations in the KwaZulu-Natal Province, such as Richards Bay beaches, Richards Bay Airport, Hluhluwe Game Reserve, Durban Central Business District, King Shaka International Airport, Pietermaritzburg Airport, and uShaka Marine World For eight months (December 2017 to July 2018), spanning both peak and off-peak seasons, we used a purposive sampling method (non-probability sampling methodology) to select real travellers from the general population. As noted by Veal (2011), the absolute size of the research sample is more significant for non-probability sampling methods than the sample size with respect to the study population. This study accepts the limitation of non-probability sampling regarding non-generalisability of study findings. In the final analysis, 430 tourists were polled, although only 411 of the questionnaires were usable. To achieve the research purpose, we used IBM's SPSS Statistics, version 25 (IBM Corporation, 2017), for data analysis. Descriptive analyses, bivariate analyses (Mann-Whitney U test), and multivariate analyses (Reliability test using Cronbach's Alpha) were conducted on the data. Statistical tests were performed at a 95% confidence interval for the bivariate analysis, and Cronbach's alpha coefficient was used for the reliability test. To indicate the reliability or internal consistency of the questionnaire variables used to explain the study constructs (brand image and loyalty), a cut-off point of 0.7 was selected (see Abdulsalam, Tajudeen, Ogungbemi & Francis, 2024; Alsaleh, Alfallaj, Almousa, Alsubaie, Akkielah, Mesallam & Sumaily, 2024). The questionnaire's ordinal variables were displayed on a 5-point Likert scale. Variables used to measure brand image and the brand loyalty dimensions showed internal consistency based on the results of our reliability tests. Table 2 contains the variables used to explain the four aspects of brand image (see results and discussion section).

The population distributions of the ordinal dimensions are frequently found to be statistically non-normally distributed in social science research. Similarly, our Kolmogorov-Smirnov and Shapiro-Wilk tests of normality showed p-values less than 0.001. As a result, a Mann-Whitney U non-parametric test was performed to explore the relationships of the study variables with tourists' profiles. In order to determine if two independent groups are statistically different from one another, the Mann-Whitney U test is often used to compare the means of responses from those groups. As a result, the survey responses to the brand image and brand loyalty assertions were compared to the profiles of the respondents. Based on the following stated criteria, we performed Mann-Whitney U tests: (i) the dependent variables (in this case, brand image perception statements) do have an ordinal scale; (ii) the independent variables (in our case, the respondents' profile) have only two groups; and (iii) the homogeneity of variance and normality of distribution did not hold up in a previous or trial t-test (Veal, 2011).

4. Results and Discussion

Table 1 shows that more female respondents participated in the survey. Young respondents (under 40 years old) dominated the sample. Respondents are largely domestic tourists, and their primary reasons for travel are vacation, visiting friends and family, and business (e.g., seminar, event, conference). A considerable number of respondents did not spend more than ten days in KwaZulu-Natal. The good news for destination managers is that around 79% of respondents are returning, and there is a high degree of satisfaction (more than 77% are either mostly or totally satisfied). From these results, the destination KwaZulu-Natal is perceived as a favourable destination, and its product and service offerings were perceived favourably by the respondents.

Table 1: Respondents' profile (N = 411)

Variable	Category	Frequency (%)
Respondent's gender	Female	54.5
	Male	45.5
Respondent's age group	20 or less	11.7
	21-30	37.2
	31-40	23.4
	41-50	15.3
	51-60	8.8
	More than 60	3.6

Variable	Category	Frequency (%)
Respondent's continent of origin	Africa	70.1
	Outside Africa	29.9
Type of tourist	Domestic tourists	65.5
	International tourists	34.5
Did you travel as a group?	Yes	51.1
	No	48.9
Number of days in KwaZulu-Natal	1- 10	81.0
	11 days or longer	19.0
Reason to visit KwaZulu-Natal	Holiday	51.1
	Visiting friends and family	18.0
	Business (seminar, event, conference)	13.6
	Business (import and export)	
	Academic exchange	8.0
	Medical	4.4
	Other	2.9
		1.9
Repeat visit to KwaZulu Natal destination?	Yes	78.8
	No	21.2
Respondent's level of satisfaction	Totally satisfied with the destination	40.1
	Mostly satisfied with the destination	37.2
	Moderately satisfied with the	16.3
	destination	
	Mostly dissatisfied with the destination	4.9
	Totally dissatisfied with the	1.5
	destination	

The study's findings (reflecting on Tables 1, 2, and 3) are consistent with Mhlongo and Ezeuduji's (2021) findings that tourists' views toward a destination greatly impact their decision to return. Most respondents were repeat tourists, indicating an encouraging attitude and loyalty to KwaZulu-Natal as the destination of their choice. Yen, Quynh, Dinh, Mai, Duyen, Hong, and Duc (2024) define brand loyalty as frequent visits by tourists who have a good opinion about a destination brand. The study finds that satisfied tourists are more likely to return, stay loyal, and suggest the place to others (Baptista et al., 2024; Mhlongo and Ezeuduji, 2021). In this study, respondents rated their agreement with brand image assertions based on four dimensions: symbolic representations, emotive, physical atmosphere, and accessibility, which were then compared to their profiles. The results in Table 2 reveal that there are no significant connections between respondents' profiles and brand image: symbolic representation assertions. However, some intriguing findings were discovered regarding the affective dimension of brand image assessments. For example, those who have previously visited KwaZulu-Natal agree more than first-time visitors that it is a relaxing, beautiful, and thrilling destination. According to Manternach (2010), brand loyalty develops over time through a series of pleasant experiences that necessitate significant and persistent effort, as well as careful attention to detail. As a result, loyal tourists are typically repeat visitors to a destination who do not examine alternative options. This study conducted statistical comparisons of respondents' profiles and brand image: physical atmosphere statements. This produced more variable outcomes. Respondents who have visited previously agreed more than first-time tourists that KwaZulu-Natal is quiet and conservative.

Group travellers stated that the destination has high moral standards. Male respondents agreed more strongly than female respondents that the destination is overcrowded. It should be mentioned that KwaZulu-Natal beaches are overcrowded during peak seasons, which may contribute to a greater crime rate and a sense of unease among tourists while relaxing on the beach. Mhlongo and Ezeuduji (2021) suggest a robust police presence and proper policing in South Africa (zero tolerance for crime and quick response within the South

African Police Service). This has the potential to reduce crime in South Africa while also improving tourist perceptions of South African attractions. In terms of brand image: accessibility statements; male respondents and repeat tourists were more likely to agree that KwaZulu-Natal is developed for tourism. The findings of this study indicate that travellers have a very positive symbolic image of the KwaZulu-Natal brand as a tourism destination, particularly in terms of its unique nature and cultural attractions. They also claim that it is an exciting, relaxing, and interesting destination (see Table 2).

Table 2: Comparison between respondents' profile and tourists' brand image perceptions

Brand Image			
Brand Image*: Symbolic Representations'* Statements	**Mean Score[a]**	**Standard Deviation**	**Compared With Tourists' Profile[b]**
KwaZulu-Natal (KZN) local economy is doing well	2.24	.989	N.S
KZN is at peace with its neighbouring provinces and countries	2.11	.918	N.S
KZN is a peaceful province	1.93	.913	N.S
KZN is rich in cultural and natural attributes	1.81	.916	N.S
Reliability Statistics (Perceptions of brand image: symbolic representations), Cronbach's Alpha =.842, N of Items = 4, Valid cases = 406 (98.8%), Excluded cases = 5 (1.2%), Total = 411			
Brand Image: *Affective* Statements	**Mean Score[a]**	**Standard Deviation**	**Compared With Tourists' Profile[b]**
KZN is a relaxed destination	1.76	.841	*Repeat visitors agree more
KZN is a beautiful destination	1.75	.817	*Repeat visitors agree more
KZN is a pleasant destination	1.71	.858	N.S
KZN is an exciting destination	1.66	.843	*Repeat visitors agree more *Group travellers agree more
Reliability Statistics (Perceptions of brand image: affective), Cronbach's Alpha =.885, N of Items = 4, Valid cases = 404 (98.3%), Excluded cases = 7 (1.7%), Total = 411			
Brand Image: *Physical Atmosphere* Statements	**Mean Score[a]**	**Standard Deviation**	**Compared With Tourists' Profile[b]**
KZN destination is overcrowded	2.38	1.209	**Male respondents agree more
KZN local population has high moral standards	2.12	.893	*Group travellers agree more
KZN destination is quite conservative	2.06	.911	**Repeat visitors agree more
KZN is a calm destination	1.81	.906	*Repeat visitors agree more
Reliability Statistics (Perceptions of brand image: physical atmosphere), Cronbach's Alpha =.796, N of Items = 4, Valid cases = 404 (98.3%), Excluded cases = 7 (1.7%), Total = 411			
Brand Image: *Accessibility Statements*	**Mean Score[a]**	**Standard Deviation**	**Compared With Tourists' Profile[b]**
KZN destination is developed for tourism	1.91	.903	*Male respondents agree more *Repeat visitors agree more
KZN local population is friendly	1.89	.845	N.S
KZN is an easily accessible destination	1.88	.831	N.S
KZN destination is interesting	1.74	.812	N.S
Reliability Statistics (Perceptions of brand image: accessibility), Cronbach's Alpha =.830, N of Items = 4, Valid cases = 410 (99.8%), Excluded cases = 1 (0.2%), Total = 411			

[a]Questionnaire were itemised along a 5-point Likert-type scale: 1, Strongly agree; 2, Agree; 3, Neutral; 4, Disagree; 5, Strongly disagree. [b]Mann-Whitney U test significance: N.S., no significant results - *, $p < 0.05$; **, $p < 0.01$.

According to Sobaih et al. (2025), tourist loyalty is linked to the destination brand name. This can positively influence travellers' attitudes, which can improve their travel motivation and satisfaction. This tourist's perspective or attitude about a destination can also be regarded as a crucial consideration when determining whether to return to that destination. Kwarteng-Amaniampong, Potgieter, and Tait (2025) argue that brand image is influenced by how an individual or a group of persons perceives a given brand. In this study, respondents were asked to rate their level of agreement with seven brand loyalty assertions (see Table 3). The responses were then matched to their profile. The top three loyalty statements that most respondents agreed on were: "I would recommend KwaZulu-Natal to my friends and family"; "I would consider visiting KwaZulu-Natal in the future"; and "I am in love with KwaZulu-Natal". These findings suggest that responding tourists have a high level of destination loyalty. This is an encouraging development for KwaZulu-Natal tourism destination managers. According to the findings, as shown in Table 3, tourists travelling in groups agree more than individuals that the destination inspires love and maintains a special place in their hearts.

Table 3: Comparison between tourists' profile and tourists' brand loyalty perceptions

Statements	Mean Score[a]	Standard Deviation	Compared With Tourists' Profile[b]
I feel at home in KZN	1.95	.907	**Repeat visitors agree more
I feel connected to this destination, KZN	1.93	.867	**Repeat visitors agree more
KZN has a special place in my heart	1.89	.915	** Repeat visitors agree more *South Africans agree more *Domestic tourists agree more **Group travellers agree more
KZN would be my preferred choice when choosing a destination to visit	1.87	.909	N.S
I am in love with KwaZulu-Natal	1.83	.954	**Repeat visitors agree more **South Africans agree more **Domestic tourists agree more *Group travellers agree more
I would consider visiting KZN in the future	1.78	.763	N.S
I would recommend KZN to my friends and family	1.75	.773	*Repeat visitors agree more
Reliability Statistics (Perceptions of brand loyalty), Cronbach's Alpha =.917, N of Items = 7, Valid cases = 408 (99.3%), Excluded cases = 3 (0.7%), Total = 411			

[a]Questionnaires were itemised along a 5-point Likert-type scale ranging from 1, Strongly agree; 2, Agree; 3, Neutral; 4, Disagree; 5, Strongly disagree. [b]Mann-Whitney U test significance: N.S., no significant results - *, $p < 0.05$; **, $p < 0.01$.

Similarly, South African (domestic) visitors agreed more than foreign (international) tourists that the KwaZulu-Natal tourism destination invokes love and does have a special place in their hearts. Not surprisingly, those who have previously visited (repeat visitors) are more devoted to the KwaZulu-Natal tourism destination, agreeing more than first-time visitors that the destination has a particular place in their hearts, makes them feel at home, and they feel connected. They enjoy the destination and would recommend KwaZulu-Natal to friends and family. The next section concludes the study and makes recommendations to KwaZulu-Natal tourism destination managers based on the findings.

5. Conclusions and Recommendations

The study revealed that tourists have a strong, favourable symbolic image of KwaZulu-Natal's destination brand, notably its unique natural and cultural features. Tourists' positive opinions of the destination are substantially associated with their loyalty and chance of returning. The data reveal that the majority of respondents were repeat visitors, demonstrating contentment, commitment, and loyalty to KwaZulu-Natal's main tourism offers, notably its rich cultural and natural heritage, and beach experiences. Loyal tourists were mostly domestic and group travellers, and group interactions reinforced good attitudes and emotions. The survey also found that domestic tourists are more loyal to the KwaZulu-Natal brand than international visitors. This loyalty is frequently

linked to repeated visits as the ease of returning reinforces domestic customers' long-term commitment, which supports South Africa's rising domestic tourism industry and revenue retention.

Nonetheless, destination administrators are encouraged to improve the destination's image and appeal to foreign markets by increasing the variety, quality, and authenticity of offerings. The findings have practical implications for destination managers who are seeking to improve their marketing strategies and boost KwaZulu-Natal's cultural and natural attractions, as well as develop secondary offers to attract MICE (Meetings, Incentives, Conferences, and Exhibitions), 3S (Sun, Sea, and Sand), and VFR (Visiting Friends and Relatives) visitors. Further comparative research throughout Sub-Saharan Africa is recommended to better understand regional tourism positioning in the global perspective.

Ethics Declaration

Ethical clearance for this paper was obtained from the University of Zululand Research Ethics Committee (Reference: UZREC 171110-030 PGM 2017/455). All procedures performed in this study were in accordance with institutional ethical standard.

AI Declaration

The authors declare that no generative artificial intelligence (AI) was used in conceptualising, drafting, analysing data and writing this paper.

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Testing the Feasibility of Tourism Resilience Indicators: Evidence from Slovakia

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Abstract: Purpose. International organisations such as the OECD have issued extensive indicator frameworks to guide the measurement of tourism resilience, yet these remain largely untested in practice and are typically conceived at the national level. Resilience, however, must be cultivated and contested at regional scales, where the effects of shocks and the capacity to respond are most tangible. To adapt indicators to local contexts and to identify both strengths and weaknesses, it is imperative to establish data structures and institutional capacities that can govern tourism development towards resilience. This study responds to that call by empirically assessing the feasibility of resilience indicators in the Slovak tourism ecosystem, emphasising the need for greater granularity in measurement and testing how far international recommendations can be operationalised at the regional scale. Methods: A survey of diverse stakeholders, including the Ministry of Tourism, regional and local destination management organisations, and university experts, evaluated forty-two resilience indicators across four criteria: relevance, data availability, interpretability, and feasibility. The analysis identified both robust and impractical measures and examined whether feasibility was determined by indicator category or by the characteristics of local data infrastructures. Results: Contrary to prevailing assumptions, feasibility did not align neatly with thematic categories. Governance and economic indicators were not consistently more feasible than ecological or social ones; rather, feasibility varied sharply at the level of individual indicators. Seasonality, accommodation capacity, visitor numbers, and disaster preparedness were widely seen as both relevant and operational, while carbon emissions, inclusiveness, and insolvency rates were judged impractical. This demonstrates that feasibility is shaped less by abstract dimensions than by the availability and quality of regional data. Conclusions: The study provides the first systematic feasibility test of resilience indicators in a Central European tourism context. It shows that global recommendations cannot be transplanted wholesale but require adaptation to local capacities and infrastructures. Conceptually, it reframes feasibility as indicator-specific rather than category-bound. Practically, it offers a diagnostic framework for destinations to prioritise what can be measured now and what requires future development.

Keywords: Feasibility, Indicators, OECD, Operationalisation, Slovakia, Tourism Resilience

1. Introduction

Tourism in Slovakia is growing but still establishing itself in the economy. It offers opportunities like boosting rural livelihoods and cultural preservation but faces risks from systemic shocks such as climate change and economic crises. Resilience is essential for sustainable development, highlighted by global polycrisis. Taking into consideration how susceptible to these externalities the tourist destinations are, the situation demands a systematic investigation of their ability to respond, adapt, and recover. Measuring and building resilience is therefore central to addressing the "wicked problems" of tourism" (Rittel & Webber, 1973; Farsari, 2021). Approaches to assessment remain conceptual and have not been implemented in regional contexts, despite several international initiatives and methodologies aimed at measuring resilience. Resilience in tourism lacks consistent measurable indicators. The OECD (2022) is one of the few institutions to propose a set of indicators directly focused on the resilience of the tourism system, combining the linking of economic, social, environmental, and institutional dimensions with policy management tools. The study therefore tries to verify the extent to which such indicators can be applied in the Slovak environment due to specific limitations and opportunities when considering data structure, competencies, and institutional links in measuring resilience.

2. Literature Review

Indicators act as operational tools, translating concepts into measurable variables for researchers, policymakers, and managers. Designing these indicators is challenging due to issues like data availability, context comparability, measuring intangible assets, and oversimplification risks. A review of tourism resilience indicators shows a mix of complex composites and simplified measures, static and dynamic metrics, and academic to policy-focused dashboards. Table 1 summarizes main contributions.

Table 1: Overview of Resilience/Sustainability Frameworks with Indicators. Authors' work.

Author (institution)	Year	Examined domains (categories, pillars, areas) of resilience	No. of indicators	Type
Cutter et al.	2010	Economic, physical, human, social capital	36	adapted
Peacock et al.	2010	Economic, physical, human, social capital	75	adapted
Lozano-Oyola et al.	2012	Social, economic, environmental dimension	85	adapted
Becken	2013	Resistance, latitude, precariousness	11	original
Powell and Holladay	2013	Social, governance, economic, ecological domain	16	adapted
European Commission	2016	Destination management, economic value, social and cultural impact, environmental impact,	43	adapted
Lew and Wu	2016	Local government budgeting, environmental knowledge, community well-being, social support systems	11	original
Cahyanto and Pennington-Gray	2017	Economic, political, natural and physical resources	32	original
Yang et al.	2021	Economic, infrastructure, social, community capital, institutional, tourism demand	35	adapted
OECD	2022	Economic, social, environmental, institutional pillar	29	original
Jiao et al.	2024	Economic, social, environmental, governance, tourism-specific	10	original
Marciš and Gajdošíková	2024	Economic, social, environmental, institutional pillar	29	adapted
Zubiaga et al.	2024	Characterisation, economic, environmental, social, resilience, cultural indicators	51	original
Lee and Pennington-Gray	2025	Demand side of tourism (markets)	1	original

The earliest resilience indicator systems pursued comprehensiveness. Cutter et al. (2010) developed a framework called Baseline Resilience Indicators for Communities (BRIC) which deployed 36 indicators. These included demographic structure, income diversity, governance arrangements, infrastructure robustness, and community capital. The strength of BRIC was breadth and comparability. It offered a replicable tool for benchmarking resilience across U.S. counties, but its comprehensive nature had downsides. Indicators were often proxies with uncertain validity, lacked tourism dependence, and ignored intangible assets like trust or knowledge. Peacock (2010) extended this logic with a framework: Community Disaster Resilience Framework (CDRF) with 75 indicators across phases. This temporal innovation added dynamism but multiplied complexity, requiring destinations to score capacities across multiple stages. CDRF was conceptually rich but practically unwieldy. A more elaborated composite design was proposed by Lozano-Oyola et al. (2012), who introduced the goal-programming synthetic indicator for cultural destinations. While focused on sustainability of cultural destinations, this research offers valuable methodology which preserves transparency and decision relevance by defining explicit aspiration levels and weights, offering a balanced compromise between the inclusiveness of broad frameworks and the operational clarity. Zubiaga et al. (2024) followed in the expansive tradition, proposing a framework of 51 indicators. The explicit addition of culture was innovative, acknowledging heritage and identity as resilience assets. However, like BRIC or CDRF, the set risks becoming unwieldy. Standardising and harmonising 51 indicators across diverse destinations is still methodologically demanding and risks producing data gaps. Expansive systems succeed at inclusivity but struggle with usability. In response to complexity, some scholars advocated simplification. Marciš and Gajdošík (2022) developed a composite sustainability indicator for Slovak tourism destinations, comprising 23 indicators. Their aim was usability. The composite is transparent and practical but sacrifices breadth. Institutional, cultural, and knowledge dimensions are omitted. Lee and Pennington-Gray's (2025) Reflective Resilience Index (REFLEX) goes further, reducing resilience to a single indicator: entropy-based diversification of tourism demand. This parsimony makes REFLEX attractive for prediction and policy, but it is profoundly reductionist. It collapsed multidimensional resilience into an economic metric, sidelining social, institutional, ecological, and cultural capacities. The REFLEX index illustrates the danger of oversimplification. In pursuit of usability, resilience risks being equated with diversification. Simplified composites therefore trade off diagnostic richness for practicality. They are useful for applied contexts but risk conceptual distortion.

Other frameworks adapted indicators specifically for tourism contexts. Becken (2013) proposed 28 surrogate indicators for tourism subsystems, covering market diversification, institutional flexibility, ecological thresholds, and adaptive capacity. These were tailored to climate-sensitive destinations but relied heavily on proxies, raising questions of validity. Jopp et al. (2013) embedded hazard-specific preparedness indicators into their Regional Tourism Adaptation Framework (RTAF). Njoroge (2014) extended this in Regional Tourism Sustainable Adaptation framework (RTSAF) with evaluation of adaptation options, inclusion of diverse stakeholders, and incorporation of sustainability criteria. Calgaro et al. (2014) operationalised the Destination Sustainability Framework (DSF) through indicators of exposure, sensitivity, adaptive capacity, and socio-political structures. Tourism-specific adaptations enhanced contextual relevance but hindered comparability. Indicators like "quality of governance" or "diversity of markets" are locally significant but hard to measure globally, emphasizing the ongoing tension between context-sensitive analysis and global generalization.

Powell and Holladay (2013) attempted to bridge conceptual and operational gaps by developing a perception-based approach. Using unique methodology, they derived indicators of resilience from resident surveys. The study demonstrated methodological rigour but revealed moderate-to-low resilience levels. Its strength was in capturing intangibles such as trust and networks, rarely included in structural indicator sets. Its weakness was contextual specificity. Findings could not easily be generalised beyond the area researched. The DKKV–Futouris guideline (2017) operationalised resilience through participatory process indicators like actor mapping, risk-chain analysis, option appraisal, barrier identification, and ownership. Hernantes et al. (2019) formalised process indicators into a resilience maturity model, staging institutional development. Luthe and Wyss (2014) applied network metrics like size, density, centrality, modularity, to assess governance resilience.

These approaches foregrounded processes and perceptions, making intangible capacities visible. However, they resisted standardization. Process indicators are difficult to quantify, perception scales are context-bound, and network analyses require specialised data.

Some models sought statistical validation. Lam et al. (2016) introduced the Resilience Inference Measurement (RIM) model, with indicators for exposure, damage, and recovery. This offered quantifiable resilience but reduced it to hazard outcomes. Dai, Xu, and Chen (2019) validated 46 survey-based indicators using bifactor SEM (structural equation modelling), providing rare construct validity. Jiao et al. (2024) reduced indicators to two indicators: resistance and recovery, which were modelled econometrical. This simplification strengthened clarity but narrowed scope. Yang et al. (2021) used specialisation and diversification indicators to test resilience effects empirically. Each study advanced empirical rigour but depended heavily on data infrastructures, limiting applicability in data-poor destinations.

The European Tourism Indicator System (ETIS) is the EU-endorsed monitoring framework for tourism sustainability, aiding local governance and participatory monitoring. Though voluntary and lacking resilience indicators, it remains key for sustainability. The OECD (2022) report, Building Resilience in the Tourism Ecosystem, proposed an initial set of resilience indicators. These included measures such as job security, tourism wages relative to national averages, market diversification, CO_2 emissions, disaster action plans, sustainable tourism policies, and digital infrastructure. Crucially, each indicator was explicitly linked to policy levers. The OECD stressed that these indicators are provisional and drawn from existing dashboards and resilience research in other sectors. Their function is to stimulate reflection and guide the development of monitoring systems, not to provide a definitive list. The OECD (2022) framework represents a significant advancement. In contrast to prior attempts, it establishes a direct connection between measurement, governance, and resilience as well as decision-making processes. This framework is tailored to the tourism sector (national) and holds policy relevance, thereby serving as a bridge between academic conceptualization and practical monitoring applications. However, it has yet to undergo empirical testing in real-world tourist destinations on a regional scale. By aligning a set of policy-relevant indicators with governance and institutional mechanisms, the OECD introduces the dimensions absent in other composites such as those created by Marciš and Gajdošík. These two methodologies are thus complementary. The European-rooted pragmatism exhibited by Marciš and Gajdošík illustrates feasibility at the destination level, whereas the OECD framework provides the resilience-specific scope that this dissertation aims to validate and incorporate.

The review highlights research gaps from unresolved tensions. Conceptually, unstable domain definitions confuse resilience with sustainability and overlook cultural, governance, and learning aspects. Empirically, indicator frameworks are selectively applied and unvalidated. Methodologically, there's no consensus on balancing comparability with contextual sensitivity or integrating quantitative and qualitative measures.

Practically, policy-linked frameworks like OECD (2022) promise actionability but lack proven robustness and usability in destination governance.

3. Methodology

This study uses an exploratory quantitative design to test tourism resilience indicators in Slovakia, as they haven't been operationalised regionally. It checks if global indicators fit Slovak data and governance at the NUTS 3 level, focusing on data and institutional readiness before implementation. Stakeholder elicitation informs feasibility, linking indicator design to local contexts. The approach follows the RACER framework, assessing data access and institutional viability.

The study uses 41 indicators across economic, social, environmental, and institutional domains, plus a destination-specific dimension. It incorporates 12 indicators from Zubiaga et al. (2024) and 29 from OECD (2022) and Marciš & Gajdošíková (2024). A composite indicator methodology by Lozano-Oyola et al. (2012) will be applied to calculate destination resilience scores. Data were collected via an online survey from 13 August to 12 September 2025, with a reminder on 29 August. Participants included stakeholders from Slovak tourism governance, regional and local tourism organizations, and academic experts. Purposive sampling ensured respondents knowledgeable in tourism indicators and planning, resulting in 7 responses covering national, regional, and local governance levels.

Respondents rated indicators on four criteria using 5-point Likert scales (1 = very low, 5 = very high), with "can't assess" for insufficient knowledge. Criteria: Relevance captures destination resilience; Data availability checks regional data access; Interpretability ensures clarity for decision-makers; Operational feasibility evaluates practical data handling. Descriptive statistics identified feasible and problematic indicators. Kendall's W assessed inter-rater reliability, indicating consensus essential for expert perception. Reliability focused on stable expert assessments, not internal consistency, with Kendall's W as the measure. Content validity derived from international frameworks, adapted to Slovakia, and face validity confirmed via stakeholder pilot testing for clarity and relevance.

The study has limitations: it uses a non-representative sample of informed experts, reflects feasibility perceptions rather than objective data audits, and feasibility might change with improved data systems or capacities. The findings are a snapshot of institutional readiness, not a definitive performance ranking. This design employs feasibility testing as a diagnostic tool for resilience measurement, integrating expert assessments with international frameworks. It links global indicator design to local application, assessing Slovakia's tourism governance progress in evidence-based resilience monitoring and identifying indicators needing more data or development. Future research should expand the expert base, mix perceptions with objective audits, and test feasibility across various governance levels or countries.

4. Results

Four feasibility criteria were evaluated for 41 indicators in Slovakia's data and governance context. This composite value shows each indicator's readiness and provides specific insights. Table 1 ranks indicators, with higher ranks indicating importance and data availability, and lower ranks showing areas for development. Indicator feasibility varies, with established routines aiding population, accommodation, seasonality, and disaster preparedness, while carbon emissions, inclusiveness, and insolvency struggle with data scarcity. Feasibility depends on data system maturity over conceptual clarity. The overall feasibility score of 3.44 suggests moderate readiness, with some resilience aspects measurable and others still developing.

Table 2: Indicator feasibility assessment by the stakeholder panel. Source: Author's work based on the OECD (2022) resilience indicators list.

Code	Indicator	Overall Score
A4	Number of permanently residing inhabitants	4.22
B5	Travel openness and facilitation – visa requirements and border entry conditions	4.01
D5	Number of recognised natural heritage sites and protected areas	4
A5	Seasonality – dominant tourism seasons (summer / winter / year-round)	3.91
A9	Average number of visitors in the last three years	3.91

Code	Indicator	Overall Score
E6	Digital infrastructure – internet coverage and average connection speeds	3.85
D4	Likelihood of shocks – average occurrence of significant natural disasters	3.85
A8	Number of accommodation establishments or available beds	3.84
C4	Dispersal of visitors across destinations – share of visitors in key destinations	3.81
A6	Main types of tourism attractions (nature, events, culture, history, relaxation, sport)	3.75
A12	Number of cultural facilities, museums, galleries, and exhibition venues	3.69
C1	Tourism's direct share of economic activity (GVA / GDP)	3.68
A10	Number of officially registered tourism attractions	3.67
A2	Type of tourism by visitor motivation (recreational, cultural, sport, adventure, wellness)	3.66
B1	Tourism wage compared to national average	3.63
A11	Number of sites with EU or international recognition (EDEN, Natura 2000, UNESCO, Blue Flag)	3.61
A1	Type of tourism by geographical origin (domestic, inbound, regional, international)	3.57
A3	Type of tourism by length (excursion, short-term, weekend, long-haul, etc.)	3.53
E1	Existence of a disaster-action or contingency plan	3.52
C6	Employee retention and workforce shortages in tourism	3.49
C2	Tourism's direct share of total employment	3.45
C5	Sectoral reliance on SMEs – share of tourism businesses and revenue	3.43
C3	Visitor diversification – reliance on individual markets	3.42
E2	Tourism's proportion of government spending	3.41
D3	Share of businesses with sustainable certification	3.32
D6	Share of food that is locally produced	3.32
E5	Provision of open-data sources for evidence-based decision-making	3.3
D1	Existence of sustainable tourism policies	3.28
E4	Level of trust in government	3.23
B3	Community sentiment regarding tourism and tourists	3.22
B4	Visitor satisfaction and intention to revisit	3.22
C7	Tourism business insolvency or mortality rate	3.19
E3	Existence of a tourism communication plan (government and industry)	3.16
A7	Tourism intensity – number of visitors per resident	3.00
D7	Share of total annual energy consumption derived from renewable sources	2.98
C10	Tourist yield – average expenditure per visitor	2.95
C9	Tourism transport mix – share of visitors using sustainable transport (rail, coach, etc.)	2.93
B2	Level of tourism job security – share of full-time employment in tourism	2.92
D2	Level of CO_2 emissions from tourism activities	2.86
B6	Workforce inclusiveness – gender balance and inclusion of disadvantaged groups	2.76
C8	Availability of insurance for tourism businesses and insurance uptake rates	2.50

Table 2 ranks indicators, with scores from 4.22 (A4) to 2.50 (C8) on a five-point scale. Half of the indicators (n=19) scored above 3.5, indicating strong feasibility, including population size (A4), visa conditions (B5), protected areas (D5), seasonality (A5), and visitor numbers (A9). These rely on established data sources. Indicators scoring between 3.0 and 3.5 (n=15) indicate moderate feasibility, like tourism's GDP share (C1), digital infrastructure (E6), and employment retention (C6), hindered by inconsistent data or fragmented responsibility. Seven indicators scored below 3.0, showing limited feasibility. The lowest, such as insurance availability (C8), workforce inclusiveness (B6), CO_2 emissions (D2), and renewable-energy share (D7), suffer from unavailable or non-tourism data, revealing gaps in environmental and social monitoring.

The dispersion of scores substantiates the study's central hypothesis. Feasibility is indicator-specific rather than domain-specific. Indicators that depend on routine reporting perform well regardless of thematic category, while those that rely on intersectoral data integration or non-statistical observation remain underdeveloped.

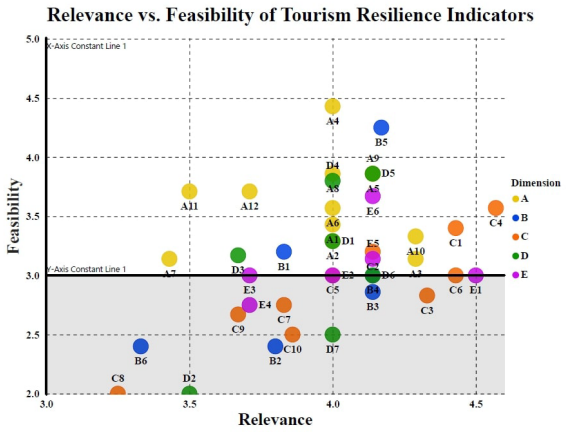


Figure 1: Feasibility of OECD Tourism Resilience Indicators in Slovakia at NUTS3 level. Source: Author's work, 2025.

The scatterplot visualises the relationship between indicator relevance (x-axis) and feasibility (y-axis) as evaluated by Slovak tourism governance stakeholders.

The visualisation of stakeholder's assessment offers an overview of prospective tourism resilience indicators in Slovakia. Figure 1 shows varied indicator distribution. The 3.0 lines on the scatterplot are midpoints of the five-point Likert scale, indicating provisional relevance and feasibility. Scores above 3.0 are generally acceptable; those below suggest reconsideration. Results show some values cluster in high relevance and feasibility zone, others fall below acceptance. This highlights the OECD's balanced proposal, needing adaptation for data collection and institutional capacity.

4.1 Results by Domain

Overall results suggest that feasibility of the potential indicators depends on the maturity of data systems rather than thematic category. Nevertheless, individual domains showcase specific tendencies, that uncover different challenges and opportunities for assessment of resilience of tourist destination in Slovakia. Table 2 summarises the mean feasibility values for each of the five domains (characterisation - A, social - B, economic - C, environmental - D, and institutional - E).

Table 3: Average feasibility by domain. Source: Authors' work.

Code	Domain	Overall Score
A	Characterisation	3.70
E	Institutional	3.41
D	Environmental	3.37
B	Social	3.29
C	Economic	3.29

4.1.1 Characterisation Indicators

The characterisation domain scored highest in feasibility (3.70), indicating a solid foundation for assessing areas. Key metrics include permanent residents (A4), accommodation capacity (A8), visitors (A9), and seasonality (A5), which are standard in tourism management. Mid-range scores for tourism typology by stay length (A3), tourist attractions (A10), and cultural facilities (A12) suggest a need for clearer methods or data harmonisation. Sites with EU or international labels (A11) offer insights into destination prestige. The main challenge is the visitor motivation indicator (A2), reliant on survey data. Characterisation indicators, collected regionally by statistical offices, are stable and comparable, requiring little intervention due to their integration into existing structures.

4.1.2 Social Indicators

The Social domain scored 3.29, indicating moderate feasibility. Indicators show high theoretical value but low practicality. Resident attitudes towards tourism (B3) and visitor satisfaction and willingness to return (B4) are crucial for social acceptance and visitor experience, but lack standardized data, needing regular surveys for inclusion. B2 (tourism employment rates) and B6 (workforce diversity) scored lowest due to low feasibility and high uncertainty from insufficient reliable data, possibly requiring new indicators.
The social domain continues to experience an ongoing evidence gap because researchers do not gather attitudinal data and social tourism resilience lacks proper institutional support. Social monitoring tools need to be integrated into destination management systems and labour and social policy agencies need to improve their collaboration.

4.1.3 Economic Indicators

Economic indicators averaged 3.29 with more polarization than social ones. This reflects tourism's impact on the regional economy and vulnerabilities in employment, business stability, and market diversification. It assesses economic resilience, diversification, and sustainable tourism activity without heavy reliance on fragile market segments.

The assessment showed high relevance for resilience indicators in tourism, especially in economic contribution (C1), tourism's employment share (C2), and visitor concentration (C4), despite moderate feasibility. Indicators like visitor market diversification (C3) and employee retention (C6) also showed promise as key resilience measures. However, some indicators, such as reliance on SMEs (C5), average visitor spending (C10), and transport mode proportions (C9), need better feasibility and data for operational use. Insolvency (C7) and insurance availability (C8) indicators are currently unsuitable due to low feasibility and data issues, requiring reconsideration or replacement unless data improves.

4.1.4 Environmental Indicators

The environmental domain scored 3.37 but showed high internal variability. It assesses how well sustainability principles are integrated into tourism development, including strategic commitments and outcomes like emissions, renewable energy, and food production. Strong results were found in sustainable tourism policies (D1), protected areas (D5), and natural disasters occurrence (D4), linked directly to destination management. However, indicators such as certified businesses (D3) and renewable energy use (D7) suffer from unreliable data. CO_2 emissions (D2) remain problematic due to difficulties in attributing them directly to tourism activities regionally, despite their importance. This dimension highlights the challenges of integrating sustainability into resilience assessments.

4.1.5 Institutional Indicators

The institutional environment underpins the governance of tourism and its ability to respond to shocks. It includes indicators linked to government commitment, communication capacity, transparency, and digital infrastructure. Together, these measures assess whether destinations have the institutional readiness to manage crises and support resilience.

Having a disaster response plan (E1) is crucial for resilience due to its relevance and interpretability. Digital infrastructure (E6) and open data (E5) also enhance institutional strength through connectivity and transparency. Although tourism expenditure (E2) and a communication plan (E3) are relevant, they face feasibility issues. Trust in government (E4) scored low on feasibility despite its resilience link, as it's hard to measure regionally. Institutional resilience is best gauged with indicators balancing ambition and practicality.

4.1.6 Inter-rater Reliability

Kendall's W coefficient of concordance was calculated to verify the consistency of assessments given by the experts for individual feasibility criteria. This indicator expresses the degree of accordance among assessors in ranking the indicators. The null hypothesis (H_o) of no agreement between evaluators ($W = 0$) was tested against the alternative hypothesis (H_1) of the presence of agreement ($W > 0$). A low p-value ($p < 0.05$) means that the null hypothesis should be rejected and the agreement between experts is statistically significant to a certain degree. We adhere to Cohen's guidelines for interpretation: 0.1 to less than 0.3 indicates a small effect, 0.3 to less than 0.5 signifies a moderate effect, and values of 0.5 or higher denote a large effect. Table 3 depicts the

computation results of the W coefficient for four feasibility criteria: relevance, data availability, interpretability, and feasibility.

Table 4: The level of agreement between experts using Kendall's W. Source: Authors' work.

Criterion	W	χ^2	p-value
Relevance	0.125	23	0.46
Availability	0.366	46.9	0.00
Interpretability	0.199	28.7	0.05
Feasibility	0.246	29.5	0.01

The evaluators' agreement varied by criterion: Relevance ($W = 0.125$; $p = 0.46$) showed no significant agreement. Data availability ($W = 0.366$; $p < 0.001$) had significant agreement with a medium effect, indicating experts agreed on data availability and usage potential. Interpretability ($W = 0.199$; $p \approx 0.05$) showed borderline significant agreement with a small effect, indicating partial agreement on indicator comprehensibility. Feasibility ($W = 0.246$; $p < 0.05$) showed significant agreement with a small effect, reflecting consensus on indicator feasibility within existing structures. Results show moderate agreement on technical criteria (availability, feasibility) and weaker agreement on conceptual areas (relevance, interpretability), highlighting the state of Slovak tourism management. Experts align on data and implementation, but less on indicator importance for destination resilience.

5. Discussion

It can be confirmed that the feasibility of the resilience indicators is more dependent on the maturity of the data infrastructure than on the thematic category. Indicators with solid administrative sources-as for instance, population, seasonality, and accommodation capacity-show high accordance among evaluators, while social and environmental ones are limited by weak institutional support and the absence of a uniform methodology. The results suggest drawing links between statistical and administrative data, but also between local and regional actors. Within the European context, ETIS seems to be a practical framework for monitoring sustainability, yet its focus on sustainability alone does not provide an analytical basis for measuring resilience. The OECD framework makes up partially for these deficiencies, as it focuses on the resilience of destinations, policies, and institutional capacities. However, it is a framework in need of contextualization and indicators need refinement. To complement this set of indicators, the Lozano-Oyola et al. (2012) methodology provides a promising solution, offering the possibility of synthesizing heterogeneous indicators through the target programming technique and creating one composite index; thus, this allows the gap between conceptual design and empirical validation to be bridged.

6. Conclusion

This is the first systematic attempt to test the feasibility of tourism resilience indicators in Central European context. It confirms that international frameworks cannot be transferred mechanically but need adaptation to the data and institutional capabilities of individual regions. Feasibility seems to be a property of specific indicators rather than thematic dimensions; thus, future research should aim at the gradual integration of the most relevant indicators into regional monitoring systems. Future applications of the Lozano-Oyola methodology will enable the quantification of the resilience of destinations and comparable results between regions. In this way, linking the conceptual frameworks of the OECD and empirical synthesis can contribute to strengthening the analytical basis for tourism management in Europe and Slovakia.

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Ethics Declaration

An ethical clearance was not required for the research.

AI Declaration

AI tool Writefull was used for this paper and solely for language and grammar correction. No generative AI contributed to the development of the paper's content.

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Mapping the Impact of Technology on Tourist Experiences: A Bibliometric and Systematic Literature Review

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Abstract: The study aims to investigate how emerging technologies are transforming the modern tourism experience, through a systematic literature review combined with a bibliometric analysis of 137 scientific articles published between 2015 and 2025 in the Web of Science database. The results reveal a consistent rise in scholarly interest in the digitalisation of tourism, particularly during the period of the pandemic, when technological solutions became crucial for the industry's resilience. The study reveals a clear dominance of positive perceptions of the impact of technology on the tourism experience, while marginal critical perspectives signal potential risks. Keyword analysis reveals high connectivity within the network, suggesting a well-established theme with multiple interconnections between technology, tourism, experience, and user behaviour. Internationally, research is highly collaborative and globalised, dominated by contributions from Western Europe, Asia and North America, with limited participation from Africa and South America. Over the last decade, research has been dominated by technologies such as virtual and augmented reality (VR/AR), artificial intelligence (AI), mobile applications and online platforms, while studies dedicated to the Metaverse and blockchain technologies are limited. From the perspective of the co-authors' network, there is a tendency for the network to present a fragmented structure, consisting of several closely related groups (clusters) that collaborate frequently. This shows thematic specialisation and collaboration in small groups, led by leaders in specialized literature who facilitate interdisciplinarity and the exchange of ideas. Overall, the study provides a comprehensive synthesis of the technological transformation of tourism, emphasising the need for the ethical, sustainable, and human-centred integration of digital innovations so that technology enriches, rather than substitutes, the authentic tourist experience.

Keywords: Technology, Tourist experience, Smart tourism, Tourism technology

1. Introduction

The digitalisation of tourism and the increased use of technology have transformed access to information and planning, as well as the tourism experience itself. This has increased tourist satisfaction and loyalty. However, it also requires the ethical and sustainable management of technology (Radhika et al., 2024; Sousa et al., 2024; Sharma et al., 2024; Nematpour et al., 2025). Digital technologies are transforming the tourism experience by extending it into virtual environments, thereby increasing the perceived value of destinations. Technological innovations also personalise and intensify tourist involvement (Perdana Kusumah et al., 2022; Panigrahy and Verma, 2025).

During the pandemic, digital technologies were essential for restructuring tourism by offering virtual alternatives and online connectivity (Bilan et al., 2022; Stankov et al., 2023; García-Milon et al., 2021; Goyal and Taneja, 2025). The adoption of VR and AR offers immersive experiences that are accessible to vulnerable groups, thereby increasing inclusion (Sousa et al., 2024; Costa et al., 2022; Paliwal et al., 2025).).

The analysed sources highlight the continuous evolution of technologies used in tourism and the need for their smart, inclusive and sustainable integration. Jo and Shin (2021) emphasise the role of gamification and augmented reality as emerging technologies that can revitalise destinations and provide interactive experiences, particularly for younger generations (Skinner et al., 2018; Polo-Peña et al., 2024).

Digital marketing influences the image of destinations and the behaviour of tourists (Moisa et al., 2021; Jiménez-Barreto et al., 2023), while gamification is an important tool for engaging with Millennials and Generation Z (Jo and Shin, 2021; Skinner et al., 2018). Panigrahy and Verma (2025) emphasise the development of automatic image processing technologies to enable quick access to information and improved visual interactions.

Digital transformation in tourism involves the integration of technologies such as the Internet of Things (IoT), virtual reality (VR) and smart platforms to create smart ecosystems, and this improves the management of urban destinations through business models and innovation (Nematpour et al., 2025; Anjum and Ali, 2022). The design of tourism experiences is evolving towards ''phygital'' concepts, in which mobile technologies reconfigure tourists' spatio-temporal behaviour, generating efficiency and optimizing the experience (Mieli, Zillinger and Nilsson, 2024). These ecosystems promote sustainability by offering VR as an alternative to physical tourism, using gamification to interpret the environment and providing competitive intelligence based on big data, and this increases the perceived value of destinations and promotes social inclusion (Sharma et al., 2024; Pena et al., 2024; Aljaafreh et al., 2024).

The responsible use of digital technologies, as demonstrated by ethical tour guiding, necessitates accountability and professionalism (Çiçekda and Akgül, 2023). Mashkov and Shoval (2025) emphasise the need for technologies to monitor tourist flow and reduce overcrowding. Ezzatian et al. (2024), meanwhile, propose the metaverse and digital platforms as sustainable solutions for redistributing tourist traffic. The digital motivations of Generation Z support the integration of virtual worlds into tourism planning (Paliwal et al., 2025). In conclusion, technological evolution in tourism is shifting towards intelligent systems that address the clear need for personalisation, accessibility, social inclusion, sustainability, and tourism flow management (Radhika et al., 2023; Panigrahy and Verma, 2025; Sousa et al., 2024; Costa et al., 2022; Çiçekda and Akgül, 2023; Jo and Shin, 2021; Paliwal et al., 2025; Sharma et al., 2024; Sustacha et al., 2022; Ezzatian et al., 2024; Nematpour et al., 2025).

The literature highlights the major benefits of integrating technology into the tourism experience, but also emphasises the need for balance to avoid negative effects on authenticity, privacy and social inclusion (Radhika et al., 2023; Sustacha et al., 2022; Musa et al., 2023). Identified negative aspects include digital addiction and psychological isolation, both of which can decrease the quality of the authentic experience (Merkx and Nawijn, 2022; Hassan and Saleh, 2023). Other negative aspects include the negative environmental and cultural impact of technology through overtourism and degradation (Femenia-Serra et al., 2023), as well as privacy and data protection issues related to the use of the Internet of Things (IoT) and big data (Tassikas, 2021; Alsharif et al., 2022). Digital inclusion remains a challenge due to inequalities in access to technology (Vila et al., 2022; Costa et al., 2022). The complexity and cost of implementing advanced technologies such as VR and AR can pose challenges for tourism operators and destinations (Sousa et al., 2024; Nuno et al., 2023). Additionally, robot anxiety can affect the perception of the hospitality experience (Șchiopu et al., 2024).

This research is particularly relevant as it addresses several unresolved issues in existing literature. These include the balance between digital immersion and maintaining the authenticity of tourist experiences, the psychological risks involved, the inequalities in access to technology, and overtourism (Merkx & Nawijn, 2022; Femenia-Serra et al., 2023; Vila et al., 2022). Furthermore, the emergence of technologies calls into question previous assumptions about VR/AR/AI, necessitating a re-evaluation of sustainability and social inclusion that transcends traditional physical boundaries (Ezzatian et al., 2024; Paliwal et al., 2025; Nematpour et al., 2025).

Analysing the specialised literature, we found that there is a lack of comprehensive syntheses showing the impact of technologies on the tourism experience.

1.1 The study aims to identify:

(1) What are the major trends in research on the impact of technology on the tourism experience over the past decade? (2) What technologies have been analysed most frequently in specialised literature over the last 10 years? (3) What are the prevailing perceptions of the impact of technology on tourism? (4) Which networks and authors have had the greatest influence on research in the field of digital tourism and technologically mediated tourism experiences? (5) What gaps have been identified in the development of digital tourism, and what are the future research directions?

2. Methodology

This study employs a systematic literature review (SLR) and bibliometric analysis.

Data was obtained exclusively from the international Web of Science database, with an initial total of 2,047 articles obtained through the keywords 'technology' and 'tourist experience'. After applying relevance, English language, type, and field criteria (Hospitality, Leisure, Sport and Tourism), 714 studies left. Study inclusion and exclusion criteria were used. Inclusion criteria: peer-reviewed articles in English that address the impact of technology on the tourist experience and the link between technology and the tourist experience. Studies not interconnected with the field of analysis were excluded. Data were extracted exclusively from the Web of Science (WoS) database without applying any filters based on journal rankings (e.g. impact factor) or the prestige of outlets. All indexed publications that met the selection criteria and were connected to the field of analysis corresponding to the subject of the paper were included.

A total of 137 articles were collected from the period 2015–2025. The analysis process consisted of creating a coded table with columns such as author, year, methodology, technology analysed (e.g. VR, AR, AI), aspect of the studied experience, conclusions and future directions. VOSviewer software was used to analyse the evolution of study publication over time and identify trends. For the bibliometric analysis, including keyword co-occurrence, a minimum threshold of five occurrences was established for terms to be included. Exploration of co-author networks was carried out with a minimum threshold of two collaborations for inclusion in the

network. The PRISMA report was used for visualisations, reporting and the study selection process, and the visual results include diagrams showing the distribution of articles by year, WOS categories and document types.

3. Discussions

To ensure scientific rigour, we used the international database Web of Science (WoS) as a source. A total of 2,047 bibliographic sources were obtained using the keywords 'technology' and 'tourist experience'. These results were refined by relevance, publication language (English) and open-source type, resulting in 714 works. Of these, only the 203 works from the WoS categories of Hospitality, Leisure, Sport and Tourism were taken into account for the analysis. Ultimately, 137 articles were selected after applying exclusion criteria and limiting the search to the last 10 years (2015–2025) due to the rapid evolution of technology.

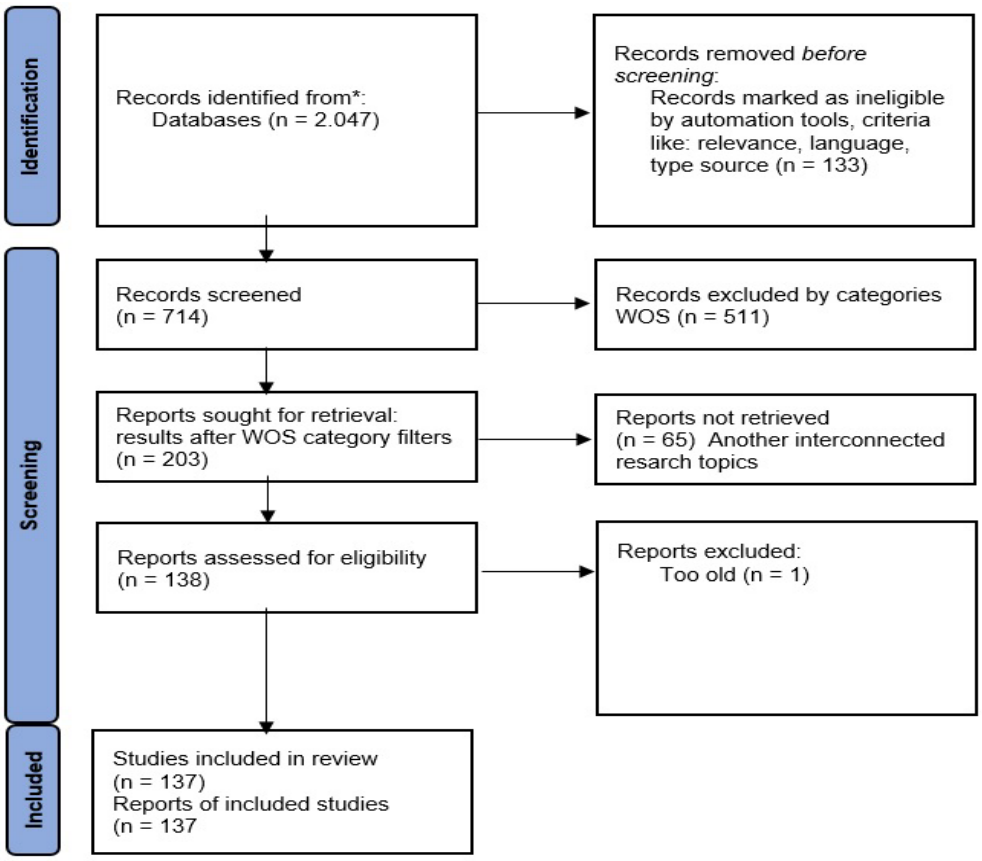


Figure No. 1: Prisma Report of extracting data between period 2015-2025

Source: created by the author using Prisma

Analysing the evolution of publications between 2015 and 2025 reveals an increasing academic interest in the impact of technology on tourism experiences. Between 2016 and 2018, the number of studies was relatively low, with between two and nine publications per year, suggesting an incipient phase of research on the topic. However, starting in 2019, a sharp increase in scientific output was observed, rising from 13 articles in 2019 to 20 in 2020, peaking at 22 articles in 2021. This period saw the number of articles almost double compared to previous years. This peak coincided with the period of the global pandemic, accelerating the adoption of digital technologies as solutions to mobility limitations and the need for safety and contactless interactions. A 'boom' in research in this field is evident. After 2021, literature production did not return to previous levels, but stabilised at a consistently high rate of 16–19 articles per year between 2022 and 2024. This indicates the maturation of the field and the consolidation of technology as a dimension of the tourism experience. Partial data for 2025 (14 articles indexed to date) suggests that this trend will continue, with the annual total likely to approach previous years' levels. Overall, the analysis confirms the transformation of technology from a marginal topic to a central pillar of tourism research.

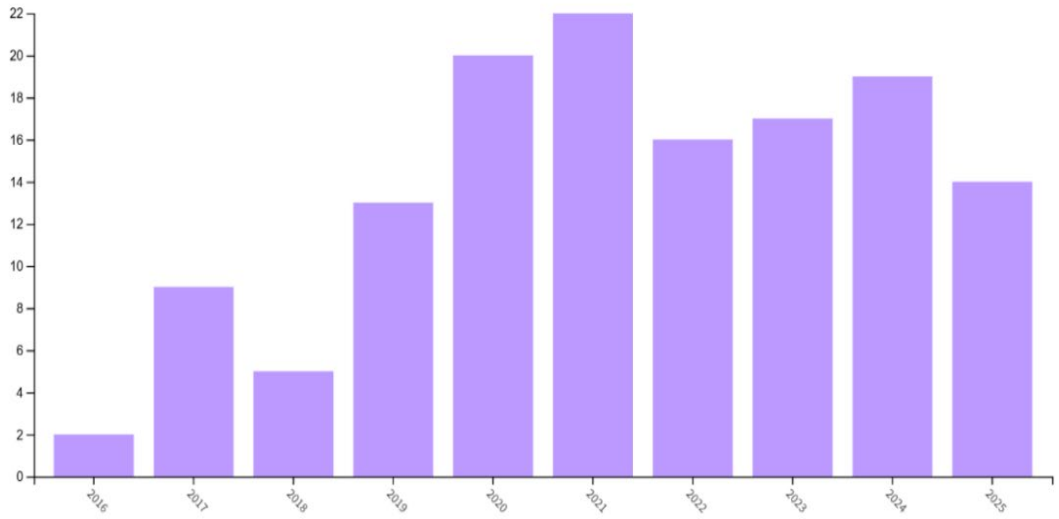


Figure No. 2: Year of publication

Source: created by the author

Analysis of the distribution by type of published document reveals that literature on the impact of technology on the tourism experience is dominated by original research articles, with over 120 publications. This confirms the scientific nature of the field, in which most studies contribute to the body of knowledge by collecting data through quantitative, qualitative or mixed methods. The presence of Early Access publications indicates the recent interest and emerging nature of the research topic, showing that new results are constantly brought to the attention of the scientific community. Conversely, the limited number of proceedings papers indicates that the subject is also active within international conferences, where innovative ideas are tested and disseminated prior to publication in specialised journals. In contrast, review articles are limited, indicating a lack of comprehensive syntheses and meta-analyses in the field. This absence also justifies the relevance of the present systematic literature review, which makes a valuable contribution to the specialised literature. Editorial material is marginal and does not influence the overall profile of the research.

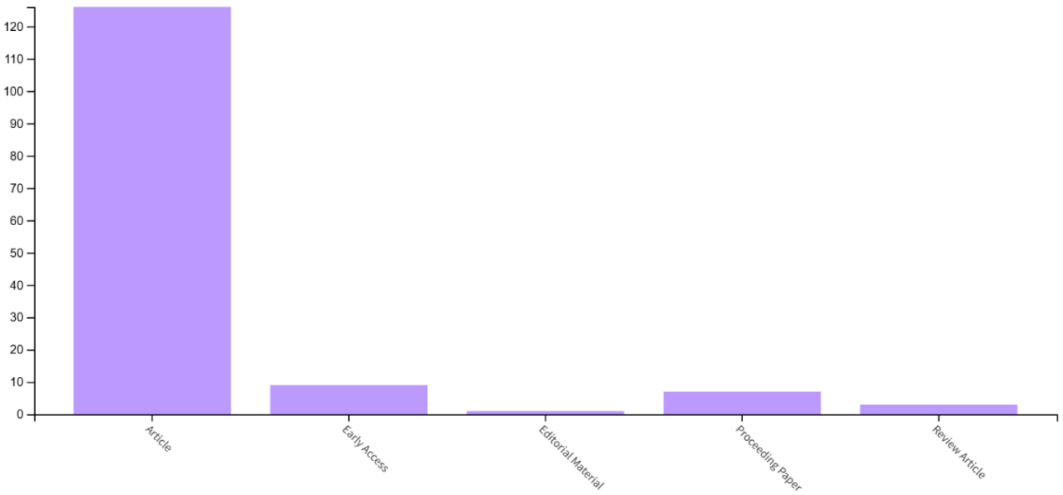


Figure No. 3: Type of published document

Source: created by the author

In the co-author network, consistent groups of co-authors are highlighted. These reflect potentially influential research teams in the field of digital tourism. The large nodes, (for example: Ulrike Gretzel, Miroslav Vujiciv, Ugljesa Stankov, Sousa Nuno, Filimonau Viachaslau, Dimitrios Buhalis, Ivars Baidal, and others) represent authors with a high impact, who are often considered to be opinion leaders due to their multiple publications and collaborations. This network, comprising at least two collaborations, (of the 112 clusters, only nine are represented by individual authors, the remaining clusters are formed by teams of at least two collaborators), demonstrates that the field is active and fragmented into distinct thematic clusters, each with groups of experts influencing research directions. The lack of strong connections between all the clusters indicates a high level of thematic diversity, topics include digital tourism, sustainability, destination tourism, tourism experience management, tourism marketing and consumer behaviour, as well as e-tourism.

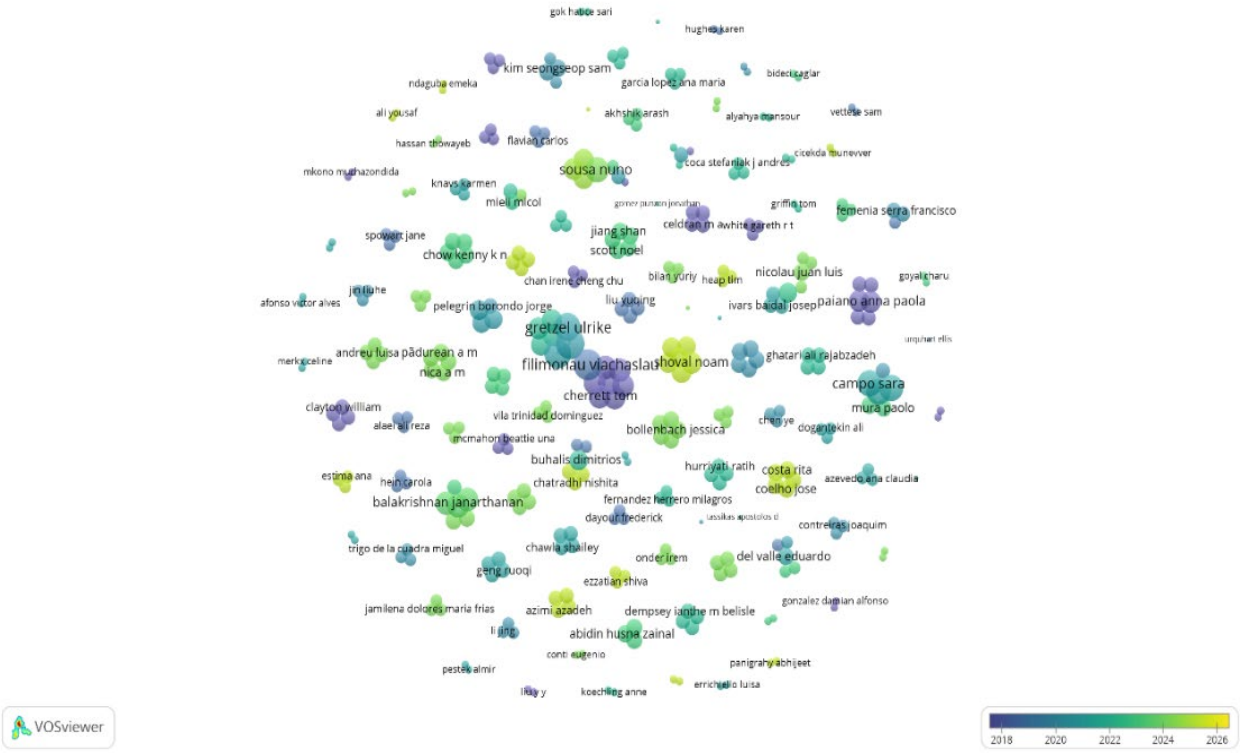


Figure No. 4. Network of Co-authors

Source: created by the author using VOSviewer

Keyword co-occurrence analysis using VOSviewer reveals the importance of the themes 'tourism', 'technology' and 'tourism experience' in specialised literature. These are the most frequent and interconnected nodes in the network. Starting with 137 articles and a minimum threshold of five occurrences, the results show that terms such as 'virtual reality', 'augmented reality' and 'smart tourism' revolve around technology and are linked to topics such as authenticity, gamification, sustainability and tourism marketing. This network structure clearly illustrates the contexts of post-pandemic innovation and adaptation in tourism, as discussed in recent literature. The nodes 'sustainability', 'accessibility', 'mobile technology' and 'future' demonstrate strong integration with the fields of technology and tourism experience. This suggests that recent research is highly concerned with inclusion, sustainability and the dynamics of mobile technologies. Links between 'cultural tourism', 'hospitality', 'role' and 'information' illustrate thematic diversification, highlighting the shaping of the tourism experience by the digital space, information flow and the role of technology in these processes. This interpretation visualises and confirms, through network analysis, the current directions of research in digitalised tourism—with an emphasis on experience, technological innovation, sustainability and the role of digital platforms in the tourism sector.

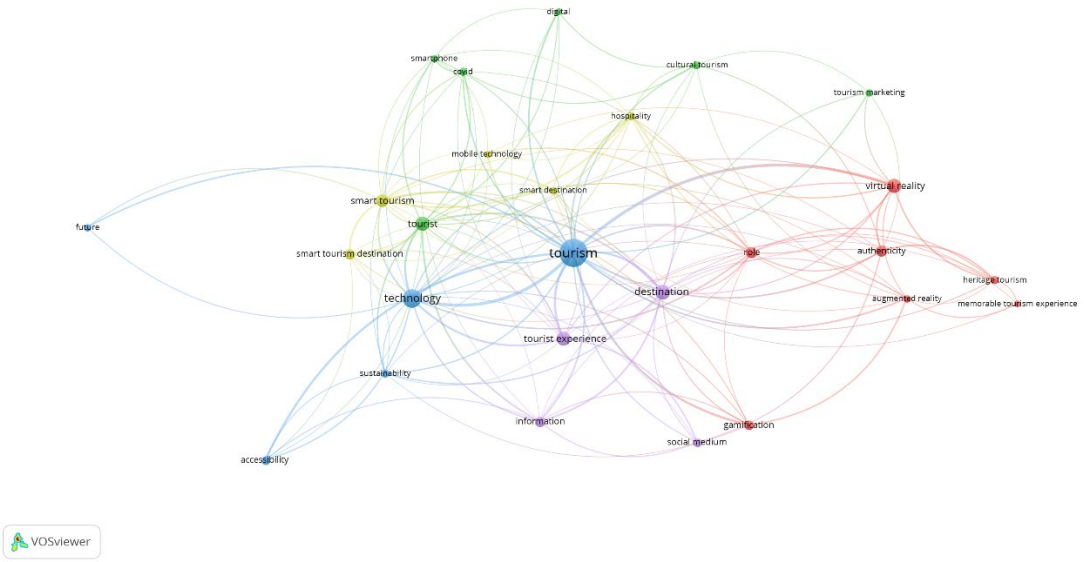


Figure no. 5. Co-occurrence of keywords

Source: created by the author using VOSviewer

The 137 articles researching the impact of technology on the tourism experience are geographically concentrated, with the majority of studies originating from Spain, England, China, Portugal and the USA. Western Europe is the most strongly represented region, followed by Asia and North America. There is a global imbalance, with countries in Africa and South America poorly represented, indicating a research gap for these regions.

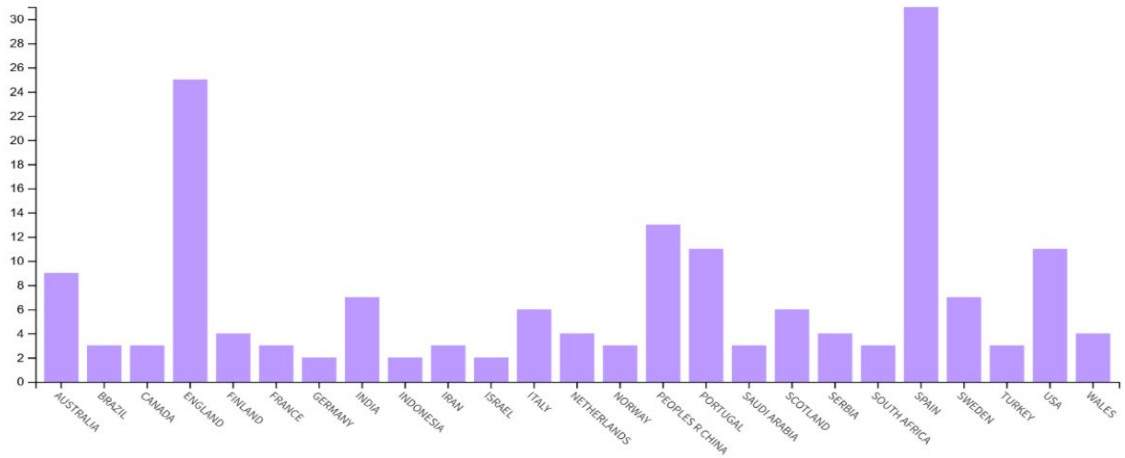


Figure No. 6. The distribution by countries/regions

Source: created by the author

Figure ,,**Top most relevant studies''** provides an overview of the impact of relevant studies on technology in tourism. The study 'Smart Tourism, Hospitality, and Destination: A Systematic Review and Future Directions', has significant visibility and recognition within the smart tourism research community. It offers a general view of the impact of ICT (information and communication technology) on the tourism experience and sustainability. The most influential studies cover a variety of topics, ranging from the impact of VR/AR and machine learning to digital marketing and tourism behaviours during the pandemic, which suggests diversification in the field of research. The presence of a peak in publications for 2024 demonstrates increased interest in tourism

technologies in recent years. Most of the studies were published in international collaborations, reflecting the broad scientific networks that were analysed in the bibliometrics of the co-authors.

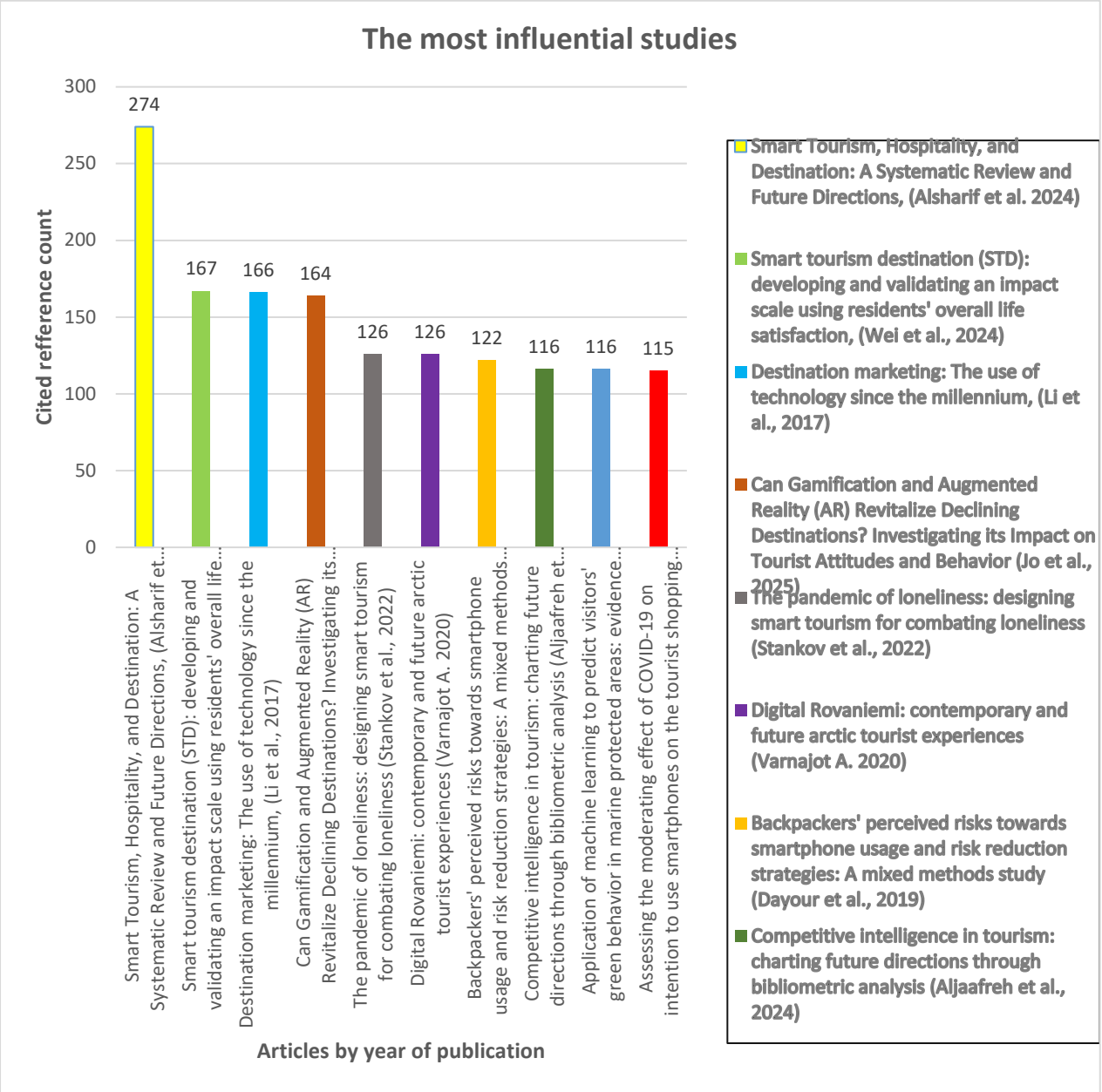


Figure No. 7. Top most cited studies:

Source: created by the author

The figure regarding study types shows the distribution of study types (coded numerically from 1 to 8) for the analysed articles. The most frequent codes are quantitative, qualitative and mixed methods, reflecting the fact that the results are based mainly on concrete, measurable data on tourism and technology rather than on purely theoretical interpretations. Theoretical studies (code 4), literature reviews (code 5), meta-analyses (code 6), bibliometric analyses (code 7) and essays/opinions (code 8) are much less common. The highlighted line at level 2 shows that quantitative studies are the most common, followed by qualitative and mixed methods studies. This indicates a preference for generalisable results and predictive models in the context of technology in tourism, but also suggests the need for additional qualitative research to explore tourists' subjective perceptions.

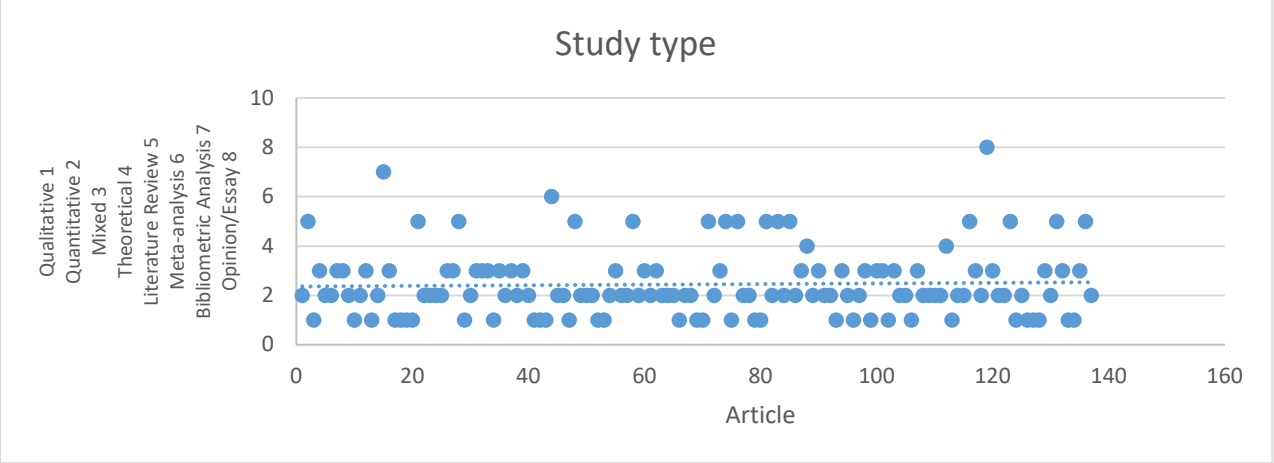


Figure No. 8. Identification of study types

Source: created by the author

An analysis of 137 studies indicates a consensus among the majority that technology has a positive impact on the tourism experience. However, several studies highlight risks, including the uneven development of the smart ecosystem, psychosocial isolation generated by VR, digital alienation from authenticity and the need to adjust the legal framework for managing personal data. These issues reflect challenges concerning digital maturity, balancing innovation with individual rights, and the role of tourism stakeholders (Ballina, 2019; Merkx and Nawijn, 2021; Tassikas, 2021).

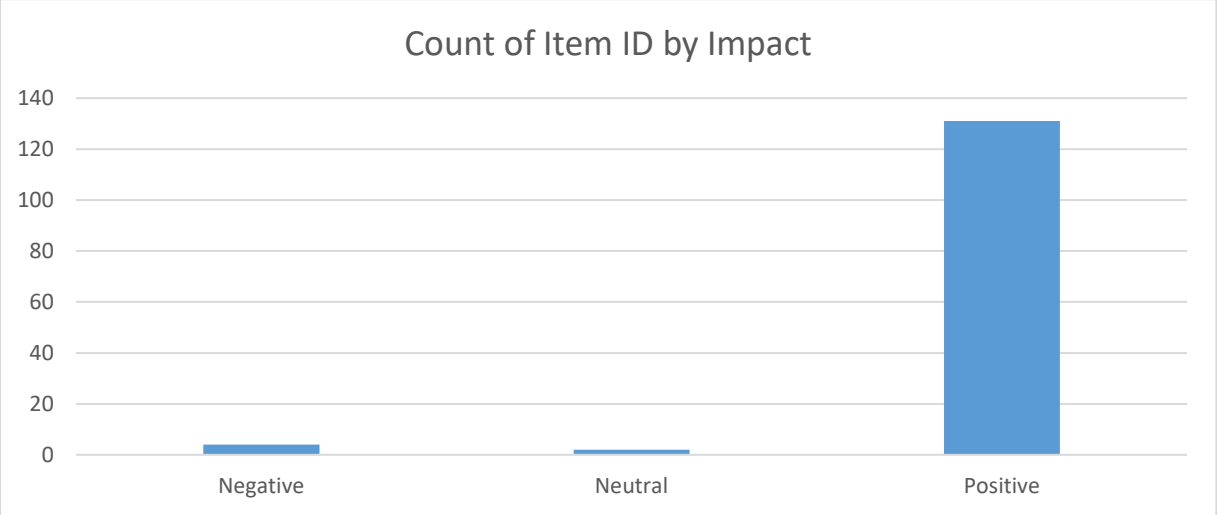


Figure No. 9. The impact of technology on the tourism experience

Source: created by the author

The figure regarding technology category shows the results of an analysis of the technological category, based on 137 studies of the impact of technology on the tourism experience. It highlights the types of technology addressed and how widely they are represented. The technological categories most frequently analysed in the studies are ICT, AI/VR/AR, mobile apps, platforms. The distribution of points shows a significant concentration of studies on these segments, confirming the global adoption of digital technologies and their essential role in the tourism experience. There is an underrepresentation of studies dedicated to the Metaverse and blockchain technologies. The category 'other technologies' (6), which includes digital ethics, security data, and data protection, is also underrepresented. This reflects a significant gap in the current literature, despite the growing importance of privacy, sustainability, well-being, and alternative experiences.

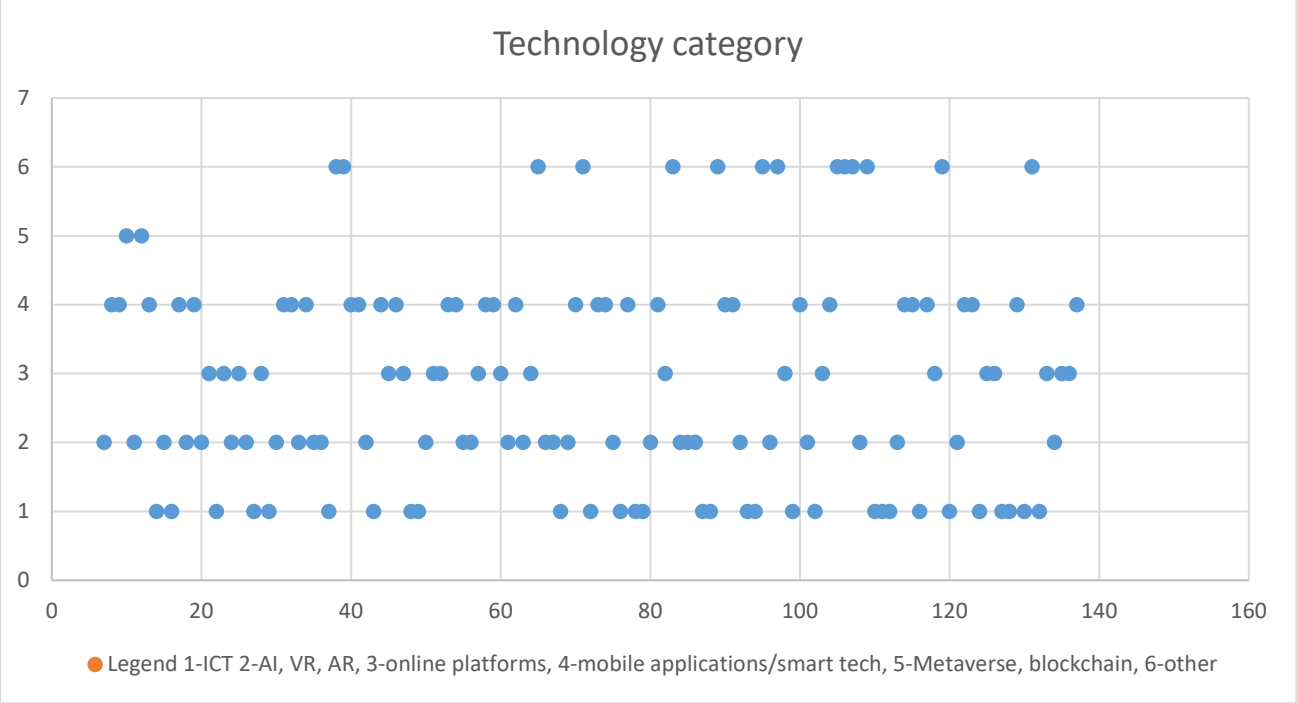


Figure No. 10. Technology category

Source: created by the author

4. Conclusions.

The article concludes that research into the impact of technology on tourism has developed significantly over the last decade, particularly since the pandemic, when scientific interest and the number of publications have increased considerably. Studies have mainly focused on technologies such as virtual and augmented reality, artificial intelligence, mobile applications, and online platforms. These technologies offer benefits such as personalising the tourism experience, increasing social inclusion, and promoting sustainability. However, there are also risks associated with excessive technology use, such as loss of experience authenticity, psychological isolation, privacy issues, and inequities in technology access, requiring careful integration and a human-centred focus.

The research shows that the collaboration network is fragmented into specialised thematic clusters, such as digital tourism, sustainability and marketing, with only nine individual authors out of 112 clusters. The main leaders are Ulrike Gretzel, Miroslav Vujičić, Uglješa Stankov, Nuno Sousa, Viachaslau Filimonau, Dimitrios Buhalis and Ivars Baidal, among others. They lead interdisciplinary teams and have made significant contributions to smart tourism and technological experiences.

These findings emphasise the importance of future research addressing these gaps through applied studies of emerging technologies, incorporating ethical and sustainable perspectives, and diversifying methodological analyses. Therefore, the integration of technology in tourism must be balanced and responsible, and focused on authentically improving the tourism experience without compromising the social and cultural values of the sector.

The systematic review highlights several major gaps and suggests important areas for future research. Firstly, studies dedicated to emerging technologies such as the Metaverse, blockchain are limited. These technologies have the potential to transform tourism and destination marketing, yet they remain under-explored. Secondly, the field is dominated by quantitative research, followed by qualitative or mixed-methods research capturing the subjective experiences and perceptions of tourists. This is vital for understanding the impact of technology on real-life experiences. There is also a need for systematic syntheses and meta-analyses to consolidate and integrate the fragmented results of specialised literature, facilitating practical application. Another issue is the geographical imbalance in research, with predominant representation of Western Europe, North America, and Asia, while studies of Africa and South America are limited, offering opportunities to investigate diverse socio-cultural and economic contexts.

Furthermore, the insufficient exploration of ethical issues, the integration of sustainability with new technologies and the socio-economic impact suggest a need for interdisciplinary investigation and hybrid approaches in future research. Studies focusing on the responsible and user-centred implementation of technologies are recommended to maximise benefits to the authentic tourism experience while minimising the risks of the negative effects of technology.

4.1 Limits

The study is limited by the selection of articles from WOS only, and by the fact that the articles are in English, in the last decade, open acces.

4.2 Practical implications

Tour operators, destination managers and decision-makers can use these conclusions to develop digital strategies incorporating personalisation, accessibility and data protection, thereby contributing to the sustainable development of smart destinations.

Tourism technology developers must ensure ethical integration, sustainable and user-centred technology to maintain the balance between digital innovation and the authenticity of the tourism experience.

Tourism managers must manage costs and overcome the complexity barriers of new technologies, adopting strategies that capitalize on technological benefits by improving the tourist experience, but also ensuring sustainability and respect for local culture and the environment.

Overall, the study provides a comprehensive synthesis of the technological transformation of tourism, emphasising the need for the ethical, sustainable, and human-centred integration of digital innovations so that technology enriches, rather than substitutes, the authentic tourist experience.

Ethics declaration

The author declare that this study complies with all relevant ethical standards and that no ethical conflicts are present.

AI declaration

The author used Grammarly to assist with language editing and grammar correction. This AI tool did not influence or modify the content, analysis, or conclusions of this paper.

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Destination Play: A Phigital Model for Sustainable Tourism Development in Peripheral Areas

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Abstract: Peripheral metropolitan areas across Europe face a structural contradiction: while celebrated destinations suffer from unsustainable overtourism, adjacent territories rich in stratified cultural heritage remain marginalized from mainstream tourism circuits. This fracture is compounded by administrative fragmentation that impoverishes endogenous development capacity. "Destination Play" is a research initiative that addresses this complexity by proposing an innovative and sustainable model for economic and social valorisation of cultural assets in peripheral areas. The core innovation rests on a generative paradigm that transforms tourists from passive consumers into co-creators of territorial meaning. The proposal weaves together four methodological axes that converge in a phygital Hub platform. A sophisticated profiling system leveraging generative artificial intelligence personalizes tourism experiences, adapting dynamically to visitor preferences and behavioural patterns. Simultaneously, contextualized gamification metamorphoses cultural sites and practices into ludic worlds that stimulate deep engagement among both tourists and residents alike. Equally decisive is the adoption of participatory design, wherein local communities, public administrations, and economic operators co-craft tourism offerings through structured collaborative processes. A digital assistant powered by conversational artificial intelligence—operating multilingually and multimodally—ensures accessibility and inclusion, framing each visit as a co-authored narrative. Impact measurement employs a hybrid BES/RETS framework that interlaces indicators of equitable and sustainable well-being with resident empowerment scales, capturing not merely economic metrics but also territorial identity regeneration and social cohesion. The research mobilizes qualitative and quantitative methodologies spanning artificial intelligence research, participatory design workshops, co-creation laboratories, and longitudinal community well-being assessments. The expected outcomes include industrialization roadmaps, replicable territorial impact evaluation methodologies, scalable open-source architectures, and co-created narrative datasets. The ultimate ambition is a platform prototype demonstrating how peripheral metropolitan regions can achieve equitable development through participatory, sustainable cultural tourism ecosystems.

Keywords: Overtourism, Phygital Tourism, Profiling, Gamification, AI Supported Tourism

1. Introduction

Contemporary tourism systems are facing a paradoxical condition: while a small number of iconic tourist destinations attract flows and investments to the point of generating overtourism, a constellation of adjacent territories, rich in stratified cultural heritage and social capital, structurally remains at the margins of mainstream visitation circuits. This asymmetry not only converts into an economic gap, but also generates symbolic undervaluation, loss of community identity, and weakened trajectories of local development. At the same time, governance in these ecosystems often appears fragmented, characterised by multiple actors – institutional, associative, entrepreneurial – who lack shared tools to coordinate strategies, narratives, and decisions.

In this scenario, cultural tourism cannot longer be conceived as a lever for increasing flows, but also as an enabling device for social cohesion, identity regeneration, and the growth of resident communities. The adoption of immersive digital technologies, phygital experiences, and artificial intelligence tools opens a design space in which tourists are not only passive consumers of places and contents, but they become co-authors of territorial narratives and practices. At the same time, local communities can move from being passive to active subjects in terms of content producers, negotiating more fairly the relationship between external visibility, internal well-being, and sustainability.

This paper contributes to this debate by proposing a conceptual model called “Destination Play”, intended as a phygital ecosystem for sustainable tourism development in peripheral areas. The model integrates four methodological axes within a single theoretical architecture: adaptive profiling supported by artificial intelligence, contextualised gamification of user experiences, multi-actor participatory design, and conversational digital assistance addressed to accessibility and inclusion. Therefore, the paper proposes a framework combining technological, experiential, and governance dimensions, aiming to redistribute tourist flows through narrative and behavioural reframing and where the design of digital solutions is based on community well-being and empowerment parameters.

In this sense, the paper adopts a predominantly theoretical and design-oriented approach and is structured around the following research questions: How can a phygital tourism ecosystem transform tourists from

consumers into co-creators of territorial meaning in peripheral areas? (i)How can the combination of AI-driven profiling and gamification foster more sustainable and distributed patterns of tourism experience? (ii)To what extent can an integrated evaluation framework centred on resident well-being and empowerment redefine the criteria by which the success of cultural tourism technologies is assessed? (iii)

2. Theoretical Background

2.1 Peripheral Destinations, Overtourism and Under-tourism

Recent tourism literature highlights how the growth of visitor flows tends to concentrate in a small number of highly iconic hubs, generating overtourism phenomena that affects the environment, residents' quality of life, mobility issues, and the integrity of cultural heritage. But, peripheral areas located in the proximity of these hubs remain in a condition of "structural under-tourism": despite having relevant cultural, landscape, and social resources, they struggle to build autonomous visibility and to attract stable, quality-based demand. This polarisation produces a double distortion: on the one hand, excessive pressure and overcrowded places; on the other, waste of territorial capital and development opportunities in hidden areas. In this context, there is a growing interest in models that do not merely "contain" overtourism, but consider the distribution of flows in systemic terms, acting on the narratives, imaginaries, and relational infrastructures that support visitators choices.

2.2 Phygital Tourism Experiences and Co-creation

In parallel, a lot of studies in literature face the challenge of hybrid tourism experiences connecting digital and physical dimensions. The spread of interactive storytelling platforms, augmented reality, immersive tours, location-based apps, and social media is transforming tourists into constant producers of digital traces, contents, and narratives. The co-creation perspective recognises the value of these practices: the experience is no longer a predefined "product" but a novel process emerging from the interaction between visitors, host/resident communities, and technological devices. Within this framework, the concept of phygital does not simply denote the combined use of online and offline channels, but an experiential ecosystem in which the transition between on-site and digital dimensions is fluid, and where ludic, emotional, and narrative engagement becomes a lever to activate deeper and more durable forms of participation.

2.3 Artificial Intelligence, Profiling and Conversational Agents in Tourism

The introduction of artificial intelligence tools into tourism processes has enabled new adaptive profiling, personalised recommendation, and analysis of the emotional dimensions. Machine learning and generative AI models are employed to integrate behavioural data, stated preferences, and interaction patterns, building dynamic profiles capable of supporting contextual suggestions and personalized itineraries. At the same time, conversational agents and multichannel digital humans play an increasingly significant role as interfaces for cultural mediation, linguistic inclusion, and accessibility. From a critical standpoint, these technologies raise important questions related to ethics, privacy, and algorithmic bias; however, if they are applied through responsible frameworks, they can constitute enabling infrastructures for more informed, inclusive, and reflective tourism, able to connect different actors in a non-hierarchical manner and return value in term of shared knowledge.

2.4 Well-being, Empowerment and Integrated Evaluation in Cultural Tourism

Alongside traditional metrics centred on arrivals, overnight stays, and expenditure, there is a growing recognition of the need to assess tourism impacts in terms of multidimensional well-being and community empowerment. Conceptual frameworks combining objective and subjective indicators regarding quality of life, social relations, access to cultural services, economic opportunities, and civic participation allow to understand the long-term effects of tourism policies. In this sense, different reference scales have been developed to measure empowerment through tourism, focusing on dimensions such as territorial pride, perceived capacity to influence decisions, activation of social capital, and perceptions of fairness in the distribution of benefits. Integrating these perspectives into models and digital platforms for cultural tourism makes it possible to shift from a purely extractive logic to a transformative one, in which technologies are not only promotional tools but devices that make visible, negotiable, and monitorable the trade-offs between attractiveness, sustainability, and territorial justice.

3. Conceptual Model: the Destination Play Framework

3.1 Core Principles and Design Assumptions

The "Destination Play" model is based on the assumption that sustainable tourism development in peripheral areas requires a rethinking of three intertwined dimensions: visitors' experiential practices, local communities' forms of participation, and the socio-technological infrastructures which enable the mediation between the first two. The framework represents a generative concept of cultural tourism, in which visitors are no longer mere consumers of pre-defined content, but they are co-creators of narratives and micro-events that, over time, feed into the symbolic capital of a destination. Simultaneously, resident communities are recognised as epistemic actors, bearers of knowledge, memories, and organisational capacities, which need accessible channels to be transformed into contents, routes, and experiences.

Three principles address the design of the model. First, phygitality: experiences and processes must seamlessly pass through the physical and digital layers, enabling the relationship with the territory before the visit, intensifying it on-site, and continuing it after the end of visit. Second, distributed participation: the various actors – public authority, associations, economic operators, citizens, visitors – should be able to contribute in a modular and progressive manner, with different but interconnected roles. Third, relational sustainability: each technological innovation is assessed in terms of its capacity to strengthen local ties, competences, and self-governance capabilities, rather than solely on the basis of promotional performance.

3.2 Phygital Hub Architecture and Functional Components

The Destination Play framework is a modular "phygital hub", consisting of a set of logical–functional components which can be orchestrated or individually activated. The first component is the Content Creation & Storytelling Module, which enables and supports the creation of multimedia content (video, audio, hybrid narratives) through modular narrative templates and editing tools enhanced by generative artificial intelligence. This module is designed to be also used by not-expert users, making content production accessible to institutions, associations, and individual citizens, with particular attention to enthusiasts and local experts.

The second component is the Gamification & Experience Design Module, which allows the configuration of game environments, experiential missions, and playful itineraries applied to places, events, and cultural practices. Through elements such as points, badges, challenges, and rewards, this module aims to transform ordinary contexts into "playable spaces", stimulating experiential learning, inclusive accessibility, and emotional involvement. A third component is the Profiling & Recommendation Module, dedicated to managing identities and profiles – of local actors and end-users – in compliance with privacy requirements and cookieless logics, having the goal of collecting data on preferences, interests, interactions, and emotional responses, and feeding adaptive and personalized recommendation algorithms.

A fourth component is the Conversational Digital Assistant Module, based on multilingual and multimodal conversational agents and digital humans that act as interfaces for cultural mediation, information support, and real-time feedback collection. This module connects the experiential dimension with accessibility and inclusion, providing a "voice" for the destination and, at the same time, a direct channel for the expression of visitors' perceptions. The fifth component is the Destination Governance & DMO Support Module, which provides collaborative workspaces, shared calendars, notification systems, and monitoring dashboards, thereby supporting the creation of cooperative governance agreements and the definition of destination management plans. Finally, the Analytics & Impact Module integrates technical and social indicators into a multi-level framework regarding adoption and participation, cultural and tourism impacts, technological effectiveness, cooperation, community well-being and empowerment.

3.3 Process Model and Impact

The Destination Play framework incorporates a process model describing how a peripheral destination can evolve over time from a fragmented context into a generative phygital ecosystem. In an initial phase of exploration and co-design, the platform acts as a catalyst to collect needs, latent narratives, and existing resources, using workshops, co-design sessions, and content prototypes in order to create a shared vision of tourism and cultural potential. Here, the profiling, storytelling, and gamification modules are primarily employed to map the destination's narrative and relationship potentiality.

In a second phase of orchestration and experimentation, all components are integrated and work following an iterative cycle: gamified experiences and co-created contents are proposed to visitors; the digital assistant mediates interactions; the data collected feed into the analytics modules; local actors use dashboards and collaborative tools to read the results, fix the content in real time, and design new initiatives. Impact is not only interpreted in terms of increased flows or digital engagement, but also considering the connection of experiential practices, transformations in the representations of places, redistribution of benefits, and empowerment dynamics.

Finally, a third phase of consolidation and scalability aims to transform the phygital hub from a pilot project into a stable destination infrastructure. Hence, the integrated evaluation framework – which combines indicators of well-being, empowerment, governance, and sustainability – becomes a tool for negotiating priorities, addressing investments, and providing accountability to stakeholders on the effects of tourism policies. In this sense, Destination Play is configured not only as a set of technologies, but as a conceptual model for designing tourism ecosystems in which the narrative and behavioural redistribution of flows occur together with more equitable and reflexive forms of territorial development.

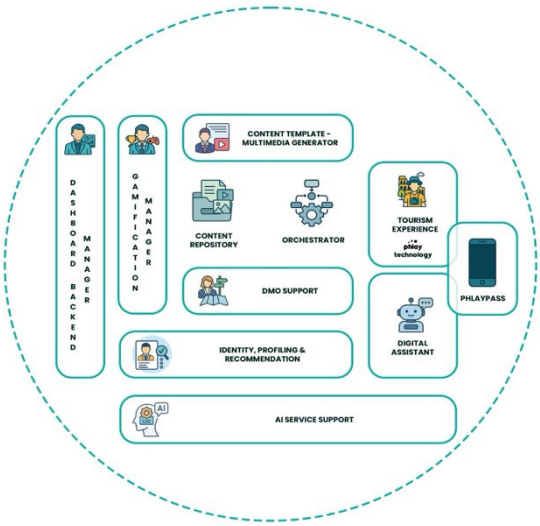


Figure 1: Destination Play Model

4. Methodology

This contribution is situated within the field of Design Science Research (DSR) applied to information systems for tourism, with the aim of developing a theoretical artefact – the "Destination Play" framework – that addresses a relevant practical problem (the sustainable development of peripheral destinations) while at the same time generating conceptual advancement. The proposed artefact has a hybrid form: on the one hand, a conceptual model of a phygital ecosystem for sustainable cultural tourism; on the other, a functional architecture that makes explicit its main modules and their relationships.

Following DSR principles, the research was structured as an iterative process articulated in three macro-phases: problem exploration, artefact design, and theoretical consolidation. In the first phase, the problem was defined through a critical analysis of the literature regarding overtourism, peripheral under-tourism, experiential co-creation, phygital technologies, and community well-being measurement, integrated with evidence resulting from previous design initiatives in cultural tourism contexts. This phase contributed to derive a set of meta-requirements for the artefact, such as the need to integrate technological and governance dimensions, to support multi-actor participation, and to anchor design choices to social and territorial impact metrics.

The second phase concerned the design of the artefact through progressive abstraction. Starting from technological and organisational components already experimented within real-world contexts, the work carried out a conceptual generalisation, leading to the definition of: (i) the fundamental principles of the model (phygitality, distributed participation, relational sustainability); (ii) the functional modules of the hub (i.e. modules for storytelling, gamification, profiling, digital assistant, governance, analytics); (iii) a process model describing the phases of exploration, orchestration, and consolidation of a peripheral tourism ecosystem. In this phase, the designing accuracy is guaranteed by the systematic use of abstraction logics, component

decomposition, and explicit specification of inputs, outputs, and inter-module relationships, in line with DSR recommendations for creating transparent and reusable artefacts.

The third phase focused on theoretical consolidation and ex-ante evaluation of the model. Since the presentation of empirical results is beyond the scope of this paper, the evaluation primarily follows logics of reasoned assessment and theoretical robustness: the framework was compared with the trajectories identified in the theoretical background, verifying the consistency between identified problems and proposed functionalities, the coverage of critical dimensions (experiential, technological, governance-related, impact-related), and the correctness of the hypothesised change mechanisms (narrative and behavioural redistribution of flows, community empowerment, enhancement of well-being). Furthermore, the explicit adoption of criteria such as potential usefulness (for different stakeholders), generalization (to classes of hidden destinations), and integrability (with existing policies and tools) contributes to strengthening the accuracy of the proposal.

In sum, the methodology combines a rigorous artefact-development approach, based on Design Science, with a critical conceptual positioning, aimed to provide to the scientific community a theoretically informed and methodologically transparent model, open to future comparative empirical validation in different tourism contexts.

5. Discussion

The Destination Play framework encourages several theoretical and design-oriented reflections on the relationship between phygital technologies, peripheral tourism development, and sustainability. Firstly, the proposal contributes to the debate on overtourism and under-tourism by shifting attention from a predominantly regulatory logic, focused on containing excessive flows, to a generative logic acting on the narrative and relational infrastructures shaping visitors' choices. The combination of interactive storytelling, gamification, and adaptive profiling configures the destination not as a simple "container" of attractions, but as a dynamic narrative space in which peripheral places and iconic hubs are juxtaposed, recombined, and made complementary. This suggests that the redistribution of flows can be pursued not only through constraints and limits, but also through an alternative model centred on experiential and symbolic reconfiguration.

Secondly, the model proposes a rethinking of the role of digital technologies in cultural tourism. In most of the literature, platforms, apps, and artificial intelligence tools are mainly treated as marketing levers or devices for transactional efficiency. Within the Destination Play framework, these technologies become elements of a relational governance architecture: the conversational assistant acts as an interface between visitors and communities, gamification modules orchestrate practices of ludic cooperation, and analytics systems return data that are useful for shared decision-making. The framework highlights how digital solutions can be designed not only to optimise individual engagement, but also to support collective processes of coordination, learning, and territorial care.

A third point of discussion concerns the integration between the experiential dimension and the well-being and empowerment dimension. The framework assumes that the quality of tourism experiences cannot be separated from the effects they produce on resident communities. Adopting an evaluative method that intersects indicators of multidimensional well-being and resident empowerment implies that the "performance" of a phygital destination is also read in terms of territorial pride, activated social capital, and capacity to influence development choices. This opens a perspective in which artefacts designed through Design Science are evaluate not only for their technical and functional effectiveness, but also for their capability to generate public value and territorial fairness.

At the same time, the model raises several critical issues to be worth considering. The use of profiling and tracking data, even when conceived within a privacy-preserving logic, raises questions about the balance between personalisation and protection, as well as the risks of reproducing bias and inequalities accessing to tourism opportunities. Multi-actor governance may encounter resistance, authority asymmetries, and coordination difficulties that cannot be only solved through platform designing. Finally, the impact expected on overtourism dynamics and peripheral marginality is gradual and non-linear, and therefore it is requested a medium- to long-term empirical experimentation able to verify the extent to which the promises of the framework are reflected in the actual practices of territories.

6. Conclusions and Future Research

The Destination Play framework has been presented as a conceptual model for rethinking tourism development in peripheral areas through a phygital approach, integrating digital technologies, co-creation practices, and collaborative governance logics. Starting from the structural contradiction between overtourism in iconic hubs and under-tourism in adjacent areas, the model proposes to act not only on the physical management of flows, but on the narrative, relational, and technological infrastructures that generate them. From this perspective, the peripheral destination can be seen as a generative ecosystem in which tourists and local communities co-produce meanings, contents, and routes, supported by a modular phygital system.

The main contribution of this work is twofold. On the theoretical level, it offers an integrated synthesis of four axes – adaptive profiling, gamification, participatory design, and conversational digital assistance – within a framework oriented towards resident well-being and empowerment. On the design level, it articulates a functional architecture and a process model that can address the development of information systems for cultural tourism in peripheral contexts, providing a reasoned basis for future experimentation. The explicit adoption of a multidimensional evaluation framework also helps shift the focus beyond purely economic metrics towards a broader conception of public value and territorial sustainability.

At the same time, the work has limitations that suggest possibilities for further development. Firstly, the model has been discussed in conceptual terms; an empirical research agenda is needed to test its validity in different contexts, through longitudinal case studies, quasi-experimental designs, or comparative approaches across peripheral destinations. Secondly, the ethical and regulatory implications of profiling and recommendation modules should be explored in greater depth, investigating "responsible AI" frameworks applied to cultural tourism. Thirdly, further studies could examine how the framework hybridises with existing policies and planning tools, for example in the fields of destination management, urban regeneration, and proximity economies.

Finally, a promising research line concerns the formalisation of shared indicator sets and measurement protocols that make the effects of phygital hubs on peripheral destinations' development trajectories comparable over time and across space. In this direction, Destination Play can be seen not only as a specific model, but as an open research programme aimed at exploring how phygital technologies can contribute to more equitable, reflective, and participatory systems of sustainable tourism.

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Ethics Declaration

This PhD research exclusively is based on conceptual development, secondary literature, and the analysis of publicly available documents. In accordance with the institutional and national regulations applicable to this type of study, no formal ethical approval was required.

AI Declaration

This paper was developed with the support of an AI-based writing assistant used for language editing, stylistic refinement and English translation. Conceptualisation, research design, theoretical framing, interpretation and structuring of the arguments are entirely the work of the authors. All AI-generated suggestions were critically reviewed, edited and, where appropriate, re-written by the authors, who retain full responsibility for the content of the paper.

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Tourist Loyalty and AI Personalization: A Trust-Based Study

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Abstract: This study explores how AI-driven personalization influences customer satisfaction and tourist loyalty in the tourism sector. It focuses on the role of trust in shaping these outcomes. The research was conducted in Marrakech, Morocco, with 282 visitors who used AI-powered tourism services, such as chatbots, personalized recommendations, or virtual guides. To analyse the relationships among the variables, the study extends the Technology Acceptance Model (TAM). It adds two key factors: perceived personalization and trust in AI. Structural equation modelling was used to test the connections between perceived ease of use, perceived usefulness, satisfaction, trust, and loyalty intention. The results show that ease of use has a clear effect on both usefulness and satisfaction. Tourists who found the AI tools easy to use were more likely to feel satisfied and to see value in the service. AI-based personalization also had a strong effect on satisfaction. Satisfied tourists were more likely to express loyalty. Trust in AI was another important factor. It directly influenced loyalty, even more than satisfaction in some cases. However, the study did not find a significant moderating effect of trust between satisfaction and loyalty. Also, perceived usefulness did not lead directly to satisfaction. This suggests that functional performance alone is not enough. What matters more is how the AI makes the tourist feel, and whether the experience feels personal and intuitive. This study adds to the literature by focusing on an emerging tourism market. It offers a local perspective from the Global South, where AI is gaining ground but remains unevenly adopted. The results can guide tourism businesses and decision-makers who want to use AI in ways that are effective, trustworthy, and centred on the tourist experience.

Keywords: AI Personalization, Tourist Satisfaction, Trust in AI, Loyalty, Smart Tourism

1. Introduction

Tourism is one of the world's most important economic sectors and a key driver of social development. In 2019, travel and tourism accounted for approximately 10.4% of global GDP and supported over 319 million jobs worldwide (Jhie, 2024). Beyond its direct economic contribution, tourism supports infrastructure development, generates foreign exchange, and contributes to local livelihoods. It also facilitates cultural exchange and promotes inclusive growth by connecting visitors with host communities. As such, tourism plays a central role in economic and social development across both developed and emerging economies.

In recent years, Artificial Intelligence (AI) has become increasingly integrated into tourism and hospitality services, particularly through personalization technologies (Ma, 2024). AI enables tourism firms to analyze large volumes of customer data and deliver tailored recommendations and real-time assistance (Makivić *et al.*, 2024). Hotels, booking platforms, and destination services now rely on AI-powered chatbots and recommendation systems to personalize itineraries, accommodation choices, and customer support. Empirical evidence suggests that satisfaction with AI-based services positively influences post-consumption outcomes, including revisit intentions and word-of-mouth behaviours (Chotisarn and Phuthong, 2024). By aligning services with individual preferences, AI-based personalization aims to enhance perceived value, improve service quality, and strengthen customer engagement (García-Madurga and Grilló-Méndez, 2023). AI also plays a growing role in smart and sustainable tourism initiatives. Smart tourism builds on digital technologies such as AI, big data, and IoT to improve destination management and balance economic, environmental, and social objectives (Gössling and Mei, 2025). AI-driven systems can support more sustainable tourism practices by optimizing resource use, managing visitor flows, and encouraging lower-impact travel choices (Makivić *et al.*, 2024). These developments highlight the potential for AI to enhance both tourist experiences and destination sustainability when guided by appropriate governance frameworks (Schattenberg, 2024).

In Morocco, tourism authorities and businesses are increasingly adopting digital technologies to enhance destination competitiveness. Marrakech, one of the country's leading tourist destinations, has gradually embraced smart city and smart tourism initiatives, integrating ICT and AI tools into mobility, information services, and destination management (Si Mohamed Ben Massou, 2021). These efforts align with national strategies promoting innovation and AI as drivers of economic performance and sustainability (Chouraik, 2024). However, as these initiatives remain relatively recent, their effectiveness and acceptance by tourists require further empirical investigation. Despite growing interest in AI-based personalization, important research gaps remain. Existing studies are largely concentrated in specific regions and service contexts, and evidence from emerging tourism markets is limited (Chotisarn and Phuthong, 2025). Moreover, the role of trust in AI has received insufficient attention. Trust reflects tourists' perceptions of reliability, transparency, and data security

in AI systems and may shape how personalization influences satisfaction and loyalty. Prior research indicates that ethical and trustworthy AI increases tourists' willingness to engage with AI-based services (Gössling and Mei, 2025). Without trust, personalized services may fail to generate satisfaction or long-term loyalty.

To address these gaps, this study examines the impact of AI-based personalization on tourist satisfaction and loyalty in Marrakech, with particular attention to the mediating role of trust in AI. The objectives are threefold: to assess the effect of AI-driven personalization on tourist satisfaction, to analyse the relationship between satisfaction and loyalty, and to evaluate how trust in AI influences these relationships. By doing so, the study contributes to the literature in two ways. First, it examines how AI-driven personalization shapes the relationship between satisfaction and loyalty in tourism services. Second, it highlights the role of trust in AI as a distinct mechanism influencing loyalty in technology-mediated tourism experiences. The study therefore moves beyond a simple contextual replication by examining how these relationships operate in an emerging tourism destination where AI adoption is still evolving.

2. Theoretical Background and Hypotheses Development

2.1 AI-based Personalization in Tourism

AI is increasingly shaping tourism services through personalized applications. AI-based tools such as chatbots, virtual assistants, and recommendation systems analyse large datasets to generate tailored travel information and support (Ferhataj, 2024). By learning from users' preferences and behaviours, these systems can provide customized itineraries, real-time guidance, and on-demand assistance, which may improve efficiency and overall experience quality (Sousa, Cardoso and Dias, 2024). While prior research emphasizes the efficiency and convenience of these AI-based tools, it also raises questions regarding transparency, data governance, and the reliability of algorithmic recommendations. These tensions suggest that personalization alone may not guarantee positive user responses. As a result, AI-based personalization creates both opportunities and tensions. While it may improve relevance and efficiency, it also raises concerns regarding user autonomy, data protection, and the reliability of automated decisions. These tensions make trust a central issue in AI-mediated tourism services.

2.2 Technology Acceptance Model (TAM) in Tourism

The Technology Acceptance Model remains a core framework for explaining individuals' intentions to adopt new technologies (Davis, 1989). The model emphasizes perceived ease of use and perceived usefulness as key determinants of user acceptance. Perceived ease of use refers to the degree to which a system is considered effortless, while perceived usefulness reflects the extent to which it enhances task performance or experience quality (Tao, 2008). In tourism, TAM has been widely applied to digital services such as mobile applications and AI-enabled platforms. Prior studies show that intuitive interfaces increase both perceived ease of use and perceived usefulness, which in turn encourage adoption (Wong, 2020). Empirical evidence further indicates that usability and interface design significantly shape these perceptions in tourism applications (Xiong and Zhang, 2024). Applied to AI-based services, this suggests that easy-to-use AI interfaces enhance perceived usefulness and may increase satisfaction. Accordingly, the following hypotheses are proposed:

- H1: Perceived ease of use of AI-based tourism services positively influences perceived usefulness.
- H2: Perceived usefulness of AI-based tourism services positively influences tourist satisfaction.
- H3: Perceived ease of use of AI-based tourism services positively influences tourist satisfaction.

2.3 Perceived Personalization and Tourist Satisfaction

AI enables advanced personalization in tourism by tailoring services based on individual preferences, location, and prior behaviour. Using machine learning and predictive analytics, AI systems can deliver customized recommendations, including itineraries and activity suggestions (Kumar et al., 2025). Empirical studies indicate that such personalization enhances satisfaction by aligning services with tourists' interests and values (Semwal et al., 2024). In hospitality contexts, AI-powered customization has been shown to improve emotional engagement and perceived service quality (Makivić et al., 2024). Personalized recommendations can also support sustainable choices by suggesting environmentally responsible activities (Ferhataj, 2024). When AI-driven services align closely with user expectations, satisfaction is likely to increase. Therefore, the following hypothesis is proposed:

- H4: AI-driven personalization in tourism services positively influences tourist satisfaction.

2.4 Tourist Satisfaction and Loyalty Intention

Tourist satisfaction reflects both cognitive evaluations of service performance and emotional responses to the travel experience. A substantial body of research shows that satisfied tourists are more likely to demonstrate loyalty behaviours, including revisit intentions and positive word of mouth (Mbira, 2024). This relationship has been consistently observed across tourism and service contexts, where satisfaction acts as a key antecedent of loyalty (Seok, 2013). Recent studies confirm that this mechanism also applies in AI-mediated environments. Tailored AI services enhance satisfaction, which subsequently strengthens loyalty intentions (Mishra, Anifa and Naidu, 2025). Based on this reasoning, the following hypothesis is proposed:

- H5: Tourist satisfaction with tourism experiences positively influences customer loyalty.

2.5 The Role of Trust in AI Technology

Trust is a critical factor in technology-based service interactions. In tourism, trust in AI reflects beliefs about the reliability, security, and fairness of AI-driven recommendations. Higher levels of trust increase users' willingness to rely on AI services. Empirical studies show that trust in AI positively affects satisfaction with AI-supported tourism services (Makivić et al., 2024). Trust is also closely linked to loyalty outcomes. Research on AI-enabled platforms indicates that trust strengthens both satisfaction and loyalty, particularly when combined with personalized features (Hassan, Abdelraouf and El-Shihy, 2025). In sustainable tourism contexts, trust further supports engagement with data-driven recommendations and responsible choices (Topsakal, 2024). Trust may therefore play two roles. It can influence loyalty directly, but it may also shape how tourists interpret their satisfaction with AI-based services. In technology-mediated environments, trust may compensate for uncertainty linked to automated decision systems. Accordingly, the following hypotheses are proposed:

- H6: Trust in AI positively influences customer loyalty.
- H7: Trust in AI positively moderates the relationship between customer satisfaction and customer loyalty.

All hypotheses are summarized in the research model presented in Figure 1.

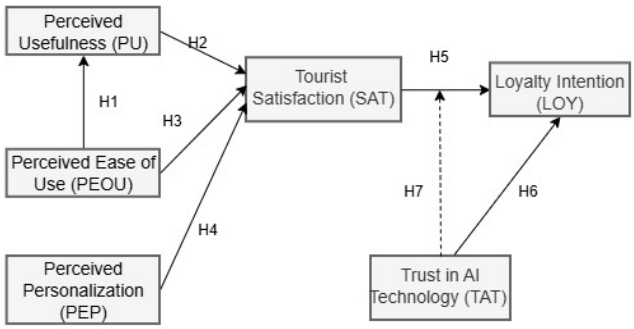


Figure 1: Research model Source: Authors (adapted from TAM Model)

3. Methodology

3.1 Participants and Procedure

Data were collected through a survey administered to domestic and international tourists visiting Marrakech, Morocco. Participants were eligible if they had used at least one AI-based tourism service during their stay, such as hotel chatbots, recommendation systems, or smart booking platforms. The questionnaire was available in English and French to reflect the linguistic diversity of visitors. In total, 282 valid responses were collected, including 241 in English and 41 in French. The survey was distributed between June and October 2025 using Google Forms, via QR codes placed in hotels, riads, and cultural sites, as well as through travel-related online platforms. Participation was voluntary, anonymous, and based on informed consent. No financial incentives were offered. All items were measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Screening questions ensured that respondents had interacted with AI-based tourism services. The datasets were merged and harmonized in English prior to analysis. The sample size met recommended

thresholds for structural equation modelling (Hair and and Sarstedt, 2011). The sample consisted of 59.6% male and 40.4% female respondents. Most participants were aged between 18 and 25 (41.8%), followed by 26 to 35 (31.9%). Regarding education, 51.4% held a high school diploma, 15.6% a bachelor's degree, and 8.8% a master's or doctoral degree. Students (33%), freelancers (21.3%), and private-sector employees (20.6%) formed the largest professional groups.

3.2 Measures

All constructs were measured using validated scales adapted from prior research and rated on five-point Likert scales. Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) were measured using four items each, drawn from (Davis, 1989; Alshamsi et al., 2025). Perceived Personalization (PEP) was assessed using items from (Li, 2016; Alizadeh and Nazarpour Kashani, 2024; Lei et al., 2024). Tourist Satisfaction (SAT) followed (Meng, Tepanon and Uysal, 2008), while Loyalty Intentions (LOY) were measured based on (Chen and Tsai, 2007; Gao et al., 2024). Trust in AI Technology (TAT) was evaluated using items adapted from (McKnight et al., 2011; Choung, David and Ross, 2023).

3.3 Data Analysis

The proposed model was tested using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS version 4.1.1.5. This method is suitable for exploratory research and complex models with moderate sample sizes (Hair et al., 2021). A two-stage approach was applied following (Henseler, Ringle and Sarstedt, 2015). First, the measurement model was assessed for reliability and validity. Indicator reliability was confirmed through outer loadings above 0.70. Internal consistency was evaluated using Cronbach's alpha and Composite Reliability, while convergent validity was established through Average Variance Extracted values exceeding 0.50 (Hair et al., 2021). Discriminant validity was assessed using the Fornell-Larcker criterion (Fornell and Larcker, 1981), and the Heterotrait-Monotrait ratio. Second, the structural model was evaluated using bootstrapping with 5,000 subsamples to estimate path significance. To address potential common method variance, procedural remedies were applied, and Harman's single-factor test was conducted. The first factor explained 36.1% of the variance, below the critical threshold, indicating that common method bias was not a major concern (Podsakoff et al., 2003).

4. Results

4.1 Measurement Model

4.1.1 Reliability

Prior to assessing the measurement model, item distributions were examined. Skewness and kurtosis values fell within acceptable ranges, indicating no severe departures from normality (Hair et al., 2022). Internal consistency reliability was then evaluated using Cronbach's alpha and composite reliability. Following established guidelines, values above 0.70 for Cronbach's alpha and above 0.80 for composite reliability were considered acceptable (Cheung et al., 2024). All constructs demonstrated satisfactory reliability. The overall instrument showed high internal consistency ($\alpha = 0.965$). At the construct level, Cronbach's alpha values ranged from 0.751 to 0.879, while composite reliability values ranged from 0.842 to 0.917. These results indicate adequate internal consistency and reliability of the measurement scales.

4.1.2 Convergent Validity

Convergent validity was assessed through indicator loadings and average variance extracted (AVE). All indicators loaded significantly on their respective constructs ($p < 0.001$), with standardized loadings exceeding the recommended threshold of 0.70. AVE values ranged from 0.573 to 0.735, surpassing the minimum criterion of 0.50 (Fornell and Larcker, 1981). Together, these results confirm satisfactory convergent validity for all constructs.

4.1.3 Discriminant Validity

Discriminant validity was evaluated using the heterotrait–monotrait ratio and the Fornell–Larcker criterion. All HTMT values were below the conservative threshold of 0.90, and none of the bootstrapped confidence intervals included 1.0, indicating that constructs were empirically distinct (Henseler, Ringle and Sarstedt, 2015). The

Fornell–Larcker assessment further confirmed that the square root of each construct's AVE exceeded its correlations with other constructs. These findings provide strong evidence of discriminant validity.

4.1.4 Model Fit

Overall model fit was assessed using the standardized root mean square residual. The SRMR value was 0.064, below the recommended cutoff of 0.08, indicating acceptable model fit (Panayides, 2013) (Hu and Bentler, 1999). Bootstrap-based fit indices further confirmed that discrepancy measures remained below their respective confidence thresholds (Henseler, Ringle and Sarstedt, 2015).

4.2 Structural Model

The structural model was tested using PLS-SEM with 5,000 bootstrap resamples, following established recommendations (Henseler, Ringle and Sarstedt, 2015; Hair et al., 2021). Path coefficients, significance levels, and explained variance were examined. The results support five of the seven proposed hypotheses. Perceived Ease of Use had a strong positive effect on Perceived Usefulness (H1; β = 0.805, p < 0.001), consistent with TAM (Davis, 1989). Perceived Usefulness did not significantly influence Tourist Satisfaction (H2; β = 0.085, p = 0.182), whereas Perceived Ease of Use had a significant positive effect on Satisfaction (H3; β = 0.374, p < 0.001). Perceived Personalization also positively influenced Satisfaction (H4; β = 0.465, p < 0.001). Tourist Satisfaction significantly predicted Loyalty Intention (H5; β = 0.448, p < 0.001), in line with prior tourism research (Prayag et al., 2017). Trust in AI Technology had a strong direct effect on Loyalty Intention (H6; β = 0.520, p < 0.001). However, its moderating effect on the Satisfaction–Loyalty relationship was not supported (H7; β = 0.014, p = 0.591). The hypothesis testing results are summarized in Figure 2.

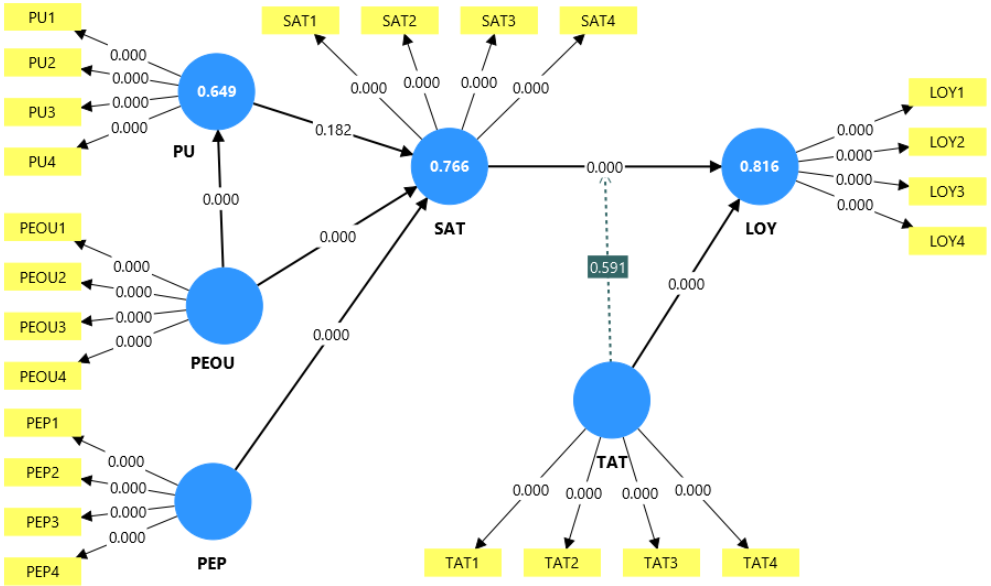


Figure 2: Research path model after bootstrap

The model explained 65.5% of the variance in Loyalty Intention (R^2 = 0.655), 51.1% in Tourist Satisfaction (R^2 = 0.511), and 64.8% in Perceived Usefulness (R^2 = 0.648), indicating moderate to substantial explanatory power (Hair et al., 2021).

5. Discussion

The results reveal several consistent patterns regarding AI-driven personalization in tourism. Perceived ease of use had a strong positive effect on perceived usefulness, confirming the logic of the Technology Acceptance Model (Davis, 1989). Ease of use and perceived personalization both significantly increased tourist satisfaction. This indicates that tourists value AI services that are intuitive and tailored to their preferences. Satisfaction, in turn, strongly predicted loyalty intentions, which is consistent with extensive tourism research identifying satisfaction as a central antecedent of loyalty (Wang and Li, 2023).

Trust in AI technology emerged as the strongest direct predictor of loyalty. This finding reinforces recent evidence suggesting that trust plays a critical role in shaping post-adoption outcomes in AI-enabled services

(Hassan, Abdelraouf and El-Shihy, 2025) When tourists perceive AI systems as reliable and secure, they are more willing to continue using them and to recommend them. Although trust did not moderate the satisfaction–loyalty relationship, its strong direct effect highlights its importance as an independent driver of loyalty.

Interestingly, perceived usefulness did not significantly influence satisfaction or loyalty. One possible explanation is that, in highly intuitive and personalized systems, usefulness may be taken for granted. When AI tools are easy to use and enjoyable, incremental perceptions of utility may no longer be decisive. Similar patterns have been observed in contexts where ease of use and experiential value dominate user evaluations (Nira, 2025).

Beyond confirming several established relationships, the results also raise theoretical questions about the role of trust in AI-mediated tourism experiences. In contexts where AI systems are already relatively easy to use, usability alone may no longer be sufficient to explain loyalty. Instead, trust appears to function as a key mechanism that allows users to rely on automated recommendations. This suggests that in mature digital environments, the role of trust may shift from facilitating adoption to sustaining continued engagement with AI-based services.

Overall, the findings suggest that personalization, satisfaction, and trust jointly shape tourist loyalty in AI-mediated tourism. AI-based services appear most effective when they are simple to use, aligned with user preferences, and perceived as trustworthy.

6. Conclusion

This study examined how AI-driven personalization influences tourist satisfaction and loyalty in Marrakech, with a focus on trust in AI technology. The findings show that ease of use and personalization enhance satisfaction, which in turn strengthens loyalty intentions. Trust in AI plays a central role by directly reinforcing loyalty, even though it does not moderate the satisfaction–loyalty relationship. The results suggest that AI-based conversational and recommendation systems are more likely to be integrated into tourism experiences when they are intuitive, personalized, and trusted. The study contributes to the growing literature on smart tourism by highlighting the conditions under which AI personalization translates into positive post-adoption outcomes.

6.1 Theoretical Implications

This research extends the Technology Acceptance Model by examining how personalization and trust shape post-adoption outcomes in AI-based tourism services. While TAM explains technology acceptance, the findings suggest that continued engagement depends on experiential factors such as perceived personalization and trust in automated systems. The study bridges technology adoption theory and tourism experience research by showing how usability, personalization, and trust jointly shape post-use evaluations. It also contributes to the literature on trust in AI by confirming its relevance beyond initial adoption stages. The findings therefore contribute to ongoing discussions on the role of trust in AI environments, particularly in tourism contexts where digital interaction increasingly shapes the visitor experience.

6.2 Practical Implications

For tourism managers and destination stakeholders, the results underline the importance of designing AI services that are user-friendly, personalized, and transparent. Ensuring that AI tools are easy to interact with encourages use and satisfaction. Trust should be actively fostered through clear communication about data protection, system reliability, and ethical use of AI. Since personalization enhances satisfaction, AI systems should tailor recommendations to tourists' preferences while supporting sustainable tourism objectives. A responsible and user-centred AI strategy can improve visitor experiences and strengthen destination loyalty.

6.3 Limitations and Future Research

This study has several limitations. First, its cross-sectional design limits causal interpretation. Longitudinal or experimental approaches could better capture changes in trust, satisfaction, and loyalty over time. Second, the focus on Marrakech restricts generalisability. Comparative studies across destinations would help assess contextual differences. Third, although the model explains a substantial share of variance, other factors such as privacy concerns, prior AI experience, or actual usage behaviour were not included. Future research could incorporate these variables to provide a more comprehensive understanding of AI-driven tourism experiences.

Ethics Declaration

This study was based on an anonymous survey with voluntary participation. Informed consent was obtained from all respondents. No personal or sensitive data were collected. According to applicable research guidelines for non-invasive social science research, formal ethical approval was not required.

AI Declaration

AI-based tools were used solely for language editing, spelling, and grammatical corrections. All scientific content, analysis, and interpretations were produced by the author.

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Masters Research Papers

Exploring the Relationship Between Customer Satisfaction and Revisit Intention in Swiss Budget Hotel using the LODGSERV Model

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Abstract: Swiss budget hotels, using the LODGSERV model. A descriptive-correlational design was employed, gathering cross-sectional data from 378 travelers through a structured 5-point Likert scale survey. The study focused on five service quality dimensions- Tangibility, Reliability, Responsiveness, Assurance, and Empathy- and their correlation with overall revisit intention. Spearman's Rank correlation revealed that Assurance had the strongest positive relationship with revisit intention, followed by Responsiveness, Reliability, and Tangibility, all of which were statistically significant. In contrast, Empathy did not show a significant correlation. These findings suggest that competence, professionalism, and responsive service play a more influential role in encouraging guest loyalty than personalized attention in the budget hotel segment. The study provides practical recommendations for hotel managers to enhance service delivery, particularly in terms of staff assurance and responsiveness, to improve customer retention. By offering insights into which service dimensions matter most to budget-conscious travelers, the research contributes to strategic service design and guest experience improvement in the hospitality industry.

Keywords: Budget Hotels, Customer Satisfaction, LODGSERV Model, Revisit Intention, Service Quality

1. Introduction

The international hospitality industry has grown significantly, generating $9.9 trillion in revenue and contributing 9% to the global GDP (Statista, 2024). It has also created millions of jobs, establishing itself as a global economic powerhouse. Among its core sectors, accommodation plays a pivotal role in this growth, with a market size of $1.5 trillion (Statista, 2024). This reflects the movement of millions of travelers annually, with approximately 45 million categorized as budget travelers (Swissinfo, 2023).

Switzerland, known for being an expensive tourist destination, has seen a growing presence of budget hotels, especially in cities like Geneva, Lucerne, and Zurich. While the sector shows signs of sustained growth, it faces persistent challenges such as high operating costs and the lingering effects of the pandemic (SWI Swissinfo, 2023). This poses a challenge for budget hotels to strike a balance between maintaining affordable rates and delivering quality service, which is pivotal in attracting budget travelers and enhancing revisit intentions (SWI Swissinfo, 2023).

Few studies have examined traveler satisfaction and revisit intention in the context of budget hotels in Switzerland, highlighting the need for this research. Specifically, a correlational study is pursued to examine the non-causal relationships between the LODGSERV dimensions and revisit intention in the context of Swiss budget hotels. This is crucial in the formation of meaningful and actionable recommendations that can be applied by Swiss budget hotels and potentially generate a broader impact on the country's hospitality sector.

2. Objective of the Study

The study intends to investigate how customer satisfaction is correlated with the overall revisit intention of the respondents in the specific context of budget hotels in Switzerland. Specifically, this paper aims to:

- To evaluate the relationship of Tangibility, Reliability, Responsiveness, Assurance, and Empathy with the overall revisit intention of the travelers in the context of Swiss budget hotels.
- To identify which LODGSERV dimensions are most significant in driving customer satisfaction and fostering repeat visits in Swiss budget hotels.
- To craft strategies that are anchored on the revealed relationship of LODGSERV dimensions with the overall revisit intention of the respondents

2.1 Hypotheses

Given the above objectives, this paper tested the hypotheses, as stated in the null form.

Ho1: Tangibility has no significant relationship with the overall Revisit Intention.
Ho2: Reliability has no significant relationship with the overall Revisit Intention.
Ho3: Responsiveness has no significant relationship with the overall Revisit Intention.
Ho4: Assurance has no significant relationship with the overall Revisit Intention**.**
Ho5: Empathy has no significant relationship with the overall Revisit Intention.

2.2 Review of Related Literature

The proposed study focuses on the examination of revisit intention of the travelers in the context of Swiss budget hotels. This requires the examination of customer satisfaction and how it leads to the propensity of the guests to revisit the Swiss budget hotel/s they stayed in. To better quantify customer satisfaction, this paper adopted the LODGSERV model. According to Rather et al. (2022), the model is especially pertinent in budget hospitality environments, where customer satisfaction and loyalty are significantly influenced by service quality. It refers to the overall evaluation of the guests' level of experience and sentiments (Zygiaris et al., 2022). Hence, it only shows how customer satisfaction becomes a crucial determinant of the guests' contentment with the service provided, as well as determining their revisit intentions (Ali et al., 2020b). This is supported by Li et al. (2023), asserting that positive experiences lead to a positive perception of the services being offered enhancing the customer loyalty and commitment, and therefore, the guests' revisit intention. There is convincing evidence related to customer satisfaction, which positively influences the decision of the patrons whether they will be returning, stay, or opt out of the future services with their providers (Peng & Lee, 2019).

Customer Value Proposition (CVP) primarily fits well with the aspects of services, which are key drivers of customer satisfaction (Anderson & Kumar, 2018). It was postulated by Gajić et al. (2024) that guests typically value operational efficiency, reliability, and trust more than excessive amenities. This is supported by Mercan et al. (2021), which revealed that customer loyalty is influenced by corporate image, price perception, physical environment and switching costs. Meanwhile, Sekulić and Mandarić (2019) emphasized that the budget-conscious travelers prioritize cleanliness, responsiveness, and dependability, influencing their revisit intention. Ali (2021) posited that reliability and empathy are crucial components of service quality in budget hotels. Chen and Tsai (2019) revealed that customer satisfaction has significant effect on customer loyalty. Liu and Chen (2021) also revealed that customer satisfaction has positive effects on brand loyalty in e-commerce. Zhang and Zhang (2021) also revealed the significant role of customer satisfaction in the loyalty and retention of the customers. Customer satisfaction showed significant effect on customer loyalty, with dining experience as moderator (Ryu & Jang, 2018).

In the study by Yoo et al. (2023), A hybrid methodology was applied in the 5-Star Hotel Customer Satisfaction Analysis in luxury hotels through data mining and NLP techniques. Also, Vargas-Calderón et al. (2021) analyzed the customer satisfaction through Machine Learning, based on customer reviews, revealing key service attributes that drive customer satisfaction. Saputra et al (2021) utilized Bayesian classifiers to gauge satisfaction with service dimensions via online reviews. Next, Hotel Reviews pre and post COVID-19 hotel review themes were compared to identify shifts in satisfaction (Xu et al., 2022). Subakti et al. (2024), examines how service quality impact satisfaction and loyalty in heritage hotels in Indonesia. Given the above, it leads to the selection of LODGSERV model as derived from the HOLSERV and QUALSERV (Getty & Thompson, 1994, as cited by Sekulić & Mandarić, 2019).

2.3 Conceptual Framework

Figure 1 shows the proposed examination of the revisit intention with the five key dimensions of the LODGSERV model.

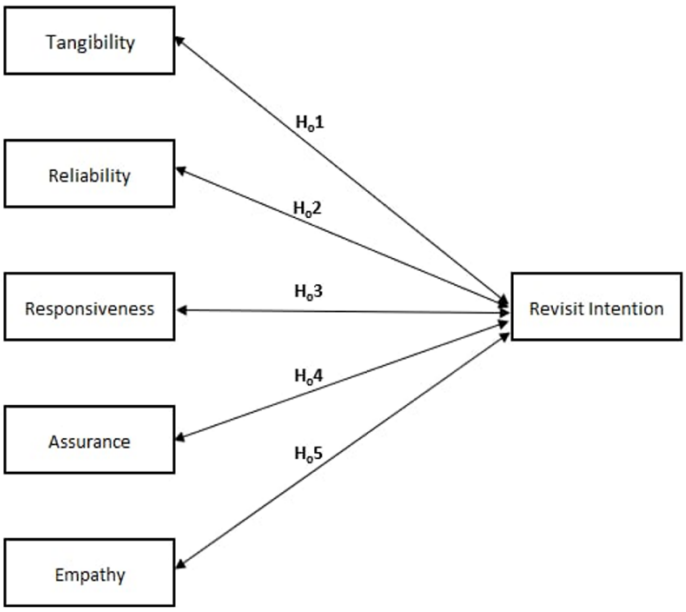


Figure 1: Conceptual Framework

3. Methods

This study utilizes descriptive-correlational design, hence, a mono-method quantitative approach was applied. The responses were gathered via structured survey implemented via Google Forms. Next, there were 378 qualified samples, as computed via infinite sample size formula, which were selected using Simple Random Sampling (SRS). These respondents are the tourists and travelers who have previously stayed at budget hotels anywhere in Switzerland. These hotels should offer essential amenities such as a private room, basic facilities, and limited services, which focus on affordability rather than luxury (Swiss Federal Statistical Office, 2024). Then for statistical analysis, the researchers utilized the Spearman's Rank correlation, with the formula shown below (McClave & Sincich, 2017, p. 615):

$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2-1)}$$

Where: D_i= difference between the ranked values of two variables for each observation; n= number of observations

4. Results and Discussion

The results present the strong presence of female travelers that may represent a significant segment of the target market. Furthermore, the presence of non-binary respondents as well as those who preferred not to disclose their gender highlights the need for inclusivity in hospitality services, hence improving guest experience and satisfaction (UNWTO, 2019).

Table 1: Demographic Summary based on Gender

Gender	Frequency	Percentage
Female	232	61.4%
Male	100	26.5%
Non-binary/Other	25	6.6%
Prefer Not to Say	21	5.6%
Grand Total	**378**	**100.0%**

The results show a strong presence of female travelers, suggesting a significant segment of the target market. Additionally, the presence of non-binary respondents and those who preferred not to disclose their gender highlights the need for inclusivity in hospitality services, reinforcing the importance of equitable guest experience and satisfaction (UNWTO, 2019).

Table 2: Demographic Summary based on Nationality

Nationality	Frequency	Percentage
North American (USA, Canada)	115	30.4%
Central/South American (Latin American nations, Caribbean etc.)	112	29.6%
European (Other than Switzerland)	70	18.5%
East and Southeast Asian (China, Japan, South Korea, Philippines etc.)	30	7.9%
Swiss	23	6.1%
South Asian & Middle Eastern (India, Pakistan, UAE, Saudi Arabia, etc.)	14	3.7%
African (Covers all of Africa)	7	1.9%
Oceania (Australia, New Zealand, Pacific Islands)	7	1.9%
Grand Total	**378**	**100%**

The results also show a strong representation of travelers from the Americas, both North and Central/South America. This suggests that these markets may significantly contribute to Switzerland's tourism, particularly within the hotel industry. It reinforces Switzerland's appeal in the international travel market, especially among Western travelers (Nguyen Viet et al., 2020).

Table 3: Summary based on Purpose of Visit

Purpose of Visit	Frequency	Percentage
Leisure/Vacation	243	64%
Visiting family/friends	84	22%
Business/Work-related	51	13%
Grand Total	**378**	**100%**

The dominance of leisure and vacation as the primary travel purpose underscores Switzerland's strong appeal as a leading leisure tourism destination, reaffirming its position in the global tourism market (Switzerland Tourism, 2023).

Table 4: Summary based on Type of Travel Group

Type of Travel Group	Frequency	Percentage
Solo traveler	130	34%
Couple	83	22%
Family	71	19%
Friends	67	18%
Business Colleagues	27	7%
Grand Total	**378**	**100%**

The dominance of solo travelers highlights the growing preference for independent travel experiences, which aligns with global tourism trends (World Travel & Tourism Council, 2022). Meanwhile, the presence of couples, families, and friend groups suggests the need for diverse yet tailored accommodation offerings that cater to different group dynamics.

Table 5: Ranked Count of Respondents' Swiss City of Stay

City	Swiss City of Stay Count	Percentage
Lucerne	139	37%
Geneva	114	30%
St. Gallen	89	24%
Zurich	79	21%
Graubünden	19	5%

The concentration of stays in Lucerne and Geneva suggests that international tourists tend to favor well-known urban centers with strong tourism infrastructure, accessibility, and promotional visibility. This highlights the strategic advantage of these cities in attracting international budget travelers and signals an opportunity for similar urban destinations in Switzerland to strengthen their positioning in the budget accommodation market.

4.1 Correlation Between LODGSERV Dimensions with the Overall Revisit Intention

For the next part of the analysis, Spearman's Rank correlation was applied to assess the relationships between the five LODGSERV dimensions and Overall Revisit Intention. The results showed that Tangibility, Reliability, Responsiveness, and Assurance all exhibited statistically significant correlations ($p < 0.05$), while Empathy did not show a significant relationship.

Table 6: Correlation Between LODGSERV Dimensions with the Overall Revisit Intention

Variables	Coefficient	Degree of Relationship	P-Value	Interpretation
Tangibility	0.217	Weak Positive	0.000	Significant Correlation
Reliability	0.283	Weak Positive	0.000	Significant Correlation
Responsiveness	0.337	Moderate Positive	0.000	Significant Correlation
Assurance	0.771	Strong Positive	0.000	Significant Correlation
Empathy	0.089	Weak Positive	0.083	No Significant Correlation

Legend: 0.000–0.300 = Weak, 0.310–0.600 = Moderate, 0.610–0.800 = Strong, 0.810–1.000 = Very Strong

4.2 Weak Positive Relationship between Tangibility and Overall Revisit Intention

Tangibility showed a significant but weak positive relationship with Overall Revisit Intention ($p = 0.000$, $\rho = 0.217$), suggesting that the physical attributes of budget hotels—such as facilities, cleanliness, and staff appearance—contribute modestly to the likelihood of repeat visits. This finding aligns with the works of Manyangara et al. (2023), Khoo (2022), and Jansri et al. (2020), although those studies were largely situated in mid- to high-end hospitality contexts. In the budget hotel setting, this implies that while tangible features are noticed, they are not decisive drivers of guest loyalty.

4.3 Weak Positive Relationship Between Reliability and Overall Revisit Intention

A weak yet statistically significant relationship was also observed between Reliability and Overall Revisit Intention ($p = 0.000$, $\rho = 0.283$). This suggests that guest perceptions of dependability and service accuracy contribute to satisfaction, though only to a limited degree. Budget hotel guests often prioritize functional aspects like timeliness, cleanliness, and consistency over highly personalized service (Radojevic et al., 2015). As Manyangara et al. (2023) noted, reliability is often treated as a baseline expectation rather than a distinctive value-add—thus explaining its relatively lower impact on revisit intention in this context.

4.4 Moderate Positive Relationship Between Responsiveness and Overall Revisit Intention

Responsiveness demonstrated a moderate and statistically significant positive relationship with Overall Revisit Intention ($p = 0.000$, $\rho = 0.337$). This indicates that travelers place noticeable value on prompt assistance, efficient check-ins, and flexibility during their stay. In the context of budget accommodations—where staffing and automation may be leaner—responsiveness becomes a differentiating factor. The findings support García-Palma et al. (2021) and Jansri et al. (2020), affirming that timely service plays a crucial role in shaping positive guest experiences and influencing loyalty.

4.5 Strong Positive Relationship of Assurance with the Overall Revisit Intention

Among all dimensions, Assurance exhibited the strongest positive correlation with Overall Revisit Intention (p = 0.000, ρ = 0.771), indicating that guests who feel confident in staff competence, courtesy, and professionalism are far more likely to return. Given the international profile of respondents—especially from the Americas—this highlights the importance of building trust and credibility in service delivery (Nguyen Viet et al., 2020). This finding echoes Soleimani and Einolahzadeh (2018), who emphasized the centrality of assurance in shaping favorable guest evaluations. In the context of budget hotels, this reinforces the idea that service consistency and professionalism can outweigh luxury in driving repeat business.

4.6 No Significant Relationship of Empathy with the Overall Revisit Intention

Empathy did not show a statistically significant relationship with Overall Revisit Intention (p = 0.083, ρ = 0.089), suggesting that personalized attention and emotional sensitivity, while appreciated, may not be pivotal in influencing return visits within this segment. In budget hotels, where interactions may be more transactional or limited in duration, guests may value efficiency over emotional rapport. This aligns with Tamborrel and Cheer (2019) and Nazarian et al. (2023), who observed that emotional engagement often plays a secondary role compared to operational factors in guest decision-making.

5. Conclusions

This study examined the relationship between customer satisfaction and revisit intention in Swiss budget hotels using the LODGSERV model. The demographic profile of respondents revealed a strong representation of female and solo travelers, alongside a notable presence of non-binary respondents, underscoring the relevance of inclusive and gender-sensitive service approaches in budget accommodation settings. The dominance of leisure-oriented travel and the strong representation of travelers from the Americas further reaffirm Switzerland's appeal as a key leisure tourism destination, while the concentration of stays in Lucerne and Geneva highlights the strategic importance of well-established urban centers with strong tourism infrastructure in attracting international budget travelers.

The findings further revealed that Tangibility, Reliability, Responsiveness, and Assurance all exhibited statistically significant positive relationships with overall revisit intention, albeit at varying levels of strength. Among these, Assurance emerged as the most influential dimension, emphasizing the critical role of staff competence, professionalism, and the ability to instill trust in encouraging repeat visitation within the budget hotel context. Responsiveness demonstrated a moderate positive relationship, indicating that prompt assistance and efficient service delivery are important differentiators for budget-conscious travelers. In contrast, Reliability and Tangibility, while significant, appear to function primarily as baseline service expectations rather than decisive drivers of revisit intention.

Conversely, Empathy did not show a statistically significant relationship with revisit intention, suggesting that individualized attention and emotional engagement, although valued, are not sufficient on their own to motivate repeat visits in Swiss budget hotels. This finding implies that efficiency-oriented and competence-based service attributes may take precedence over personalized interactions in this segment. Overall, the results are consistent with prior studies on service quality and revisit intention and contribute empirical insights into the prioritization of service quality dimensions in budget hotel operations, offering both theoretical and practical implications for hospitality managers in Switzerland.

6. Recommendations

First, it is worth noting that all the recommendations below are based on the feedback sought from the industry practitioners to extract expert judgment. These practitioners comprised of 1) Cluster Manager who supervises operations across multiple budget properties in Eastern Europe, 2) Revenue/ Yield officer from a boutique hotel operating in Middle East, manages pricing strategy, inventory control, channel distribution, as well as the occupancy, and 3) Guest Services Manager who oversees front desk operations, check-in/out processes, and guest interactions for a hostel/ capsule hotel in Singapore. Together with the various legitimate sources and literature, it offered strategic view on scalability, consistency, and brand standards, with significant emphasis on tight budgeting controls, to get unbiased, realistic, and feasible recommendations.

6.1 Marketing-specific Strategies

6.1.1 Focus on Gender-Inclusive and Diversity-Sensitive Services

As it was revealed that there is a growing segment of female and solo travelers revealed in the study, Swiss budget hotels should emphasize the provision of an inclusive service design to ensure this aligns with customer expectations. This can be done through the following:

- Gender-Neutral Interior Design: Avoid stereotyped themes such as hyper-masculine or overly floral interior design and should opt for minimalist, neutral, or local-inspired designs that resonate broadly.
- Inclusive Signage and Communication: Use gender-neutral terms such as "guest" instead of "sir" or "madam" in all means of communication such as in welcome letters, room booklets, and digital touchpoints. Also, avoid imagery that reinforces gender or cultural stereotypes.
- Inclusive Bathroom Setups (where applicable): Provide options for urinal and non-urinal facilities and stock diverse hygiene products specifically in communal spaces.
- Regular and strict implementation can be done via:
    - Quarterly audits by Quality Assurance teams, to ensure that the implementation was carried out and therefore can easily measure success of such implementation.
    - Social listening on platforms like TripAdvisor and Booking.com to identify gaps.

6.1.2 Target High-Potential Source Markets

Given the strong representation of North and Central/South American tourists and a dominant purpose of leisure/vacation:

- Geographic Targeting: Focus digital ad spending, influencer campaigns, and regional partnerships specifically in the Americas region.
- Channel Strategy
    - Collaborate with top regional travel platforms such as Expedia.com, klook.com, Booking.com, Agoda.
    - Leverage on influencers via Instagram, TikTok, and Facebook to demonstrate experience-centric travel that fits the High-Potential Source Markets.

6.1.3 Hyper-Personalized Budget Hotel Service Offerings

Given that in the context of budget hotels, services listed below are typically referral-based rather than provided in-house as these budgets hotels typically do not have the resources to offer full services. Hence, the recommendations for Hyper-Personalized Budget Hotel Service Offerings can be fulfilled by recommended local providers or partners, allowing these budget hotels to support business travelers' needs without incurring high operational costs.

- Leisure Travelers
    - Wellness & spa packages, nature excursions, and food experiences
    - Flexible stay options (e.g., free cancellation, length-of-stay discounts)
- Solo Travelers
    - Self-guided digital tours, single-occupancy promos, and flexible check-in
    - Community experiences like optional group dinners or solo traveler meetups
- Social Visits & Families
    - Multi-room discounts, babysitting partnerships, and celebration packages
    - Local souvenirs or photo services for commemorative experiences
- Business Travelers
    - Co-working lounge access, stable Wi-Fi, and late check-out
    - Concierge for local logistics (e.g., printing, business service referrals)

6.2 Service-Oriented Strategy

The results show that Assurance has the strongest positive effect on Revisit Intention, followed by Responsiveness, and Reliability, hence, Swiss budget hotels should focus on staff training and process improvements must focus on these. This can specifically be implemented through the following:

6.2.1 Elevate Staff Assurance through Competence and Professionalism

- Human Resources & Operations Initiatives:
  - **Bi-annual training** to improve empathy, guest interaction, and product knowledge.
  - Mandate **Annual certifications** in professionalism and service excellence.
  - Promote a **"Guest First"** culture through visible badge campaigns ("Ask Me for Help!")
  - **Assurance-focused Training**: Send frontliners (high-contact employees) to training which aims to improve confidence and trustworthiness, especially in unfamiliar or sensitive guest situations.

6.2.2 Optimize Responsiveness Systems for Guest Needs: Systems Must Prioritize Real-time Response:

- **Real-time Messaging Platforms:** Offer in-App chat to address guest needs and concerns in real time.
- **Response Time Benchmarks:** Below shows the sample benchmarks which must reflect realistic and reasonable threshold, specifically crafted for Swiss budget hotels. This aims to enhance operational efficiency and guest satisfaction. Take note that the benchmarks below were formulated based on the insights derived from consultations from the industry practitioners.
  - **Basic room request:** within 10 minutes
  - **Housekeeping**: within 20 minutes
  - **Maintenance**: within 30 minutes
- **Guest Follow-Up Automation:** 1) Message 30 minutes post-check-in: "Is your room comfortable so far?" and, 2) Pre-checkout reminder with link to feedback survey.

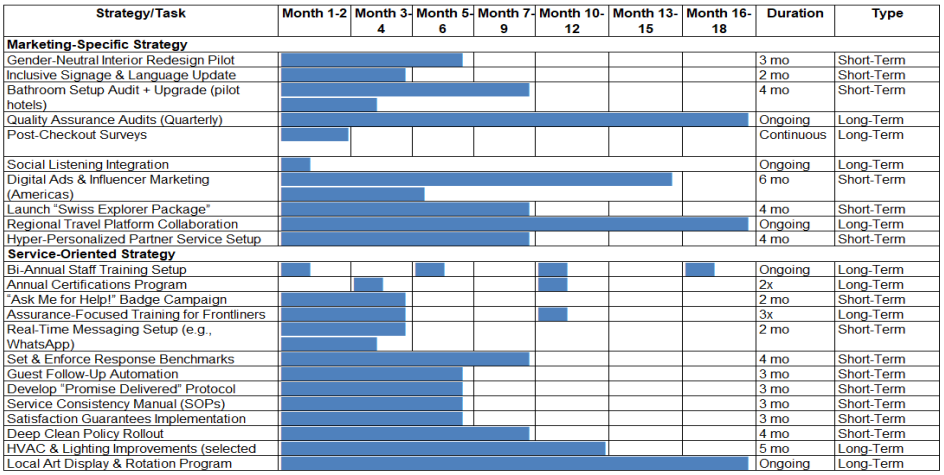
6.2.3 Standardize Reliable Service on All Touchpoints: Reliability- While a Weak Correlation- Still Matters for Baseline Expectations.

- **Service Consistency Manual:** A detailed SOP playbook covering: 1) Check-in/out processes, 2) Housekeeping and Maintenance protocols, and 3) Complaints and escalation.
- **Guest Guarantees:** Offer satisfaction assurance on basics: "Clean room guarantee or one night free."

6.2.4 Cost-Effective Facility Enhancements: While Budgets may be Tight in Budget Hotels, Tangible Improvements Increase Satisfaction.

- **Focus on Tangibility Factors (positive but weak correlation)**: Deep clean policies, especially in bathrooms.

Furthermore, to examine which among these strategies are short and long-term, the Gantt chart below was formulated. It shows recommendations in a well-structured, clear, and strategic view. In terms of time segmentation, implementation was divided into 2-month intervals. For task grouping, it is mainly segmented into Marketing-specific and Service-oriented strategies. Next, the durations are based on the expert judgment of the experts and practitioners from the field, with the roles as previously mentioned. Hence, the Gantt chart presented balanced aspects of cost-consciousness in terms of the hotel operations, with the recommended strategies that propelled the recent guest experience trends.



Strategy/Task	Month 1-2	Month 3-4	Month 5-6	Month 7-9	Month 10-12	Month 13-15	Month 16-18	Duration	Type
Marketing-Specific Strategy									
Gender-Neutral Interior Redesign Pilot								3 mo	Short-Term
Inclusive Signage & Language Update								2 mo	Short-Term
Bathroom Setup Audit + Upgrade (pilot hotels)								4 mo	Short-Term
Quality Assurance Audits (Quarterly)								Ongoing	Long-Term
Post-Checkout Surveys								Continuous	Long-Term
Social Listening Integration								Ongoing	Long-Term
Digital Ads & Influencer Marketing (Americas)								6 mo	Short-Term
Launch "Swiss Explorer Package"								4 mo	Short-Term
Regional Travel Platform Collaboration								Ongoing	Long-Term
Hyper-Personalized Partner Service Setup								4 mo	Short-Term
Service-Oriented Strategy									
Bi-Annual Staff Training Setup								Ongoing	Long-Term
Annual Certifications Program								2x	Long-Term
"Ask Me for Help!" Badge Campaign								2 mo	Short-Term
Assurance-Focused Training for Frontliners								3x	Long-Term
Real-Time Messaging Setup (e.g., WhatsApp)								2 mo	Short-Term
Set & Enforce Response Benchmarks								4 mo	Short-Term
Guest Follow-Up Automation								3 mo	Short-Term
Develop "Promise Delivered" Protocol								3 mo	Short-Term
Service Consistency Manual (SOPs)								3 mo	Short-Term
Satisfaction Guarantees Implementation								3 mo	Short-Term
Deep Clean Policy Rollout								4 mo	Short-Term
HVAC & Lighting Improvements (selected								5 mo	Long-Term
Local Art Display & Rotation Program								Ongoing	Long-Term

Figure 2: Gantt Chart for Recommendations

Ethics Declaration

Copyright Declaration:

I confirm:

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Declaration of AI use:

I have used AI while undertaking my assignment in the following ways:

a. To automate data collection from various sources, such as web scraping, surveys, or social media. Choose an item.
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c. To ensure the originality of the dissertation content. No
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h. To summarise the following articles/resources (list the complete reference):

1.
2.
3.
4.
5.
6. *(add further lines if needed)*

i. I have used AI in other ways, as described below:

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Non Academic Papers

Simulated Astronaut, Real Dilemmas: The Uncanny Ethics of Space Analogue Tourism

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Abstract: The burgeoning industry of space analogue tourism, which simulates aspects of space travel on Earth, presents a new set of ethical considerations. While this sector holds the promise of democratizing access to astronaut-like experiences and inspiring a new generation of explorers, its expansion, like other forms of extreme tourism, introduces questions concerning environmental impact, social equity, and psychological and potentially medical welfare. This paper analyzes these dimensions, arguing that the industry's development must be guided by a robust and comprehensive ethical framework to ensure responsible growth which includes the potential for environmental degradation. Analogue sites are often located in fragile ecosystems, such as deserts or Arctic tundra, that mimic off-world environments. Without stringent regulations and a commitment to sustainability, this sector could inadvertently harm the very natural wonders it seeks to emulate. Furthermore, the issue of social equity is paramount. The high cost of space analogue tourism may start to create a "pay-to-play" model that excludes all but the most affluent. This exacerbates existing inequalities, commodifying an experience that, in its original context, is a collaborative effort for the benefit of all humanity. The ethical framework must address this by exploring accessible pathways for a more diverse range of participants, such as through subsidized programs. Finally, there is a critical ethical obligation to participant welfare. Simulating isolation, confinement, and high-stress scenarios without proper oversight can pose serious psychological risks. Operators must implement rigorous psychological screening and provide continuous, accessible mental health support throughout the mission. A failure to provide a comprehensive duty of care would be an ethical dereliction, placing participants at unnecessary risk for the sake of a commercial venture. By proactively addressing these challenges, the space analogue tourism industry can evolve responsibly, aligning its commercial goals with ethical conduct and the long-term well-being of both humanity and the planet.

Keywords: Space Analogue Tourism, Ethical Considerations, Environmental Impact, Social Equity, Psychological Welfare

1. Introduction

Extreme tourism, including space analogue tourism, is part of the broader category of adventure tourism which represents one of the fastest-growing niche sectors in global travel. This market encompasses commercial activities undertaken in unfamiliar, remote, or hostile environments, characterized by perceived or actual risk (Janowski et al., 2021, Zaid et al., 2023) The adventure tourism industry is widely delineated into two primary risk typologies based on the required skill level and the degree of risk exposure to the participant. Soft adventure tourism involves activities with relatively low risk and minimal requisite skill, such as guided hiking, organized camping, or snorkeling. Meanwhile, hard adventure tourism demands a higher level of specialized training, physical fitness, and proficiency, involving more dangerous activities such as advanced rock climbing, mountaineering, or specialized polar expeditions.

Extreme tourism is defined as the highest-risk subset of the “hard adventure” category. Extreme tourism focuses on activities that involve travel to inherently unsafe areas, often characterized by severe environmental conditions, high operational liability, or the deliberate pursuit of danger. This category stands alongside other specialized niches tourism such as disaster tourism, ghetto tourism, or the high-risk activities involved in urban exploration.

The recent increase of adventure and extreme tourism, including high-risk activities such as mountaineering, deep-sea exploration, and space tourism, has outpaced the development of ethical and legal governance. While these types of tourism activities, and their high risks, frequently capture public attention and media headlines, they have received limited academic scrutiny or attention on the moral and regulatory dilemmas. Though foundational work exists addressing the ethical dimensions of various forms of extreme tourism (Marsh, 2025, Marsh, 2024, Marsh, 2010, Marsh, 2006), this focus is narrow.

When most people think of extreme tourism, what likely comes to mind are forms of extreme tourism that get a lot of media attention such as space tourism, deep sea diving, and mountaineering. One form is the relatively young and unexplored field of space analogue tourism. Space analogue sites are often remote locations on Earth chosen for their geological, environmental, and operational characteristics that mimic those found on the Moon, Mars, or asteroids. These space analogue sites, often found in environments like deserts, polar regions, volcanic fields, subterranean, and underwater habitats which have historically been crucial to the scientific endeavor of

space exploration (De la Torre et al., 2024). For example, NASA's use of analogues dates back to the Apollo era, sites were for training astronauts in geology and surface operations for the Moon landing while also testing a variety of equipment (Reagan et al., 2012). Since that time, government, academic institutions (e.g., NASA, ESA), and occasional private companies, have utilized space analogues such as Biosphere 2, the Mars Desert Research Station (MDRS), and HI-SEAS in Hawaii, as well as many other dedicated facilities, to conduct critical research into astronaut training, hardware development, human factors, and psychological training with data collection performed by professional scientists and engineers (De la Torre et al., 2024).

In recent years, a type of tourism that might be best described as "space analogue tourism" has come into play. This sector adapts the operational rigor of scientific analogues into a paid, consumer experience, seeking to recreate the psychological, physical, and logistical challenges of space travel for non-scientist or less experienced crew members while providing basic training. For individuals who might never go to space due to the high cost, this can provide a less expensive, longer duration, and unique extreme tourism experience. Notable commercial ventures exemplify this trend, such as Mars-Moon Astronautics Academy & Research Science (MMAARS) which provides virtual scientific training as well as in-person analogue simulations where those skills can be honed (MMAARS, 2025) as well as the ambitious Stardust Research Station proposed by Stardust Technologies (Gemmill, 2022).

While this industry holds undeniable inspirational value, potentially fueling interest in STEM (Science, Technology, Engineering, and Mathematics), the rapid expansion, much like other extreme tourism forms, lacks a comprehensive ethical framework. The absence of such governance poses significant threats to the environment, perpetuates social inequality, and creates dangerous liabilities regarding participant well-being.

The current body of research remains deficient in addressing the broader ethical implications of related high-risk fields, particularly the commercialization of space analogue tourism. This paper contends that the long-term sustainability and legitimacy of the space analogue tourism industry depend entirely on the proactive adoption of a robust ethical framework that strictly governs environmental impact, ensures social equity in access, and prioritizes participant psychological welfare.

2. Environmental Considerations

The space analogue tourism industry is primarily based upon environments that are, paradoxically, pristine and hostile. These locations are selected precisely because they mimic the desolation of the Moon or Mars, yet they are terrestrial ecosystems that are highly sensitive to human intervention. This contradiction forms the core of the first ethical dimension: while the missions simulate off-world detachment, the physical infrastructure, logistics, and continuous presence of commercial operations impose severe, localized environmental damage and must justify the ecological cost of its existence by adhering to a standard of environmental stewardship that is significantly higher than conventional adventure tourism.

2.1 The Fragility of Analogue Sites and Biological Contamination

The ethical risks begin with the direct physical impact on the chosen analogue environments. Analogue sites are often fragile ecosystems where human intrusion, even of expert scientists, can cause slow-healing, long-term damage. For instance, in dry regions, vehicle tracks can destroy the extremely slow-growing cryptobiotic soil crusts, which are vital to soil stability and nutrient cycling, leaving scars that may persist for decades (Ramsey et al., 2025).

Beyond physical damage, risks such as terrestrial biological contamination or the introduction of diseases are significant threats. Analogue sites, particularly those containing extremophiles (microorganisms that thrive in harsh conditions) such as in the polar regions, are invaluable to astrobiologists studying the potential for life on other planets. Uncontrolled tourist activity risks introducing non-native microbes, compromising the scientific integrity of the site and potentially leading to the loss of unique ecological data. Furthermore, the selection of these sites carries an opportunity cost: once degraded by extensive commercial tourism even if basic scientific training is provided, the land may be permanently unsuitable for future, higher-priority scientific research or planetary protection studies, thereby eroding the finite pool of scientifically relevant terrestrial analogues.

2.2 Operational and Logistical Impacts

The ethical critique of environmental impact extends beyond the sites themselves to include the operational and logistical footprint of the industry. To mimic a human presence on Mars or the Moon, analogue facilities

require extensive infrastructure, such as sealed habitats, power generation systems, and waste disposal units all of which necessitate resource extraction and manufacturing, disrupting remote environments (Nelson et al., 2020). The ongoing maintenance of pressurized habitats in extreme temperatures may also create an energy demand far exceeding that of standard eco-tourism.

More significantly, the sheer distance required to move participants and support staff to isolated analogue locations may impose a substantial carbon footprint, relying heavily on air transport and ground logistics across vast, sensitive terrains. The ethical obligation is for the analogue industry to rigorously calculate, report, and offset these high emissions. This must involve moving beyond simple, theoretical carbon offsets to investing directly in local renewable energy infrastructure and sustainable logistics chains that tangibly benefit the surrounding communities and reduce the global warming impact associated with high-altitude and high-distance tourism.

2.3 Proposed Solutions and Mitigations

To mitigate these complex impacts, operators must be held to Stringent Environmental Regulations, ideally enforced by an independent, international accreditation body and tied to specific ISO standards. This should include mandating net-zero operational policies within a defined timeline, implementing strict protocols for waste management, and the prevention of biological cross-contamination. This could require the use of sterilization vestibules and mandatory equipment decontamination procedures modeled after planetary protection standards. A critical step is the establishment of comprehensive buffer zones and continuous environmental monitoring programs to track soil, water, and atmospheric changes surrounding the primary habitat. Furthermore, the industry must commit to sustainability as a core commercial principle, actively funding and executing long-term ecological restoration projects in the local communities they impact, thus ensuring that the analogue experience contributes positively to, rather than merely extracting value from, the terrestrial environment.

3. Social Equity and Access

The high-risk, high-reward nature of space analogue tourism, like most other extreme tourism adventures, creates an ethical dilemma concerning access and fairness. As a costly commercial enterprise, it threatens to transform an experience rooted in scientific collaboration and public inspiration into an exclusive commodity. The ethical responsibility here is to reconcile the profit motive with the founding principle of space exploration: that the endeavor should benefit all of humanity. Addressing this requires a direct engagement with the financial mechanisms that create barriers and a clear strategy for promoting merit-based inclusivity.

3.1 Social Equity and Access

The high financial barrier to entry for space analogue tourism, although certainly less expensive than an actual spaceflight makes it possible for middle class individuals with several thousand dollars of disposable income (MMAARS, 2025) which still leaves out those of lower socioeconomic status. This fundamentally establishes a "Pay-to-Play" model for simulated exploration. The financial barrier does not just restrict access; it raises ethical questions about the opportunity cost of diverting massive private wealth into simulated experiences when significant global challenges remain. The ethical mandate is to justify this exclusivity by demonstrating a clear, measurable public benefit. Furthermore, the industry currently lacks transparency in its selection criteria, suggesting that access is determined more by the size of one's bank account than by merit, aptitude, or commitment to scientific goals, thereby failing to reflect the diversity of human capability.

3.2 Exacerbating Existing Inequalities and Commodified Identity

This financial exclusivity deepens existing inequalities by prioritizing wealth over merit. The experiences are often marketed with language reserved for genuine discovery and heroism, commodifying the identity of the "explorer." This marginalizes those from low-income or historically underrepresented groups who lack the means but possess the intellect and passion for exploration.

The social injustice is compounded when analogue experiences are used as credentialing tools, potentially giving paying participants an unfair advantage in later scientific, military, or genuine space-related applications. An ethical framework must prevent the analogue experience from becoming an exclusive, paid form of career

gatekeeping, ensuring that the pursuit of personal adventure does not disproportionately benefit a privileged few at the expense of equitable scientific representation.

3.3 Strategies for Accessible Pathways

To address this significant ethical gap, the industry must develop Strategies for Accessible Pathways and integrate a mandatory Corporate Social Responsibility (CSR) component into its business model. This requires dedicating a minimum percentage of commercial revenue to robust, competitive subsidized programs and full scholarship opportunities. These programs must specifically target educators, emerging researchers, and members of historically underrepresented groups in STEM, based on merit and demonstrable scientific potential rather than financial capacity. Operators should also partner with national science foundations, NGOs, and educational institutions to establish community outreach partnerships that bring the educational elements of the analogue experience to underserved schools, thereby linking commercial success directly to genuine contributions toward social equity and scientific diversity. Furthermore, establishing clear criteria for merit-based participation tiers could provide pathways for exceptional individuals to join missions without bearing the full financial burden.

4. Participant Welfare and Duty of Care

The simulation of isolation, confinement, and high-stress scenarios, the very elements that make analogue tourism appealing, introduces profound ethical risks concerning participant health. Unlike professional astronauts who undergo years of preparation, commercial tourists are exposed to these intense psychological and physical stressors with significantly less training (Marsh, 2024). Therefore, the commercial operators bear an exceptionally high duty to safeguard the well-being of participants, recognizing that the pursuit of profit must never compromise human safety.

4.1 Identifying Psychological and Physical Risks in Simulated Extremity

Analogue tourism activities involve the deliberate simulation of extreme conditions, including prolonged isolation, confinement, and high-stress scenarios. These environments can trigger or exacerbate pre-existing psychological vulnerabilities, leading to issues like acute stress reactions, anxiety, depression, burnout, and behavioural conflicts within the crew (Marsh, 2007). Given the commercial sector's condensed timelines and focus on maximizing customer experience, they often lack the extended preparation phases common in government programs, thus significantly increasing the risks of a negative psychological outcome. The risks are compounded by unique, mission-specific hazards within analogue habitats, such as the potential for equipment malfunctions (e.g., gas leaks, life-support failure), severe weather, and unforeseen local environmental threats (e.g., wildlife interaction) in remote areas.

The operator's ethical responsibility must extend beyond basic liability to encompass a holistic duty of care, acknowledging the unique vulnerability that arises when simulating existential danger for commercial profit. This must address both pre-mission education and in-mission support.

A failure to provide this comprehensive duty of care constitutes ethical dereliction, demonstrating a willingness to prioritize commercial profit over human safety and well-being. While developing clear liability waivers is necessary to communicate inherent risks, these documents must not be used to absolve operators of their responsibility to implement necessary safety protocols. Accountability must be enforceable through regulatory bodies or industry-agreed standards.

4.2 Mandating Psychological Oversight and Continuous Psychological Support

Operators bear an ethical obligation to mandate rigorous and continuous oversight of their missions. This must include mandatory medical screening as well as psychological screening processes that go beyond simple questionnaires, incorporating clinical interviews, psychometric testing, and behavioural assessments modeled after stringent astronaut selection standards. The screening must explicitly aim to identify resilience traits, cognitive functioning under duress, compatibility with crew dynamics, and clear red flags for mental health instability under stress.

Crucially, when in-mission, continuous and accessible mental health support must be delivered by qualified, licensed professionals with specific experience in remote or operational psychology. This support must be

available 24/7 and provided throughout the mission via secure, private communication channels, allowing participants to seek help without fear of immediate mission termination unless safety is compromised.

Extreme tourism, whether lasting minutes or months, faces a critical regulatory void regarding medical preparedness. Although remote, high-risk environments logically require advanced medical supplies, current regulations fail to mandate a minimum standard of care. Existing safety frameworks, such as international air and sea conventions, focus primarily on operator liability for injury or death, but remain silent on required medical equipment or training onboard. This gap is glaringly evident in the commercial space sector: the 2004 Commercial Space Launch Amendments Act, for instance, places exhaustive emphasis on informed consent, requiring operators to inform participants in writing about known and unknown hazards and catastrophic failure rates, yet it specifies no mandatory medical equipment, training, or personnel requirements whatsoever (Marsh, 2006). Similarly, terrestrial extreme tourism often operates under minimal or self-imposed medical standards (Kamler, 2000, Weathers and Michaud, 2000). Given the vast differences in environments (polar, jungle, mountain), the solution is not a single rule, but a shift toward requiring professional, standardized remote care training, such as the Wilderness First Responder (WFR) or Wilderness EMT (WEMT) certification, as a minimum prerequisite for commercial extreme tourism operators.

Furthermore, pre-mission education should include detailed, realistic expectations about the psychological stressors involved, focusing on resilience training, conflict resolution, and coping strategies, ensuring genuine and fully informed consent.

This accountability should extend to Post-Mission Care, which is often overlooked. Operators should be ethically and contractually obligated to provide mandatory psychological debriefing and a period of follow-up mental health support (e.g., six months) to address potential delayed onset of symptoms, such as post-trauma stress or reintegration issues after prolonged isolation. Operators must be prepared for legal and financial liability for foreseeable harm resulting from negligence in psychological and physical risk management, ensuring that safety is the primary, non-negotiable metric of mission success.

5. Conclusion

The continued growth of the space analogue tourism industry presents a compelling opportunity to both inspire the public and generate commercial revenue, but this potential is fundamentally conditional on adhering to a robust ethical framework. The three pillars of Environmental Responsibility, Social Equity, and Participant Welfare are interdependent: damage to one pillar threatens the legitimacy of the entire enterprise. Permitting analogue tourism to degrade pristine natural environments undermines its scientific value, while limiting access solely to the wealthy erodes its societal justification. Furthermore, prioritizing profit over the psychological safety of participants demonstrates a fundamental failure of moral conduct. Ethical governance should not be viewed as an impediment to commercial success but rather as a necessary prerequisite for securing the long-term social and environmental license to operate. A collective effort involving industry leaders, regulatory bodies, and ethics scholars is required to proactively develop a standardized and enforceable ethical charter, ensuring that the dreams of off-world exploration are not pursued at the expense of our ethical duties on Earth.

Ethics Declaration

Ethics approval was not needed for this paper as it was theoretical and did not use human subjects.

AI Declaration

All ideas in this paper were created by humans however AI was used for sentence improvement and grammar correction as we did not have the time to run this through a human editor due to time constraints.

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Work in Progress Papers

Luxury Tourism: Perception of Pet-Friendliness in European Hospitality

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Abstract: Pet ownership is expanding across Europe, yet destination-level conditions that enable dog-inclusive luxury tourism remain uneven and weakly coordinated across mobility, public-space access, and hospitality services. This study examines how European dog travellers evaluate destination infrastructures and regulatory conditions alongside five-star hotel practices, and identifies factors associated with satisfaction and loyalty intentions. An online questionnaire (seven-point Likert-type measures) was administered to European dog travellers via Google Forms and 457 valid responses (from 841 initial) met eligibility criteria, including recent overnight travel with a dog and a five-star hotel stay in Europe within the last five years. Analyses were descriptive and exploratory, using descriptive statistics and Spearman correlations. Results indicate strong perceived availability of dog-accepting accommodation (M = 5.32) and emergency veterinary services (M = 5.22), but greater heterogeneity where access rules are contested, such as attraction entry restrictions (e.g., monuments; M = 4.10) and everyday commercial settings (e.g., supermarket waiting areas; M = 4.11). Mobility remains only partially enabling: public transport for dogs is rated slightly above the midpoint (M = 4.63) and is positively associated with perceived accommodation acceptance ($\rho = 0.107$, $p = 0.023$); beach access is frequently reported as limited and locally variable. Within luxury hotels, general professionalism is rated highly, yet pet-specific service depth is weaker, particularly regarding clarity of circulation policies in common areas (M = 4.75). A substantial share of respondents report foregoing activities due to dog-care constraints (M = 4.12; 43.33% agreement). The study proposes a destination framework with four interdependent pillars, health and well-being, economy and tourism, environment and education, implemented through strategic coordinated regulation, clear mobility information, designated spaces, partnerships, signage and public-space planning to strengthen satisfaction, loyalty and competitive differentiation.

Keywords: Luxury Tourism; Pet-friendly Hospitality; Dog-travellers; European Destinations; Service Quality and Loyalty.

1. Introduction and Conceptual Background

The presence of companion animals in urban environments has been steadily increasing, yet scholarly and societal responses remain episodic and fragmented, often producing sector-specific and short-term interventions rather than integrated approaches across policy domains and service systems (Buhalis and Chan, 2023; Granai et al., 2024; Mars PetCare, 2019). While early work identified travel with dogs as an emerging tourism segment and linked pet attachment to leisure-related behaviour (Dotson et al., 2010; Chen et al., 2011), more recent research indicates that pet-inclusive travel remains unevenly supported across destination systems and service contexts, with satisfaction and revisit intentions shaped by the consistency of enabling conditions beyond accommodation alone (Ying et al., 2021; Buhalis and Chan, 2023). In European contexts, the operational depth of pet-friendly provision, particularly in luxury hospitality, continues to vary across properties and destinations, reinforcing the need to move from isolated acceptance policies to coherent, destination-level coordination across mobility, access rules, and public-space use (Buhalis and Chan, 2023; Ramos Ruiz et al., 2024; Granai et al., 2024).

Accommodation is frequently positioned as a pivotal component of destination competitiveness in attracting pet travellers, as travellers who journey with their dogs seek emotionally meaningful experiences that are genuinely inclusive rather than merely permissive (Huang et al., 2021). This logic aligns closely with luxury hospitality, a segment characterised by high expectations of personalisation and consistently high service quality and one that has expanded markedly in recent decades, particularly in major European destinations (Kotur and Dixit, 2022; Yang and Mattila, 2016). Although pet-friendly accommodation is increasingly discussed as an emerging hospitality trend, including within luxury contexts, practices and service depth remain inconsistent across properties and destinations (Buhalis and Chan, 2023; Ramos Ruiz et al., 2024). Given the established relationship between perceived service quality and loyalty intentions, pet inclusivity in luxury hospitality should therefore be understood as a coherent service proposition rather than a simple acceptance policy (Alves et al., 2022).

Accordingly, this study investigates how European dog travellers perceive destination infrastructures, public policies and luxury hotel practices, and which factors are most influential for satisfaction and loyalty. It further advances an integrative destination development framework organised around four interrelated pillars (health and well-being, economy and tourism, environment, and education), emphasising coordinated action among public and private stakeholders to support consistent policies, accessible infrastructure and high-quality service provision for dog travellers (Granai et al., 2024; Mars PetCare, 2019).

2. Methodology

This study adopts a quantitative design based on an online questionnaire administered to European dog travellers, through the non-probabilistic convenience sampling method. Data collection was outsourced to a market research firm during April and May 2024 via Google Forms and disseminated through social media, tourism agencies, tour operators, and related businesses. A pre-test in early April 2024 informed minor refinements prior to full deployment. Of 841 initial responses, 384 were excluded due to eligibility criteria, yielding a final analytical sample of 457 valid questionnaires. Eligibility required respondents to be at least 18 years old, to have lived with a dog for a minimum period, to have completed at least one overnight trip with their dog, and to have stayed in a five-star hotel in Europe within the previous five years, ensuring informed assessment of both destination-level pet-friendliness and luxury hospitality contexts.

The questionnaire captured perceptions of pet-friendliness at destination and hotel levels, focusing on infrastructures and regulatory conditions shaping travel feasibility (e.g., accommodation acceptance, emergency veterinary services, access rules for public spaces and attractions, beach policies, and transport-related constraints). It also assessed luxury hospitality practices and experience evaluations aligned with the service quality–satisfaction–loyalty nexus, alongside information-search behaviours using digital platforms and specialised planning tools for dog-inclusive travel. Analyses were descriptive and exploratory, using descriptive statistics and Spearman correlations, appropriate for ordinal, seven-point Likert-type measures, to examine associations between perceived destination conditions and enabling factors for dog travel in Europe.

3. Findings and Data Analysis

Pet-friendliness emerges as a sequence of enabling and constraining conditions that jointly shape travel feasibility, satisfaction and the likelihood of repeat choice. Across the survey, respondents distinguish between what is available and visible at destination level, what becomes restrictive through mobility and access rules, and what luxury hotels deliver in practice once the stay begins. Respondents revealed that the last European destination visited with their pet was predominantly France, United Kingdom and Italy. Hence, these countries represented the realities studied.

3.1 Perceptions of Destination Infrastructure and Services

At destination level, enabling conditions are generally evaluated positively, particularly regarding core support services. Respondents reported high agreement that dog-accepting accommodation is available across European destinations (M = 5.32, SD = 1.535) and that emergency veterinary services exist (M = 5.22, SD = 1.570), indicating that accommodation acceptance and critical animal health coverage are perceived as comparatively well established. Supporting infrastructures are also rated above the midpoint of the scale, including pet grooming services (M = 4.89, SD = 1.512) and parks or public spaces that accept dogs across the city (M = 4.86, SD = 1.666), suggesting that everyday destination usability is present, albeit not uniformly strong.

By contrast, perceptions become markedly more heterogeneous where access rules are socially and institutionally contested. Agreement that monuments are normally restricted to dogs is moderate (M = 4.10, SD = 1.857), but dispersion is the highest among destination items (Var = 3.448), signalling substantial variation in lived experience across places. A similar pattern is observed for supermarkets offering designated waiting areas for dogs (M = 4.11, SD = 1.803, Var = 3.251), reinforcing that pet-friendliness is not perceived as a single destination attribute but as a configuration of rules that varies across jurisdictions and commercial contexts.

3.2 Mobility and Access Restrictions, Including Transport and Beaches

Mobility is perceived as feasible yet only partially enabling. On average, respondents rated the statement that public transport systems allow dogs slightly above the midpoint (M = 4.63, SD = 1.592), corresponding to a neutral to mildly positive overall assessment. Importantly, this perception is statistically associated with the

perceived availability of dog-accepting accommodation. A positive Spearman correlation was found between accommodation acceptance and public transport allowing dogs ($\rho = 0.107$, $p = 0.023$), indicating that destinations perceived as more accommodating in lodging also tend to be seen as more accessible in terms of mobility. This linkage matters because pet-friendliness gains coherence when accommodation and transport conditions improve simultaneously.

Airport-related support follows a similar pattern. The perceived availability of designated airport areas or dedicated amenities for dogs is slightly above the midpoint (M = 4.55, SD = 1.658), suggesting that mobility-enabling features exist but remain uneven. Alongside these quantitative patterns, respondents also report that beach access is often limited and locally heterogeneous, particularly during peak periods, creating an external constraint for coastal luxury hotels whose ability to influence shoreline rules is structurally restricted.

3.3 Luxury Hospitality Practices and Service Gaps

Within luxury hospitality, perceptions of service quality are generally positive in interpersonal and managerial domains, but weaker where pet-specific tangibility and circulation clarity become operationally decisive. The highest-rated items include professional management (M = 5.35, SD = 1.475) and courteous and equal treatment of guests with and without dogs (M = 5.33, SD = 1.484). These items also show strong concentration of agreement, with 75.27% of respondents endorsing professional management and 72.21% agreeing that service is courteous and equal, while neutrality remains non-negligible (12.69% and 16.19%, respectively).

At the same time, several indicators point to limitations in service depth that are critical for pet-inclusive luxury. The lowest mean among the twenty service items concerns the clarity of circulation policies for animals in common areas (M = 4.75, SD = 1.774, Var = 3.147), indicating that the rules governing everyday movement within hotels remain ambiguous. Similarly, the perceived existence of innovative infrastructures for companion animals (M = 4.82, SD = 1.582) and of a specific marketing plan targeting dog travellers (M = 4.88, SD = 1.672) remains below the highest-rated service domains. Together, these results suggest that luxury hotels may perform well in general service professionalism while still exhibiting gaps in the specific systems, infrastructures and operational clarity required to sustain a consistently pet-inclusive luxury proposition.

3.4 Impact on the Experience, Foregone Activities, and Demand for Inclusion

The clearest evidence of unmet experiential inclusion emerges from the structural constraint that dog care competes directly with tourism participation. Respondents reported moderate agreement with the statement "I cannot participate in activities because I have to care for my dog at the same time" (M = 4.12). The distribution is revealing: 43.33% agree, 36.76% disagree and 19.91% are neutral. This pattern indicates that, for a substantial share of luxury dog travellers, pet-friendliness is not exhausted by access permission. It is realised only when the destination and hotel ecosystem enables shared participation, reduces trade-offs and supports activity engagement without forcing travellers to choose between their holiday experience and dog care.

These findings inform Figure 1, which synthesises four interdependent pillars and the operational levers required to strengthen satisfaction and loyalty in luxury pet-friendly tourism.

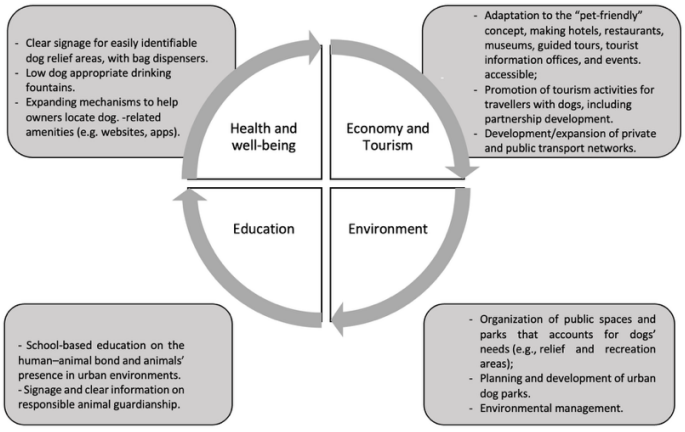


Figure 1: Destination-level framework for luxury pet-friendly tourism organised around four interdependent pillars.

4. Conclusion

This study examined luxury tourism through the lens of pet-friendliness in European hospitality. Dog travellers report strong enabling conditions in accommodation acceptance and emergency veterinary services, but inconsistent inclusion where access rules vary across attractions and everyday commercial settings. Mobility and coastal access remain key constraints, and luxury hotels, while rated positively for overall professionalism, show weaker provision in pet-specific infrastructures, policy clarity, and inclusive programming. As a result, travellers often forgo activities due to dog-care responsibilities.

A methodological caveat should be noted: questionnaire reliability fell below commonly accepted thresholds, and response variability may reflect cross-cultural differences inherent to the phenomenon.

Overall, the results support the proposed framework, structured around health and well-being, economy and tourism, environment, and education, and suggest that competitive differentiation depends on coordinated governance, clear mobility guidance, and integrated pet-support measures that convert pet acceptance into satisfaction and loyalty.

Ethics Declaration

Ethical clearance was not required under the authors' institutional guidelines, as the study used an anonymous questionnaire with adult participants and collected no special category data. Participation was voluntary, informed consent was obtained, and applicable data protection requirements were observed.

AI Declaration

Generative AI tools were used solely for language editing (improving clarity, grammar, and concision) and did not generate original research data, analyses, or results. All AI-assisted edits were reviewed and verified by the authors, who take full responsibility for the content.

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Events and Hospitality: Strategic Insights From Hotel Managers in Portugal

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Abstract: Events have emerged as critical levers for destination competitiveness, seasonality mitigation, and hospitality performance. However, the impact of events on hotel operations remains underexplored, particularly from the perspective of hotel management. This exploratory study examines how hotel directors perceive, measure, and adapt to the influence of events across different Portuguese destinations. A focus group was conducted with hotel directors operating in various regions of Portugal, representing both independent and chain-affiliated units. Through a content analysis approach, six thematic dimensions were identified: 1) limitations in capturing guest motivations and event-related revenue; 2) disparities in data sharing and benchmarking practices; 3) regional and typological variability in event impact; 4) internal organizational responses to event operations; 5) structural challenges in stakeholder coordination and communication; and 6) prospective trends in event-driven hospitality strategy. Findings reveal considerable heterogeneity in how hotels integrate events into strategic planning, especially concerning pricing, forecasting, and operational readiness. While internal events are more easily tracked, external events often generate unaccounted residual revenues. The results also underscore persistent difficulties in institutional coordination, particularly with municipalities, and a general reluctance among hotel administrators to share performance data due to competitive concerns. Nevertheless, the focus group highlighted that academically framed collaborations may facilitate more open dialogue and data sharing. The study offers preliminary yet valuable insights into the operational, strategic, and governance challenges faced by hotels in leveraging events as tools for value creation, brand positioning, and sustainability-oriented planning. By shedding light on the interface between event dynamics and hospitality management, this research contributes to academic debate and practice in tourism destination development.

Keywords: Event Management; Hospitality Strategy; Hotel Performance; Stakeholder Coordination; Event-related Demand Attribution.

1. Introduction

Events are widely recognised as strategic instruments that can strengthen destination competitiveness and influence tourist satisfaction, with implications for local tourism performance and hospitality demand dynamics (Teixeira et al., 2019). Hotels, in turn, operate as key "interfaces" where event-related demand is converted into measurable outcomes such as occupancy, average daily rate (ADR), revenue per available room (RevPAR), and total revenue, and where such demand is shaped by managerial decisions (Borovcanin et al., 2020; Moreno Melgarejo et al., 2020; Piga and Melis, 2021). Yet, empirical studies also show that event impacts are not necessarily uniform, varying by event type and by hotel segment or tier, which implies that destination-level narratives may conceal differentiated firm-level effects and managerial challenges (Collins et al., 2022; Moreno Melgarejo et al., 2020; Piga and Melis, 2021). Because much existing evidence relies on aggregated performance indicators and event–baseline comparisons, both the profiling of event-driven travel motives and the attribution of indirect or residual revenue effects remain analytically challenging, with important implications for forecasting and strategic learning (Piga and Melis, 2021). From the demand-side, events can also affect experiential evaluations in accommodation contexts, particularly when event experiences are integrated with the hotel setting, reinforcing the relevance of understanding how hotels respond to event-linked guest experiences and satisfaction outcomes (Boo and Busser, 2018; Teixeira et al., 2019). Nevertheless, the ability to strategically integrate events into forecasting, pricing and readiness depends on the quality of information flows, monitoring capacity and coordination arrangements, which have been shown to remain constrained in event

operations (Alananzeh, 2022; Melly et al., 2023; Piga and Melis, 2021). Against this background, this exploratory study examines how Portuguese hotel directors perceive, measure, and operationalise event impacts in forecasting, pricing, preparedness, and stakeholder coordination.

2. Literature Review

Event–hospitality research has frequently operationalised event impact through hotel performance indicators (e.g., occupancy, ADR, RevPAR and total revenue), showing that major events can generate measurable uplifts while highlighting attribution challenges when performance gains must be linked to specific event stimuli and revenue lines (Borovcanin et al., 2020; Moreno Melgarejo et al., 2020).

However, the literature also presents opposing view on "revenue value" of events for hotels. While daily-data studies document large occupancy, price and revenue increases for some flagship events, they also show that many events yield small or statistically insignificant effects, reinforcing that impacts depend on event type and market context (Depken II and Stephenson, 2018; Steitz and Hall, 2020). Moreover, even when hotel KPIs rise, event-related gains may be unevenly distributed across hotel segments and may reflect shifts in demand composition across hotel tiers rather than a uniform expansion (Collins et al., 2022), with displacement mechanisms further moderating net effects (Brännäs and Nordström, 2006). Finally, event-impact estimation is often moderated by capacity constraints, displacement mechanisms and attribution limits (e.g., leakages and measurement limitations in standard hotel datasets), which can lead hotels to under- or over-estimate the contribution of externally hosted events in routine performance reporting (Brännäs and Nordström, 2006; Depken II and Stephenson, 2018; Piga and Melis, 2021).

Comparative approaches that contrast event periods with "business-as-usual" baselines further indicate that price and occupancy responses may vary across editions of similar festivals, reinforcing the conditionality of event effects and the importance of contextual moderators (Piga and Melis, 2021). Relatedly, performance comparison practices can be supported by third-party performance systems and aggregated reporting, yet empirical knowledge remains comparatively thinner regarding the specific inter-organisational information flows and coordination processes through which event intelligence is shared and operationalised across destination actors (Piga and Melis, 2021). Evidence from heterogeneous hotel markets demonstrates that event types can shift demand composition across hotel tiers (from economy to luxury), suggesting that event externalities may reshape demand within the accommodation system rather than uniformly expand it, with implications for segmentation and revenue management (Collins et al., 2022). Beyond performance metrics, events have been linked to tourist satisfaction and to dimensions of regional tourism competitiveness, supporting their strategic interpretation as destination value-creation mechanisms (Teixeira et al., 2019). At the micro-experiential level, research on hotel-based event experience shows that when events are integrated into the hotel setting, satisfaction outcomes are affected, positioning hotels as part of the event consumption ecosystem rather than as passive capacity providers (Boo and Busser, 2018; Teixeira et al., 2019). Post-crisis work on event operations also documents governance and resource constraints, such as limited monitoring capacity, indicating that coordination architectures and information flows can condition both event feasibility and hospitality preparedness (Alananzeh, 2022; Melly et al., 2023). Collectively, these streams motivate manager-centred inquiry into how hotels perceive, measure and operationalise event impacts under heterogeneous market conditions and coordination constraints.

3. Methodology

This exploratory study adopted a qualitative design using a semi-structured focus group to examine how hotel leaders perceive, measure, and operationalise event impacts in hotel strategy and operations. The session followed a structured guide addressing: i) participant and hotel profiling; ii) perceived impacts of internal and external events on performance and operations; iii) information management and guest/event profiling; iv) organisational responses and interdepartmental alignment; v) coordination with destination actors; and vi) future trends and innovation in event-driven hospitality strategy. The focus group was held on 22 March 2024 (61 minutes), moderated by two researchers, and involved nine participants from hotel management and senior professional roles. With informed consent, the session was audio-recorded and transcribed verbatim, with identifiers removed to ensure confidentiality and GDPR-aligned data handling. Data were analysed through qualitative content analysis using iterative coding, moving from meaning units to higher-order themes, combining sensitivity to performance monitoring and event baselines with openness to emergent managerial concerns. The process yielded six thematic dimensions: measurement limitations; data and performance

comparison practices; contextual heterogeneity; internal organisational responses; stakeholder coordination challenges; and prospective strategic trends.

4. Findings and Data Analysis

The content analysis shows that hotel leaders consider events strategically relevant, yet they frequently emphasise the limited informational granularity available to identify event-driven demand and attribute its value, especially for externally hosted events. A core difficulty concerns profiling the purpose of stay: "Often, we do not know what guests' motivations are when they arrive… whether they come for leisure, for example, or with another purpose". This limitation is reinforced by procedural constraints at check-in, where "in many cases, check-in… there is a standardised procedure that prevents that question". Consequently, performance uplifts may be observed, but causal learning about which events drive which segments and behaviours remains constrained.

Measurement challenges are accentuated when considering ancillary and indirect revenues. Internal/contracted events allow clearer tracing of consumption (e.g., bundled meals), whereas external events generate dispersed spending that may not be systematically tagged to the event. As one excerpt summarises: "extra consumption, such as trips to the bar, is paid by guests themselves and is not included". Similarly, indirect revenues may be under-allocated across internal systems: "Imagine a delegate uses the spa; that spa revenue will, in no way, be allocated or associated with the event". This distinction helps to explain why managers perceive the value of external events as partially "invisible" in routine reporting.

A second set of findings concerns data governance and performance comparison practices and their implications for coordination. The analysis registers organisational resistance to transparency, "there are administrations that do not like to share results… 'secrecy is still the soul of the business'", while also noting that an academic framing may facilitate openness: "if the approach is academic, it may be somewhat easier…". In parallel, coordination with public actors is depicted as uneven, with "communication between municipalities… and hotels about the events calendar being very deficient". These data practices have direct coordination implications, as limited sharing and uneven comparative performance information constrain the circulation of event intelligence, reinforcing late and fragmented communication with destination actors.

Third, impacts are framed as structurally heterogeneous by region and hotel typology: "the impact will be different for Algarve, Lagos, Madeira or the Azores, following a regional and seasonal logic". This heterogeneity translates into differentiated operational responses, including staffing and F&B adjustments during peak moments: "…knowing, for example, that there are 60 people without lunch… we put a buffet to speed up… at the end of the month, we add up 7–9 thousand euros". Operationally, this uncertainty affects not only staffing and F&B capture, but also forecasting and pricing readiness, particularly when events are externally hosted and demand baselines are difficult to establish.

Overall, and summarized in Figure 1, the findings reinforce that converting event dynamics into measurable and governable hospitality strategy depends on improved profiling, more systematic attribution practices, and more reliable coordination and information flows across destination actors.

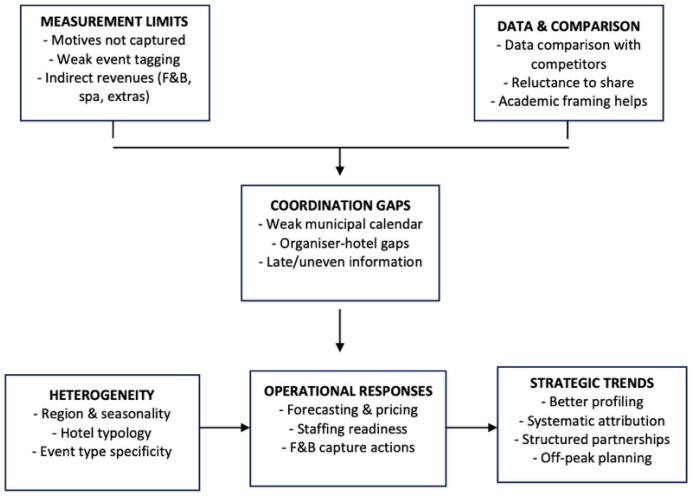


Figure 1: Event–hospitality interface: focus group-derived thematic framework

5. Conclusion

This exploratory focus group study advances understanding of the event–hospitality interface by foregrounding hotel directors' perspectives on how event impacts are recognised, measured, and operationalised across Portuguese destination contexts. Findings indicate that strategic use of events is constrained by limited profiling of guests' event-related motives and by weak attribution of indirect revenues, particularly for externally hosted events, which restricts forecasting accuracy and learning. Results also highlight persistent coordination gaps, most notably uneven municipal communication, and organisational reluctance to share performance information, although academically framed collaboration may facilitate more constructive exchange. Importantly, event impacts are perceived as structurally heterogeneous across regions and hotel typologies, requiring context-sensitive operational readiness, pricing, and F&B capture strategies. Overall, enhancing event-driven hospitality strategy depends on improved data capture, more systematic attribution practices, and more reliable inter-organisational information flows to support measurable and governable value creation.

Acknowledgements

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Ethics Declaration

This research did not require formal ethical clearance as it did not involve any vulnerable populations or sensitive topics. All participants provided informed consent prior to their participation in the study.

AI Declaration

No generative artificial intelligence (AI) was used in the writing or editing of this work.

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Cybersecurity-Enhanced Futures Thinking for Business Model Innovation in VUCA Environments

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Abstract: In an increasingly volatile, uncertain, complex, and ambiguous (VUCA) business environment, organizations must adopt forward-looking strategies to remain resilient and competitive. This study builds upon the Futures Thinking and Business Model Innovation framework proposed by Vähänikkilä and Vakkuri (2025), integrating cybersecurity as a critical dimension of strategic foresight and organizational adaptability. While Futures Thinking enables companies to envision plausible and preferred futures, cybersecurity provides the structural integrity and trust necessary to realize those visions in digitalized ecosystems. Using qualitative methods, including interviews and co-creational workshops in the hospitality sector, the original research identified key barriers to Futures Thinking: lack of understanding and limited resources. This extended study proposes that cybersecurity awareness and preparedness can act as both a catalyst and a safeguard in business model innovation. Cybersecurity considerations—such as data protection, digital trust, and resilience against emerging threats—are mapped onto the five-stage innovation process: environmental scanning, vision formulation, knowledge alignment, innovation implementation, and feedback iteration. Examples from hospitality, e-commerce, and logistics illustrate how cybersecurity influences decision-making, customer trust, and operational continuity. The integration of cybersecurity into Futures Thinking tools (e.g., wild cards, foresight canvases) enhances scenario planning and supports dynamic capabilities such as sensing, seizing, and transforming. This research contributes a novel perspective to the academic discourse by linking cybersecurity with strategic foresight, emphasizing its role not only in risk mitigation but also in enabling innovation. The proposed model encourages organizations to treat cybersecurity as a strategic enabler rather than a technical constraint, fostering future-proof business models that are both visionary and resilient.

Keywords: Cybersecurity, VUCA Environments, Business Model Innovation

1. Introduction

In today's volatile, uncertain, complex, and ambiguous (VUCA) environment, hospitality companies face strong pressure because of digitalization, data-driven customer systems, and connected business networks (Bennett & Lemoine, 2014; Ivanov & Webster, 2019). Futures Thinking gives a structured way to imagine possible and preferred futures. It helps organizations learn in advance and prepare for different options (Voros, 2003; Ramírez & Wilkinson, 2016). At the same time, Business Model Innovation (BMI) allows companies to change how they create and capture value so they can stay competitive in uncertain times (Teece, 2010; Foss & Saebi, 2017).

Cybersecurity is often seen only as a technical protection, but it is more than that. It is a strategic capability that supports digital trust, operational resilience, and the success of future-oriented innovations (NIST, 2018; Woods, 2015). In this paper, we build on the Futures Thinking and BMI framework by Vähänikkilä and Vakkuri (2025) and add cybersecurity into the process. Our planned study, taking place in 2026, will use qualitative data from interviews and co-creation workshops in the hospitality sector. We argue that cybersecurity awareness and readiness can work as both a catalyst and a safeguard for business model innovation. This integration helps companies design business models that are not only innovative but also secure and resilient for the future.

2. Theoretical Foundations

2.1 VUCA and Strategic Responses

The business environment today is often described as VUCA, which means volatility, uncertainty, complexity, and ambiguity. Volatility refers to fast and unpredictable changes. Uncertainty means that future outcomes are difficult to predict. Complexity shows that many factors are connected and influence each other. Ambiguity means that information can be unclear or interpreted in different ways (Bennett & Lemoine, 2014).

VUCA conditions make planning and decision-making challenging. Traditional management tools often fail because they assume stability. Organizations need new approaches to deal with these challenges. One important approach is strategic foresight, which helps companies to look ahead and prepare for

different possible futures. It does not predict the future exactly but explores several options and supports better decisions under uncertainty (Rohrbeck & Kum, 2018; Ramírez & Wilkinson, 2016).

2.2 Futures Thinking and Business Model Innovation

Futures Thinking is a structured process that moves from scanning signals to creating scenarios and linking them to strategy (Voros, 2003). Scenario planning is one of the most common tools. It helps organizations to think about different futures and test their strategies against them. This improves robustness and resilience and gives more options for action (Schoemaker, 1995; Wright, Cairns & Goodwin, 2019).

Business Model Innovation means changing how a company creates and captures value. It can include new revenue models, partnerships, or service designs (Teece, 2010). Research shows that BMI is important for adapting to change and uncertainty (Foss & Saebi, 2017). In service industries like hospitality, BMI must fit customer journeys and digital ecosystems (Osterwalder & Pigneur, 2010; Wirtz et al., 2016).

2.3 Cybersecurity as Strategic Enabler

Cybersecurity is often seen as technical, but it is also a strategic capability. It includes preparedness, detection, response, and recovery (NIST, 2018). Strong cybersecurity builds digital trust, which influences customer behaviour and adoption of services (McKnight, Choudhury & Kacmar, 2002; Böhme & Moore, 2012). It also supports organizational resilience in complex systems (Woods, 2015; Hollnagel, 2011). This is very relevant for hospitality, where operations depend on data and digital platforms (Lu & Chen, 2015; Ivanov & Webster, 2019).

3. Proposed Framework: Cybersecurity-Enhanced Futures Thinking

Foresighting the future is an essential action in the business world. For that reason, managers must create new ways to build opportunities for using foresight methods beginning from the early stage of the business model innovation process. The following model illustrates how future thinking and business model innovation process can be linked with cybersecurity management. It introduces two phases: A) strategic and B) tactical. Companies must have a big picture of the future-oriented planning, and the practical implementation guidelines. In this process model there are five business development stages: 1) environmental scanning, 2) vision formulation, 3) knowledge alignment, 4) innovation implementation and 5) feedback and iteration (figure 1).

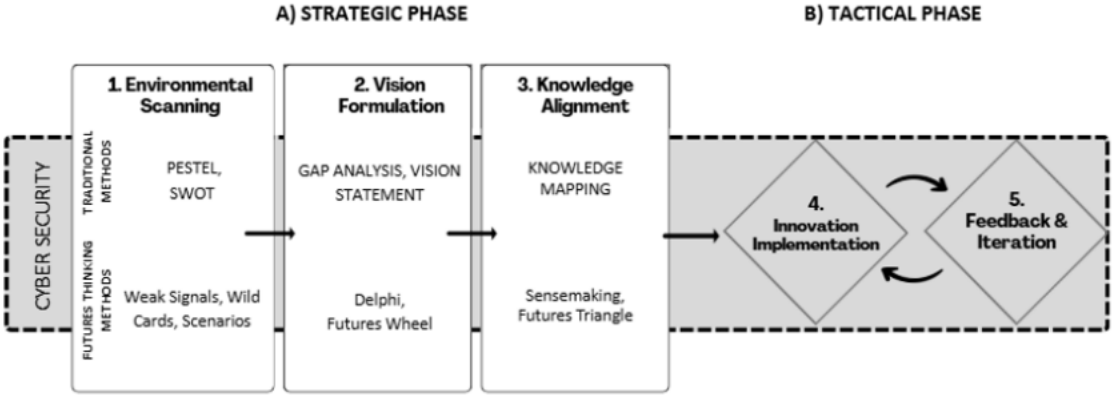


Figure 1: Cyber Security embedded Business Model Innovatin Process (modified from Vähänikkilä and Vakkuri 2025)

At every stage of the process cybersecurity is not just a technical add-on; it is a crosscutting, strategic element of the entire innovation process. It must be considered in all five stages.

3.1 Strategic Phase, Stages 1-3

This part consists of three essential stages that guides a company toward future-oriented decision-making. 1) Environmental Scanning in systematically observing and analysing external trends, drivers, and uncertainties that may affect the business. 2) Vision Formulation is creating a future vision based on insights from the environment. 3) Knowledge Alignment is about internal knowledge, competencies, and resources to support the strategic vision.

Business developing methods and tools for proceedings at strategic phase (A) has been divided to two sections, to traditional methods and future thinking methods. In this phase there are mentioned selected illustrative future thinking methods for each stage of the process. Traditional methods are more of management and market analysis approach to data gathering. Future thinking tools, on the other hand, are more oriented toward exploring uncertainties, envisioning alternative futures, and supporting strategic foresight and cybersecurity management. Companies use both traditional method tools like PESTEL analysis and future thinking tools like wild cards because they serve different but complementary purposes in strategic planning and foresight. Together, they help companies build resilient and agile strategies that consider both likely developments and surprising disruptions. The ability to use a future-oriented vision to understand and critically discuss potential scenarios is a key strategic competence in today's business environment (Moritz, 2005).

Embedding the role of cybersecurity to business model innovation process 1) Environmental Scanning: Identify cybersecurity-related trends, threats, and opportunities as part of the external environment analysis e.g., new regulations, security risks, customer expectations. 2) Vision Building: Integrate cybersecurity into the future vision – what will digital trust and data security look like in the business model of the future. 3) Knowledge Alignment: Ensure that the organization's expertise, resources, and processes support cybersecurity-oriented operations and strategy.

3.2 Tactical Phase, Stages 4-5

The tactical phase (B) translates strategic intent into action and learning. It includes two key stages: 4) Innovation Implementation, which focuses on executing the innovation strategy by developing and launching new solutions, services, or processes within the organization. After implementation last stage is 5) Feedback and Iteration, where outcomes are monitored and evaluated. Feedback is used to refine, adapt, or scale the innovation, ensuring continuous improvement and responsiveness to change. This process is not usually a step-by-step process. Instead, it often involves going back and forth between stages, with overlaps along the way. In many cases, innovation becomes connected in everyday service practices, rather than being a separate or isolated activity.

Embedding the role of cybersecurity to business model innovation process 4) Innovation Implementation: Take cybersecurity into account when developing and deploying new solutions, services, and processes e.g., integrating data protection and risk management. 5) Feedback and Iteration: Continuously assess and improve cybersecurity practices based on feedback and the evolving threat landscape.

4. Conclusions

Cybersecurity acts as both an enabler and a safeguard throughout the entire process. It supports digital trust, resilience, and the success of innovation – and therefore, it should be present at every stage, not just as a technical detail but as a strategic and cultural principle.

Ethics Declaration

Ethical clearance was not required for the research.

AI Declaration

Authors of this article used Microsoft 365 Copilot to structure the article contents they had written into coherent storyline. The tool was used to provide suggestions for improvements to text flow. The output from this tool was checked and modified by all authors, no direct text/content was used in the final article.

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Late Submissions

Sentiment Analysis in Guest Reviews: An NLP Approach Applied to Portuguese Hospitality

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Abstract: Guest reviews represent a valuable resource for strategic decision-making in the hospitality industry. By analysing these evaluations, managers can identify market trends, adjust management practices, reshape marketing strategies, and implement improvements in infrastructure and services. In this way, adopting a data-driven approach based on feedback directly from customers enhances the competitiveness and differentiation of hotels in the tourism market. This study aims to evaluate not only the level of sentiment—dissatisfaction, neutrality, or satisfaction—expressed by each guest regarding a specific product or service, but also how personal and opinionated the published message is. Highly subjective texts are expected to contain emotions, opinions, and individual perceptions, whereas texts with low subjectivity tend to resemble more factual and objective descriptions. To achieve this, a Natural Language Processing (NLP) approach was employed, involving the extraction, translation, and pre-processing of 11,810 reviews from both Portuguese and foreign visitors. The dataset is organised by hotel rating (3, 4, and 5 stars), followed by the application of two complementary sentiment analysis techniques: VADER, to determine polarity (negative, neutral, or positive), and TextBlob, to measure the degree of subjectivity. The results show that the majority of reviews (77%) carry a strongly positive connotation, allowing the conclusion that Portuguese hospitality enjoys a high approval rate among guests. However, by identifying dissatisfaction points and satisfaction patterns specific to different customer segments, managers can better target investments and strategies to further enhance the guest experience.

Keywords: Sentiment Analysis, Natural Language Processing (NLP), Guest Reviews, Portuguese Hospitality, Subjectivity, VADER

1. Introduction

The hospitality industry increasingly relies on user-generated content (UGC), especially online reviews, as a valuable resource for gaining insights into customer experiences(Nikolić, Stojanović and Marjanović, 2025). These reviews are an indispensable guide for consumer decision-making (Ku, Chang and Wang, 2024) and significantly influence customer choices, providing businesses with actionable feedback on service quality and areas for improvement (Nikolić, Stojanović and Marjanović, 2025), (Krishnan et al., 2024) . Online booking sites have become essential for collecting customer feedback data (Le et al., 2025). This feedback is crucial for assessing and enhancing service quality (Shafiezad and Mostofi, 2024), (Erdoğan et al., 2025) as it allows businesses to understand customers' emotional states and needs (Nguyen and Nguyen, 2023).

The rapid growth of the internet and social media has led to an explosion of UGC, which plays a vital role in shaping consumer behaviour across various industries, including tourism and hospitality (Dang and Nguyen, 2023). AI methods can continuously learn and improve from input data and predict customer behaviour (Suman, Vignjevic and Car, 2023). Analysing online reviews through techniques like text mining and sentiment analysis offers actionable insights for hospitality providers to align their offerings with customer demand, build virtual brands, and improve their service quality measures (Krishnan et al., 2024). Data analytics supports data-driven decision-making (Nguyen and Nguyen, 2023) and enables hotels to rapidly and accurately capture customers' emotions, expectations, and perceptions (Erdoğan et al., 2025).

Traditionally, assessing service quality relied on methods like guest comment cards and questionnaires (Jeong and Lee, 2024) or surveys (Vargas-Calderón et al., 2021), which are time- and money-consuming (Vargas-Calderón et al., 2021) and limited by sample size (Mojoodi et al., 2025). The sheer volume of UGC generated on popular review platforms can be overwhelming for researchers and practitioners to handle manually (Le et al., 2025) (Dang and Nguyen, 2023). Furthermore, text data is often unstructured, noisy, and contains various sentiment levels, making it challenging to extract meaningful insights using traditional quantitative methods (Dang and Nguyen, 2023). These conventional approaches lack scalability and automation (Mojoodi et al., 2025), often failing to provide the nuanced, real-time insights needed in a rapidly evolving service sector.

The primary objective is to evaluate how guests feel and what they express in their online hotel reviews, determining whether their comments convey a positive, negative, or neutral emotional tone. This process aims to pinpoint which specific elements of hotel service significantly influence guests' experiences and perceptions. By doing so, the study seeks to thoroughly understand the factors contributing to both customer satisfaction and dissatisfaction, providing a clear and insightful overview of their views on various service components.

2. Literature Review

2.1 Guest Reviews as Strategic Resources

Online guest reviews have emerged as a vital channel for hotel guests to share their travel experiences, significantly influencing booking decisions and providing valuable content for prospective customers (Kazakov et al., 2025). They are increasingly read and shared by the travel community, serving as a digital extension of traditional word-of-mouth (eWOM) (Kazakov et al., 2025), (Le et al., 2025).

Hotel managers can leverage these reviews to obtain actionable feedback regarding service quality, satisfaction, and areas ripe for improvement (Nikolić, Stojanović and Marjanović, 2025). Reviews directly reflect guests' service experiences and interactions (Oshriyeh and Egger, 2025), influencing brand perception and booking decisions and directly impacting a business's online reputation (Erdoğan et al., 2025).

The careful analysis of this feedback provides important insights for improving service processes, understanding customer needs, and gaining a competitive advantage (Erdoğan et al., 2025). Hotels can consistently gather genuine consumer feedback to pinpoint both their strengths and limitations (Mojoodi et al., 2025), and managers can even use these insights to evaluate competitors' performance (Mojoodi et al., 2025). Ultimately, online reviews serve as a crucial resource for gaining deep insights into customer experiences within the hospitality sector (Nikolić, Stojanović and Marjanović, 2025).

2.2 The Role of Customer Feedback in Hospitality Innovation

Customer feedback is a primary source of information in the service sector, driving both experience-sharing and decision-making processes (Erdoğan et al., 2025). It is fundamental for enhancing the overall customer experience in the hospitality industry (Dang and Nguyen, 2023) and is crucial for hoteliers to build a strong reputation and attract new customers (Suman, Vignjevic and Car, 2023).

Sentiment Analysis (SA) allows managers to systematically collect and analyse past consumer experiences, informing service improvements that contribute significantly to customer satisfaction and service recovery(Ameur, Hamdi and Ben Yahia, 2024). Insights derived from opinion mining can help hospitality providers align their offerings with customer demand, build virtual brands, and enhance service quality measures (Krishnan et al., 2024).

By analysing online comments and the critical elements revealed within them, hotel managers can formulate and implement strategies to boost customer satisfaction and loyalty (Mojoodi et al., 2025). Analysing customer reviews helps to pinpoint services that require improvement and identify unmet needs, thereby fostering service innovation (Le et al., 2025). Focusing on the main interests of customers allows hotel managers to achieve efficient and profitable outcomes (Le et al., 2025). Furthermore, addressing varied customer demands, particularly the differences in preferences between international and local guests, helps hoteliers to meet actual needs more effectively (Le et al., 2025).

The findings from advanced analytical models have direct implications for managers and homestay owners in devising appropriate marketing strategies and improving overall guest experience (Krishnan et al., 2024). Crucially, timely and appropriate managerial responses to online feedback are vital for maintaining strong customer relationships and preventing value co-destruction (Oshriyeh and Egger, 2025). This feedback enables hotels to identify specific assets and limitations (e.g., room service), guiding targeted enhancements (Mojoodi et al., 2025). Such responsiveness demonstrates a hotel's commitment to consumer satisfaction, which in turn enhances consumer loyalty (Mojoodi et al., 2025), and cultivates a strong, positive brand image that attracts new clientele (Mojoodi et al., 2025).

Text mining and Natural Language Processing (NLP) are indispensable for extracting meaningful insights from large volumes of unstructured text, providing hotels with a deeper understanding of their

customers (Huang, Liang and Choi, 2022). The application of Artificial Intelligence (AI) methods in this context offers the capability for rapid analysis and extraction of valuable information from guest feedback (Suman, Vignjevic and Car, 2023).

2.3 Sentiment and Subjectivity in Texts

Sentiment analysis (SA) is a computational technique that helps to automatically discover hotel customers' satisfaction from their shared experiences and feelings on social media(Ameur, Hamdi and Ben Yahia, 2024). It involves identifying opinions within reviews and classifying them as positive, negative, or neutral based on the emotions expressed(Ameur, Hamdi and Ben Yahia, 2024). A sentiment can represent a view, opinion, thought, or attitude rooted in emotions (Krishnan et al., 2024), and eWOM sentiment specifically indicates the level of satisfaction articulated by online reviewers (Krishnan et al., 2024).

In the context of hotels and homestays, positive sentiments reflect customer satisfaction and are often associated with emotions such as enthusiasm, happiness, or excitement (Krishnan et al., 2024). Conversely, negative sentiments signify dissatisfaction and are linked to emotions like annoyance and frustration(Krishnan et al., 2024). Neutral sentiments convey satisfaction without explicitly expressed emotions (Krishnan et al., 2024).

Polarity defines the extent to which a text leans towards either a positive or negative valence (Chatterjee, 2020). Reviews exhibiting high polarity are considered "extreme reviews"—either overwhelmingly positive or negative. However, such extreme reviews are generally perceived as untrustworthy by consumers, and high polarity tends to reduce the helpfulness of a review (Chatterjee, 2020).

Subjectivity analysis aims to determine whether a text expresses personal feelings (subjective) or factual details (objective) (Le et al., 2025). Objective information in reviews typically includes concrete facts such as amenities and location (Le et al., 2025), whereas subjective information reflects personal opinions on aspects like staff friendliness and value for money (Le et al., 2025). Subjective reviews are often associated with customer complaints, while objective reviews are typically more logical and compare experiences against expectations (Le et al., 2025). Subjectivity is measured on a scale from 0 (completely objective) to 1 (completely subjective), with a lower score indicating a greater reliance on factual service words rather than personal feelings or opinions (Le et al., 2025).

Emotional tone is a crucial aspect, as emotions significantly influence consumer decision-making and service evaluation processes (Chatterjee, 2020). Emotional expressions serve as key indicators of how service experiences are evaluated (Oshriyeh and Egger, 2025). Specific emotional tones, such as Joy and Confidence, are often associated with value co-creation, while tones like Fear, Anger, Sadness, along with Analytical and Tentative language, tend to result in value co-destruction (Oshriyeh and Egger, 2025). Negative emotions have a more pronounced impact on customer behaviour than positive emotions in eWOM (Oshriyeh and Egger, 2025), and customer perceptions are strongly influenced by the level of emotionality within review texts, irrespective of their overall valence (Oshriyeh and Egger, 2025). Emotions can influence review ratings and sentiments: Joy generally has a positive impact, while Anger, Fear, and Sadness typically lead to negative impacts (Oshriyeh and Egger, 2025). Satisfied customers are prone to express positive comments, whereas unsatisfied customers tend to articulate negative feedback (Oshriyeh and Egger, 2025).

2.4 Applications of NLP in Tourism

Text analytics has been extensively applied to online tourism reviews, employing a variety of analytical methods such as sentiment analysis, trend analysis, text mining, topic modelling, cluster analysis, and predictive analytics (Krishnan et al., 2024) . NLP fundamentally automates the analysis of textual data, enabling the efficient extraction of meaningful insights (Jeong and Lee, 2024). This technology facilitates the identification of specific aspects of customer feedback, such as service quality or room cleanliness, by utilizing targeted keywords, followed by the assessment of keyword frequency and the analysis of associated sentiments (positive or negative) (Jeong and Lee, 2024). NLP is also critical for analysing review content and generating high-quality responses, particularly through fine-grained aspect-based sentiment analysis (Katsiuba, Dolata and Schwabe, 2025).

Topic modelling, a family of unsupervised machine learning techniques including LDA, NMF, and LSA, is widely used to uncover latent themes within extensive collections of text data (Dang and Nguyen, 2023). Text mining methods are applied to discover the underlying structure and implicit meanings present in textual

data (Huang, Liang and Choi, 2022) (Kozłowski and Korzeniewski, 2024). The overarching goal of these NLP applications in tourism is to analyse sentiment, identify key topics, track trends, optimize services, and compare performance against competitors, all with the aim of improving service quality and supporting management and marketing strategies (Le et al., 2025). NLP methods are actively used to extract insights from user-generated content across diverse contexts, including hotel, restaurant, and destination reviews (Malik and Bilal, 2024).

Existing studies using VADER, TextBlob, and other tools.

Numerous tools and algorithms have been deployed in NLP-driven sentiment analysis within the hospitality and tourism sectors:

- VADER (Valence Aware Dictionary and sEntiment Reasoner): This lexicon-based tool is commonly used for sentiment analysis in social media text (Kazakov et al., 2025). It computes positive, negative, neutral, and a comprehensive compound score from reviews (Shafiezad and Mostofi, 2024), (Nguyen and Nguyen, 2023). The compound score, which ranges from -1 (most negative) to +1 (most positive), is then used to classify reviews into positive (score > 0.05), neutral (score between -0.05 and 0.05), or negative (score < -0.05) (Shafiezad and Mostofi, 2024). VADER has been successfully applied in studies analyzing tourists' food quality perceptions (Shafiezad and Mostofi, 2024), investigating hotel service micro-elements, and analyzing Vietnamese hotel reviews failures (Kazakov et al., 2025).
- TextBlob: This Python library is utilized for sentiment analysis, enabling the efficient extraction of both polarity and subjectivity from hotel customer reviews (Le et al., 2025). It was notably adopted in a study to investigate the subjectivity and polarity of customer reviews (Le et al., 2025).

2.5 Gap in Literature

Despite significant advancements in text analysis within hospitality and tourism, several gaps remain. Generally, there is a need for more comprehensive review studies on Sentiment Analysis in hospitality (Ameur, Hamdi and Ben Yahia, 2024) . Many existing analyses on value co-destruction often overlook the impact on brand value and the rich textual and emotional insights available, focusing instead on basic sentiment metrics, which necessitates more sophisticated analytical approaches (Oshriyeh and Egger, 2025). Prior research has often been confined to specific destinations, limiting the generalizability of findings and leaving a gap in understanding negative sentiments (Kazakov et al., 2025). Traditional research methodologies like interviews and surveys, while valuable, are limited by small sample sizes, data collection biases, and inability to handle large-scale data (Mojoodi et al., 2025). Furthermore, many studies rely on data collected before the COVID-19 pandemic (Le et al., 2025), and most focus on single platforms, indicating a need for multi-source studies (Le et al., 2025). There is also a recognized lack of research leveraging longitudinal data for service failure and recovery analysis (Huang, Liang and Choi, 2022).

The literature on hotel reviews frequently emphasizes sentiment analysis based solely on text polarity, which often fails to capture the full significance of customer emotions and review valence for brand value (Oshriyeh and Egger, 2025). While machine learning is increasingly used for online customer review processing, there is a limited focus on assessing overall quality of service in the hospitality sector through these methods (Vargas-Calderón et al., 2021). Additionally, given that most studies use data from developed countries and are primarily in English, there is a general call for more research from non-English speaking countries to account for diverse language structures and cultural perspectives (Vargas-Calderón et al., 2021).

Regarding Portuguese hospitality specifically, while some studies touch upon aspects of tourism and hotel reviews in Portugal or neighbouring regions (e.g., small and medium-sized hotels in Portugal (Erdoğan et al., 2025) or reviews from Lisbon, the sources do not explicitly state a specific, identified gap for large-scale sentiment and subjectivity studies focused on Portuguese hotels. However, the general gaps in the literature concerning the depth of sentiment analysis, the exploration of subjectivity, the use of diverse datasets, and the impact of cultural contexts, underscore a broader opportunity. Therefore, there is an implied need for more extensive, large-scale sentiment and subjectivity studies specifically focused on Portuguese hotels, which would significantly contribute to a nuanced understanding of guest experiences and service quality within this particular geographical and cultural context.

3. Methodology

The analysed sample consists of 11.810 comments obtained from Booking.com, made by Portuguese and foreign guests about hotels located in Portugal. The distribution of the comments was based on different hotel

categories (3, 4 and 5 stars) and on the guests' continent of origin. This characterisation makes it possible to understand the profile of the reviews and identify patterns in visitors' experiences, contributing to a better understanding of the perceived quality of hotels in Portugal.

Table 1: Guest Reviews Distribution by Continent and Hotel Category

Continent of Origin / Category	3-star	4-star	5-star	Total
Africa	33	83	38	154
America	171	267	112	550
Asia	20	32	38	90
Europe	341	578	402	1.321
Oceania	19	50	28	97
Portugal	2.956	5.080	1.562	9.598
TOTAL	**3.540**	**6.090**	**2.180**	**11.810**

The distribution of comments by hotel category shows that most reviews are concentrated in 4-star hotels, which account for 51.58% of the total, with 6,090 comments. Three-star hotels gather 3,540 comments (29.97%), while five-star hotels account for 2,180 comments (18.45%). This pattern suggests that 4-star hotels are the most popular choice among guests in Portugal, either due to the market offering or the balance between price and quality. The smaller proportion of comments for 5-star hotels may be linked to a more restricted and selective clientele, whereas the relatively high percentage of reviews for 3-star hotels indicates that this category remains in demand, possibly among travellers more sensitive to accommodation costs.

Regarding guests' origin, 9,598 comments (81.3%) were made by Portuguese guests, while foreign guests contributed 2,212 comments (18.7%). Within the foreign group, Europe accounts for the majority of reviews, with 1,321 comments (11.2%), reflecting the strong presence of European tourists in the country. Next are guests from the Americas, with 550 comments (4.7%), followed by tourists from Africa (154 comments, 1.3%), Oceania (97 comments, 0.8%) and Asia (90 comments, 0.8%). These figures show that the Portuguese tourism market is predominantly national and European, while visitors from other continents, although present, represent a smaller share of the sample.

The predominance of comments from Portuguese guests may be related to the growing practice of domestic tourism, reinforced in recent years by factors such as the COVID-19 pandemic, which encouraged Portuguese travellers to explore their own country. Meanwhile, the significant participation of European tourists confirms Portugal's importance as a well-established destination within Europe. On the other hand, the lower representation of guests from Asia, Africa and Oceania suggests that these markets still have a limited impact on the overall volume of tourists reviewing Portuguese hotels.

This analysis provides a clearer understanding of the profile of guests reviewing Portuguese hotels and how different hotel categories are perceived by tourists from various regions. Knowledge of these trends can be crucial for the hospitality sector to adjust its strategies and enhance the experience offered to visitors, ensuring services are better aligned with the expectations of different guest profiles.

The present study aims to analyse the polarity and subjectivity of comments from guests of Portuguese hotels using Natural Language Processing (NLP) techniques. To this end, the ten most recent comments were extracted from a sample of 1,181 Portuguese hotels, allowing for a focused analysis of updated reviews. As most comments were written in Portuguese, it was necessary to translate them into English to ensure better compatibility with the sentiment analysis tools employed. For this task, the Deep Translator library was used, a tool that enables automatic text translation through various APIs, such as Google Translate, DeepL, Microsoft Translator, MyMemory and Yandex. The use of this library facilitated text conversion. To guarantee semantic integrity and achieve more accurate sentiment analysis, validation was carried out by a professional in translation and linguistics.

After extracting and translating the comments, the data were stored in an Excel file, ensuring the preservation of the original structure and compatibility with subsequent processing steps. Next, text pre-processing was performed, an essential step to ensure analysis quality. This phase included the removal of special characters, numbers and unnecessary punctuation, as well as text normalisation by converting all words to

lowercase. Additionally, in specific cases, language detection was carried out to confirm the adequacy of the translations.

Sentiment analysis was conducted using two complementary methods. First, the VADER (Valence Aware Dictionary and sEntiment Reasoner) model was applied, a lexicon-based model developed specifically for analysing informal texts such as comments and online reviews. This method assigns a polarity score to the text on a continuous scale from -1 (extremely negative) to 1 (extremely positive), enabling a quantitative assessment of the emotional tone of the comment. In addition, TextBlob was used, a tool that measures the degree of subjectivity in the comment, distinguishing between more objective opinions and more subjective expressions.

Based on the polarity score obtained through the VADER method, comments were classified into five distinct categories, allowing for a more detailed analysis of their emotional distribution. Comments with polarity less than or equal to -0.6 were classified as very negative, reflecting extremely unsatisfactory evaluations. Comments between -0.6 and -0.2 were categorised as negative, expressing lower-intensity dissatisfaction. Texts with polarity ranging from -0.2 to 0.2 were considered neutral, as they did not show a clear bias towards positive or negative sentiments. Comments with scores between 0.2 and 0.6 were classified as positive, revealing favourable opinions but without a high degree of enthusiasm. Finally, comments with polarity equal to or greater than 0.6 were categorised as very positive, indicating great satisfaction on the part of guests.

4. Results

The analysis of the polarity of guest reviews for Portuguese hotels demonstrates a widely positive perception of the quality of services provided. Based on the segmentation by hotel category (3, 4, and 5 stars), the results clearly show that 77% of the reviews are highly positive, 17% are positive, and only 6% are neutral, whilst negative and highly negative reviews account for a mere 1% of the total.

5-star hotels exhibit the highest proportion of highly positive reviews (78%), followed by 4-star (77%) and 3-star (75%) establishments, confirming that higher-category establishments tend to provide more satisfactory experiences. However, the high satisfaction rate in 3- and 4-star hotels indicates that many of these establishments are capable of meeting or even exceeding guest expectations.

The proportion of neutral and negative reviews is negligible, reinforcing the perception that the Portuguese hospitality sector is highly regarded by tourists. Furthermore, the results suggest that investment in service improvement, especially within lower-category hotels, could generate a positive impact on guest perception. The high consistency of positive reviews underscores the importance of excellence in service, comfort, and the overall customer experience as essential factors for public satisfaction.

4.1 Analysis of Review Polarity by Continent and Hotel Category

This analysis examines the distribution of polarity in guest comments from different continents regarding Portuguese hotels, segmenting the results by hotel category (3, 4, and 5 stars).

The data were analysed based on the VADER_Polarity metric, which measures the degree of positivity or negativity of the comments, thereby enabling a quantitative assessment of guest satisfaction.

4.2 Distribution of Polarity by Continent

The analysis by continent reveals that guests from Asia (0.80) and Oceania (0.82) present the most positive reviews, whilst guests originating from Africa (0.71) and Portugal (0.72) record the lowest averages. Tourists from the Americas (0.75) and Europe (0.75) are situated at an intermediate level of satisfaction.

These findings suggest that tourists hailing from Asia and Oceania tend to have a more favourable assessment of Portuguese hotels, possibly due to different cultural expectations, comparison standards, or even the way they express satisfaction. Conversely, African and Portuguese guests exhibit slightly lower averages, which may indicate a greater degree of demandingness or higher expectations.

4.3 Analysis by Hotel Category

The average polarity also varies according to the hotel category, confirming that higher-category hotels tend to generate more positive reviews:

- 3-star hotels present the lowest average polarity (0.71), indicating that guests tend to be slightly more critical in this category.
- 4-star hotels record an average polarity of 0.73, showing an improvement in guest perception compared to 3-star hotels.
- 5-star hotels achieve the highest average polarity (0.74), suggesting an experience of greater satisfaction, possibly due to a superior standard of quality and service.
- These results reflect the expected trend that higher-category hotels receive more favourable reviews, as guests anticipate an elevated level of comfort and service.

Table 2: Average Score and Guest Reviews Distribution by Continent and Hotel Category

	3*	4*	5*	Total
Africa				
No. of Comments	33	83	38	**154**
Average Score	0,67	0,70	0,76	**0,71**
America				
No. of Comments	171	267	112	**550**
Average Score	0,72	0,76	0,80	**0,75**
Asia				
No. of Comments	20	32	38	**90**
Average Score	0,76	0,86	0,78	**0,80**
Europe				
No. of Comments	341	578	402	**1.321**
Average Score	0,69	0,78	0,77	**0,75**
Oceania				
No. of Comments	19	50	28	**97**
Average Score	0,81	0,81	0,84	**0,82**
Portugal				
No. of Comments	2956	5080	1562	**9.598**
Average Score	0,72	0,72	0,73	**0,72**
Total Comments	**3.540**	**6.090**	**2.180**	**11.810**
Overall Average Score	**0,71**	**0,73**	**0,74**	**0,73**

4.4 Comparison Between Continents Within Each Hotel Category

The detailed analysis of polarity by continent within each hotel category allows for the identification of more specific patterns:

- In 3-star hotels, guests from Oceania (0.81) and Asia (0.76) present the most positive reviews, whilst tourists from Africa (0.67) and Europe (0.69) demonstrate greater reservation in their assessments.
- In 4-star hotels, Asia (0.86) records the highest polarity, standing out from the other continents. This value indicates a high level of satisfaction among Asian guests with hotels in this category.
- Finally, in 5-star hotels, Oceania (0.84) maintains the highest average, suggesting that guests from this region significantly value the services offered.

The behaviour of Asian guests in 4-star hotels is particularly interesting, as the average (0.86) exceeds the average for 5-star hotels (0.78) for that same region. This finding may indicate that Asian guests consider 4-star hotels to be an excellent value-for-money option, whilst expectations in 5-star hotels might be more demanding.

4.5 Distribution of the Number of Comments

The count of reviews reveals that the majority of comments originate from Portuguese guests (9,598 reviews, 81.3% of the total), reflecting a strong presence of domestic tourism. Among foreign guests, Europe (1,321 comments, 11.2%) represents the largest proportion, followed by the Americas (550 comments, 4.7%) and Asia (90 comments, 0.8%). Oceania (97 comments, 0.8%) and Africa (154 comments, 1.3%) record the lowest participation in the sample.

The predominance of Portuguese guests may be associated with the growth of domestic tourism, driven by factors such as seasonal promotions and international travel restrictions in recent years. The significant participation of European tourists confirms the importance of Portugal as a consolidated destination in the European market.

5. Conclusion

The results indicate that the perception of the quality of Portuguese hotels is broadly positive, regardless of the guests' origin or the hotel category. However, there are significant differences in the average review polarity between continents, suggesting variations in expectations and the way tourists express their satisfaction.

The analysis reveals that tourists from Asia and Oceania are the most positive in their assessment of Portuguese hotels, whilst guests from Africa and Portugal demonstrate greater demandingness. Furthermore, satisfaction increases as the hotel category rises, being most pronounced in 5-star hotels.

These results have relevant implications for the Portuguese hospitality sector, as they indicate that personalised service and marketing strategies could be developed for different guest profiles. Special attention to the African and Portuguese markets, where satisfaction tends to be slightly lower, could contribute to elevating the customer experience and further improving the perception of hotel services in Portugal.

The data analysis reveals different aspects of the guest experience concerning the hotel's cleanliness, dining, services, and amenities.

With regard to cleanliness, the terms "clean" (1,424 mentions, impact of 2.94) and "cleaning" (1,206 mentions, impact of 2.49) indicate that hygiene is frequently mentioned but has a relatively low impact. This suggests that while it is a relevant factor, it does not stand out as a major strength of the hotel. Furthermore, "rooms" (850 mentions, impact of 1.75) reinforces the perception that the guest rooms are commented upon but are not among the most praised aspects, while "comfortable" (1,992 mentions, impact of 4.11) suggests the stay was considered comfortable, possibly due to the organisation and condition of the rooms.

Regarding dining, breakfast emerges as the main highlight, with "breakfast" (4,272 mentions, impact of 8.82) leading the reviews, followed by terms such as "good" (3,723 mentions, impact of 7.68) and "excellent" (3,033 mentions, impact of 6.26). This clearly indicates that the quality of the food is a highly positive factor in the guest experience.

Concerning services, words such as "staff" (2,419 mentions, impact of 4.99) and "employees" (2,713 mentions, impact of 5.60) demonstrate that the personnel play an essential role in the guest experience, being frequently described as "friendly" (2,112 mentions, impact of 4.36) and "niceness" (2,002 mentions, impact of 4.13). However, the perception of the service in general ("service" with 1,171 mentions and impact of 2.41) is less prominent than that of dining, suggesting opportunities for improvement in efficiency and personalisation of the service delivery.

In relation to amenities, terms such as "pool" (1,024 mentions, impact of 2.11) and "view" (834 mentions, impact of 1.72) indicate that the hotel's infrastructure is acknowledged but does not stand out among the primary factors influencing guest satisfaction.

Thus, it is concluded that breakfast represents the hotel's greatest strength, whilst the perception of cleanliness, services, and amenities could be improved to enhance the overall customer experience.

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Ethics Declaration

Formal ethical approval was not required for the conduct of this research, as the study relied solely on the analysis of secondary data (guest reviews available publicly/in non-sensitive databases) and did not involve the direct participation, intervention, or interaction with human subjects or animals, nor the collection of confidential personal data. The manipulation and filtering of the data were carried out strictly for the purposes of statistical analysis and visualisation (Word Cloud), with no direct ethical implications in data handling.

AI Declaration

Artificial Intelligence (AI) was employed as a high-productivity tool, providing assistance during the initial and technical phases of this project. Its use primarily centred on brainstorming and conceptual idea generation, and served as a resource for literature search by rapidly identifying and synthesising key information and publications for theoretical contextualisation. Furthermore, the AI proved crucial for Python optimization, offering solutions for debugging and refining the code's logic (including POS Tagging and data manipulation), thus ensuring the analysis's efficiency. Nevertheless, the critical analysis, filter selection, final interpretation of results, and the overall authorship of the work remain the exclusive responsibility of the author.

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Redefining Value in Hospitality: Key Drivers of Satisfaction

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Abstract: In the hotel industry, customer behaviour is quite dynamic and impacted by a variety of factors. Primarily, guests choose hotels based mainly on location and price. Nowadays, personalized experiences, customer reviews, price comparison, and the availability of premium services, are all influencing actual preferences. New trends in hospitality are emerging as a reflection of the sector's dynamism and its constant transformations in consumer behaviour and technological advances. This shift underscores the growing importance of emotional engagement and perceived value over purely transactional interactions, especially among loyalty programme members who expect recognition and consistency. Showing an increasingly competitive global market, hotels face the challenge of balancing innovation with adaptation to emerging demands, such as sustainable and regenerative practices and personalised experiences. It is essential to identify the factors that influence their decisions and predict their choices in the Hotel Industry. This article aimed to measure satisfaction across multiple service dimensions, including room quality, staff responsiveness, personalisation, check-in and check-out efficiency, and overall service recovery. A quantitative research approach was employed, with data collected through a structured, on-site survey administered to 62 hotel guests during their stays between March and May 2025. Results indicate that room quality (e.g., cleanliness, comfort, and functionality) and staff performance (including friendliness, professionalism, and anticipatory service) are the strongest drivers of guest satisfaction. Notably, even in the absence of expected perks (e.g. upgrades), guests reported high satisfaction when staff demonstrated empathy and proactive service recovery. The study concludes that continuous investment in staff training, service personalisation and operational consistency is more impactful than reliance on perks alone. In addition to its analytical contribution, this study reflects key learning, including practical insights into guest relationship management, service design, and the operational realities of luxury hospitality. The findings offer actionable recommendations for hotel managers aiming to optimise loyalty programme effectiveness and elevate guest satisfaction in competitive urban markets.

Keywords: Customer behaviour; Guest Satisfaction; Loyalty Programs; Luxury Hospitality; Service Quality

1. Introduction

The contemporary hotel industry faces significant challenges in attracting and retaining customers in an increasingly competitive and dynamic market. In this context, loyalty programs emerge as essential strategic tools to promote guest loyalty and boost the profitability of organizations (Kotler and Keller, 2016). These programs aim to reward customers for their continued preference, offering benefits ranging from discounts and room upgrades to personalized and exclusive experiences (Antavo, 2024). The sector has witnessed a fundamental shift in customer behaviour, moving from a traditional focus on utilitarian factors like location and price to a complex evaluation of experiential value, emotional engagement, and personalized recognition. This evolution is driven by digital transparency, where online reviews and global comparisons set ever-higher benchmarks, and by the rise of the experience economy, where guests seek meaningful, memorable interactions over purely transactional exchanges. The effectiveness of loyalty programs is intrinsically linked to the quality of service provided and guest satisfaction is strongly influenced by factors such as empathy, responsiveness, reliability, and the tangibility of the services. The combination of a well-structured loyalty program with excellent service can result in high levels of customer satisfaction and loyalty (Ali et al., 2021). Therefore, loyalty programs, particularly for high-value guests, face a critical challenge: they must deliver beyond transactional incentives to foster genuine emotional loyalty. While the theoretical importance of service dimensions such as room quality, staff empathy, and custom-made service is well-established in literature, a pressing empirical gap exists regarding their relative impact on satisfaction, especially when standard loyalty benefits, like room upgrades, are unavailable. How do guests prioritize these service elements in real-time evaluations? Can proactive, empathetic service recovery compensate for the absence of expected tangible rewards? This study addresses these questions by empirically investigating the key drivers of guest satisfaction within a luxury hospitality context. Through a quantitative analysis of data collected from hotel guests, it aims to identify which service factors most powerfully influence satisfaction, providing evidence-based strategies for hotel managers to optimize loyalty program effectiveness, enhance service design, and secure a competitive advantage in demanding urban markets.

2. Theoretical Framework

2.1 Customer Satisfaction in Hospitality and Tourism

Customer satisfaction is one of the main performance indicators in the hotel industry, being associated with the intention to return, recommendation, and loyalty. According to Lu et al. (2015), while managers consider luxury as an experience or a feeling, linked to the hotel's culture and guest expectations, guests perceive luxury in a more concrete way, emphasizing design, cleanliness, spaciousness, and the absence of cost concerns. Hotel managers define satisfied customers as those who return, generate revenue, provide feedback, and have all their needs met. For guests, satisfaction is when the value of the service received is equal to or greater than the price paid, and their expectations are met (Lu et al., 2015). To Oliver (2014), satisfaction results from the comparison between expectations and perceived performance. This approach remains central, but has been enriched by perspectives that integrate emotional, relational, and contextual factors. In the hotel industry, the customer experience is highly subjective and multidimensional. Gentile, Spiller and Noci (2007) proposed a model that integrates sensory, emotional, cognitive, behavioural, and relational dimensions, recognizing that satisfaction depends not only on the rational evaluation of the service, but also on affective involvement. This is particularly relevant in the luxury segment, where guests value personalized attention, recognition, and consistency in treatment throughout their stays. Ali et al. (2021) identified the main determinants of satisfaction as: room comfort, cleanliness, professionalism, and personalization of the experience. Customer satisfaction is a critical success factor in the hospitality industry, particularly in mid-to-high-end and high-end segments, where guest expectations are high and the market is highly competitive (Ladhari, Souiden and Ladhari, 2012). In a sector where the service experience is lived in real time and where the memory of the stay influences future decisions, satisfaction represents not only an operational objective, but a strategic asset with a direct impact on loyalty, reputation, and profitability of hotel units. Recent literature shows that hotel satisfaction cannot be dissociated from the consistency of the service provided, coherence with the brand, and the ability to personalize. Luxury hospitality distinguishes itself by seeking not only to meet the explicit needs of the customer, but also to anticipate implicit desires and offer elements that exceed initial expectations. Pine and Gilmore (2011) argue that the value perceived by the customer is deeply linked to their emotional, sensory, and symbolic involvement with the brand. The application of this logic in the hotel industry has led to strategies based on storytelling, service design, and the creation of aesthetically prominent environments, where each point of contact with the customer is an opportunity for enchantment. This engagement is fundamental in a context where the customer has multiple similar options in terms of product, location, or price. It is now understood as a multidimensional outcome shaped by the seamless integration of tangible reliability, such as room comfort and cleanliness, with profound emotional and relational engagement, driven by staff empathy, personalized recognition, and consistent, anticipatory service. This synthesis of sensory, cognitive, and behavioural dimensions creates a superior perceived value that not only meets but aims to exceed guest expectations, fostering strong emotional brand connections. Achieving sustained satisfaction and loyalty in a competitive market requires a holistic, customer-centric strategy that prioritizes experiential cohesion, a culture of excellence, and strategic investments in staff training and service design over mere transactional benefits.

2.2 Customer Expectations and Behaviours

Customer expectations are one of the central pillars in evaluating the quality and satisfaction of services, especially in the hotel industry, where the experience is subjective, sensory, and highly influenced by previous perceptions (Grönroos, 2020). In classical terms, expectations represent what the customer anticipates because of their interaction with the service, being shaped by past experiences, brand communication, online reputation, and social norms (Oliver, 2014). In high-end hotels, expectations tend to be more demanding and detailed, reflecting the level of financial investment, the guest's social status, and the type of relationship with the brand. Loyal customers often expect not only efficient and comfortable service but also a set of personalized interactions, recognition, and tangible benefits, such as upgrades or access to exclusive areas (Antavo, 2024). Customer expectations have also evolved with the advancement of digitalization, easier access to online reviews, and the growth of technological personalization. To Nobar and Rostamzadeh (2018), hotel managers should focus on managing customer experience and satisfaction to build loyalty, that strengthens brand power. Trust in the brand is a crucial antecedent of consumer loyalty and brand power, and to increase loyalty and brand power, companies should invest in strategies such as building trust and a sense of belonging to the brand, continuously improving service quality, effectively managing complaints, and offering services that meet customer needs. Guests not only compare hotels in the same category but also experiences in different geographies and brands.

Thus, an average stay in a luxury hotel can be perceived as negative if the service does not match the emotional and symbolic standard that the customer associates with the brand. In this context, tools such as Customer Journey Mapping are fundamental to understanding and managing expectations throughout the various touchpoints of the stay (De Keyser et al., 2015). By identifying critical moments, such as check-in, contact with staff, or access to loyalty program benefits, hotels can better align the actual experience with brand promises. Based on these contributions, customer behaviour results from a continuous process of validating or not meeting their expectations, being strongly influenced by details that go beyond the function of the accommodation. In luxury hospitality, the careful management of expectations becomes a core competency, capable of transforming competent service into a memorable experience or, generating dissatisfaction even without objective failures. Managing customer expectations in the high-end hotel industry is a critical and complex strategic function, extending far beyond the mere delivery of promised services. Expectations are shaped by a confluence of brand promises, digital reputation, social norms, and personal investment, creating a demanding benchmark for the guest experience. Customer satisfaction and experience, mediated by loyalty, are essential components for brand growth and strength in the hotel industry, and the effective management of these elements is fundamental for competitiveness and success (Nobar and Rostamzadeh, 2018). The literature underscores that while the failure to meet implicit expectations, such as personalized recognition, can severely damage trust and satisfaction, a proactive and empathetic service recovery can paradoxically strengthen loyalty. Consequently, in an era of digital transparency and global experience comparison, success hinges on a hotel's mastery of the entire customer journey. This requires a deliberate alignment of every operational touchpoint with the brand's emotional and symbolic promise, ensuring that meticulous expectation management transforms a competent stay into a consistently memorable and defensibly superior experience.

2.3 Strategies to Increase Customer Satisfaction and Loyalty

In an increasingly experience-oriented sector focused on long-lasting customer relationships, implementing effective strategies to increase satisfaction and promote loyalty is a priority for hotel units, especially in the luxury segment. The literature identifies a set of practices that stand out for their positive impact: personalization, employee autonomy, technological innovation, and strengthening loyalty programs (Mariani and Borghi, 2023). Service personalization is one of the most effective strategies for creating memorable experiences. Neuhofer et al. (2015) highlight the role of big data and artificial intelligence in collecting and analysing guest preferences, allowing for the anticipation of needs and adjustment of service in real time. Qi (2024) argues that personalized services improve customer satisfaction, perceived value, emotional experiences, and contribute significantly to brand loyalty and competitiveness in the luxury market. Personalization is crucial for differentiating brands in a competitive high-end market and serves as a crucial tool for integrating local cultural values with global hospitality standards, boosting customer satisfaction and loyalty (Qi, 2024).In luxury hotels these solutions are integrated into customer relationship management (CRM) systems, allowing, for example, the allocation of rooms based on previous preferences, the offering of personalized amenities, or the adaptation of housekeeping schedules to the customer's routines. Continuous training and employee autonomy are fundamental to guaranteeing excellent service and studies show that employees with the autonomy to solve problems and make decisions contribute significantly to the perception of quality and satisfaction (Chathoth et al., 2016). This empowerment is even more relevant when it comes to loyal guests, who expect quick, flexible responses tailored to their status. Another strategic dimension lies in creating immersive environments consistent with the brand's positioning. Service design, storytelling, and sensory elements (lighting, aromas, sound) play an important role in differentiating the hotel experience. These strategies increase emotional engagement and promote retention through positive memories associated with the stay. Customer loyalty results from the triangulation: (1) benefits offered by the loyalty program, (2) the perceived quality of service, and the (3) consistency of the experience with the expectations generated by the brand. In hospitality, this satisfaction goes beyond the functional aspects of the stay and takes on an emotional and symbolic dimension (Gentile, Spiller and Noci, 2007). Customer satisfaction depends not only on the delivery of benefits such as late check-out, or lounge access, but also on how the service is personalized and experienced in direct contact with the brand. To Xie and Chen (2013), the consistent application of promised benefits reinforces the perception of fairness and trust in the program. When these benefits are not granted, for example, in situations of full capacity or operational limitations, the way the service is managed becomes even more critical. Proactive, empathetic, and differentiated service can compensate for the absence of perks, maintaining high levels of satisfaction (Bowen and Shoemaker, 2003). Literature highlights that the effective delivery of benefits is as important as the benefits themselves. When the front office team communicates proactively and offers alternatives to the customer (e.g., late check-out or bar vouchers) and demonstrates empathy, it is possible to mitigate the impact of the absence of a concrete benefit,

maintaining high overall satisfaction. Furthermore, the perception of value in the relationship with the brand is strongly influenced by the emotional coherence of the experience. Pine and Gilmore (2011), defend that the loyal customer seeks not only comfort and functionality, but experiences that make them feel valued and unique. This logic is evident in the elements of positive surprise (e.g., small, personalized gestures, unexpected upgrades, VIP tickets to events), which create memories and reinforce the emotional connection with the brand. The satisfaction of loyal customers also depends on managing expectations. When these are inflated by promotional campaigns or exceptional past experiences, any deviation—even if technically acceptable—can be interpreted as dissatisfaction. Thus, transparency in communication, consistency in delivery, and training the team to recognize the value of each member are critical factors.

2.3.1 Loyalty Programs in the Hotel Industry

Loyalty programs, in turn, should go beyond the logic of accumulating points and discounts. The current trend is the development of programs focused on symbolic recognition and the creation of experiential value (Antavo, 2024). Some luxury hotels offer access to benefits such as room upgrades, early check-in, late check-out, and access to exclusive lounges, but the real differentiator lies in how these benefits are delivered: with consistency, empathy, and personalization. Poor implementation of a promised benefit (e.g., an upgrade granted late or with a communication failure) can have a greater negative impact than its absence. Recent studies suggest that the most effective strategies are those that integrate different dimensions: operational, relational, technological, and emotional. Mariani and Borghi (2023), for example, identify that sustainable loyalty results from a balance between perceived value, effort to stay, and quality of experience. Thus, more than offering rewards, hotels should focus on building relationships, maintaining a narrative of care and exclusivity that extends over time. Loyalty programs are fundamental strategic tools for the hotel sector, functioning as mechanisms for retention, differentiation, and increasing customer lifetime value. In addition to rewarding the frequency of stays, these programs seek to establish an emotional relationship between the guest and the brand, promoting repeat behaviours and strengthening the customer's identity with the hotel chain. Historically, loyalty programs were based on a transactional logic — accumulating points in exchange for free nights or discounts. However, luxury hotels have evolved towards more relational models, where symbolic benefits, such as recognition, exclusivity, and access to unique experiences, play an increasingly central role (Antavo, 2024). However, the effectiveness of these programs depends not only on the benefits offered, but also on how they are communicated and delivered. Real loyalty does not result solely from the quantity of rewards, but from the personalization of the experience. A failure to deliver an expected benefit, even when not guaranteed, can be interpreted as a breach of promise, negatively affecting customer confidence in the brand. Achieving sustainable loyalty in the luxury hotel sector necessitates a holistic and integrated strategy that transcends traditional transactional rewards. The literature converges on a model where personalized service, empowered and empathetic staff, immersive environmental design, and technologically aided anticipation form the foundational pillars of guest satisfaction. Critically, modern loyalty programs must evolve into relational frameworks that prioritize symbolic recognition and the consistent, seamless delivery of exclusive experiences. The ultimate differentiator lies not merely in the catalogue of benefits offered, but in the flawless execution and emotional resonance of every interaction. Therefore, long-term success depends on synthesizing these operational, technological, and human-centric dimensions into a coherent, customer-obsessed culture that consistently validates the brand's promise and transforms satisfied guests into genuinely devoted advocates.

3. Methodology

The question that guided this study was: To what extent does the perception of room quality and staff influence the satisfaction of the members of a loyalty program, even in the absence of additional benefits such as upgrades? Therefore, the overall objective is to analyse the relationship between three independent variables — hotel quality, room quality, and staff quality — and the dependent variable customer satisfaction, with a view to identifying the main factors that affect perceived value and the overall experience of loyal customers in luxury hotel industry.

Considering the research objective, the research adopted a quantitative approach, suitable for studies aimed at testing hypothesis and analysing causal relationships between pre-defined variables (Creswell, 2018). The research is both descriptive and correlational, allowing for the characterization of customer perception and the assessment of the degree of influence of different dimensions of service quality on satisfaction. The explanatory quantitative methodology is appropriate for validating empirical relationships based on structured data, namely through techniques such as linear regression (Hair, 2022). This approach was deemed suitable, given the

objective of identifying the statistical impact of specific variables on the satisfaction of loyal customers, based on a standardized questionnaire and rigorous statistical analysis.

Based on the literature review and on the objectives of this research, the following hypotheses were formulated with the aim of exploring the relationship between different dimensions of service quality and the satisfaction of a luxury hotel loyalty program.

H1: The perceived quality of staff has a positive and significant impact on members' satisfaction.

H2: The perceived quality of the room has a positive and significant impact on members' satisfaction.

H3: The perceived quality of the hotel has a positive impact on members' satisfaction.

These hypotheses were tested through a multiple linear regression analysis, aiming to identify which factors have the greatest weight in explaining customer satisfaction. The quantitative approach adopted allows for assessing the statistical validity of each predictor and its relevance in the Elite members' experience, even in situations where the expected benefits are not delivered.

Data collection was through a structured questionnaire, applied through Google Forms platform, to the members of a luxury hotel loyalty program. Access was provided to members via a secure link, with the support of the reception team, at check-in and check-out times, and sixty-two valid responses were obtained.

The questionnaire was built based on scales validated by Nunko et al. (2019) and Goeltom et al. (2020) and adapted to the reality of the hotel chosen. The items were grouped into four categories, and rated using a 5-point Likert scale, ranging from 1 ("Strongly disagree") to 5 ("Strongly agree"):

Hotel quality: cleanliness, physical environment, response to complaints, and fulfilment of promises (Goeltom et al., 2020);

- Room quality: comfort, noise, temperature, and physical space (Parasuraman, Berry and Zeithaml, 1991);
- Staff quality: empathy, availability, and personalized attention (Kotler, 2016);
- Customer satisfaction: overall evaluation of the experience and perceived value (Oliver, 2014; Anderson, 1994).

A non-probabilistic convenience sampling was used, based on the hotel's database and the availability of guests during the collection period. This method is considered appropriate in applied and exploratory contexts when the aim is to collect data from a specific and accessible group (Malhotra et al. 2012).

Data collection took place between March and May, during check-in and check-out times at the hotel. A total of 62 (majority male, n=35) valid responses were obtained, evenly distributed across the different levels of the loyalty program, with the following distribution: Silver - 24.2%, Gold - 21.0%, Platinum - 17.7%, Titanium - 19.4%, and Ambassador - 17.7%, which allowed observing the diversity of perceptions among the different status members. The statistical analysis was performed using IBM SPSS Statistics software (version 29), which is widely used in quantitative studies in the service sector. All data was collected and analysed in accordance with ethical guidelines and the anonymity of individuals and organisations fully preserved.

4. Findings

The presentation of the findings is structured into variables description, scale reliability and regression analysis.

The variable hotel quality was broken down into two factors, when using an exploratory factor analysis. This approach made it possible to distinguish between:

- Factor 1 - Hotel Quality 1: Structural and functional aspects of the hotel, such as cleanliness, physical environment and response to complaints.
- Factor 2 - Hotel Quality 2: Perception of the benefits associated with the loyalty program, including upgrades and accrual of nights.

To ensure internal consistency of the scales used, Cronbach's alpha coefficient was calculated, a statistical indicator that measures the degree of coherence among the items in each dimension of the questionnaire.
The scales demonstrated excellent internal consistency, with values above the 0,70-threshold recommended by the literature (Taber, 2018) (Hotel Quality: 0,84; Room Quality: 0,86; Staff Quality: 0,88; Customer Satisfaction: 0,90).

The model presented a coefficient of determination R^2 = 0,653, indicating that 65.3% of the variance in guest satisfaction is explained by the variables under analysis. This value demonstrates a strong relationship between the predictors analysed and the level of guest satisfaction, being considered high in the context of service studies (Hair, 2022).

The multiple regression analysis revealed that satisfaction is driven by two key variables:

- Staff Quality (βeta = 0,56; p<0,001): The factor with the greatest impact, highlighting the importance of human contact, empathy, and proactivity.
- Room Quality (βeta = 0,28; p=0,007): Confirmed the relevance of tangible elements (comfort, cleanliness, and acoustics) for the luxury segment. Interestingly, symbolic benefits (rewards and upgrades) did not show a statistically significant impact on satisfaction.

Despite the reduced number of responses, the results are in line with both classical and contemporary models: SERVQUAL (Parasuraman, Berry, and Zeithaml, 1991) by reinforcing the dimensions of empathy and tangibility; Perceived Justice (Oliver, 2014) since it explains why customers maintain satisfaction even without extra benefits, as long as the core service is excellent and personalized; and Relationship Marketing (Kotler and Keller, 2016) since the creation of long-term value relies on emotional bonds, not just on promotional incentives.

5. Conclusion and Practical Implications

This research aims to contribute to the existing knowledge about how dimensions of quality perception influence the members' satisfaction of a luxury hotel loyalty program.

Therefore, this study revealed that the core service works as a value driver, since true loyalty and satisfaction depend on the hotel's ability to deliver the basic experience (staff and room). Symbolic benefits loose relevance in the absence of service consistency.

Additionally, it was found that the lack of perks (such as upgrades) does not compromise satisfaction if the service is empathetic and memorable. This is vital given that occupancy operational limitations often prevent the provision of these extras.

Prioritize investment in continuous team training and the maintenance of physical quality is also required. Personalization and attention to detail should be the strategic differentiators, creating lasting emotional bonds.

From these results, it is concluded that the factors experienced during the stay (especially interaction with the staff) have a greater impact on perceived value and satisfaction than the abstract or symbolic benefits of the loyalty program. This finding corroborates recent studies on luxury hospitality and loyalty, where personalization and human service are identified as the main differentiators of the customer experience (Nunkoo et al., 2020). In sum, the satisfaction of members of a luxury hotel loyalty program is anchored in the operational and human excellence of the stay, rather than in the accumulation of promotional benefits.

5.1 Limitations and Future Research

The main limitation abides in the fact that the study was conducted for convenience just at a single hotel unit with a limited sample (N=62), which restricts the ability to generalize the results. Another limitation was the sample that was made by convenience, based on guest availability during the collection period and the guests who participated may not be representative of all members of the loyalty program. Therefore, it is recommended to replicate the study across multiple units and countries, as well as to include new variables (e.g., reason for travel, frequency of stay). It would be advised to study the impact of AI technologies on service personalization for hotel loyalty program.

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Ethics Declaration

Personal and organisational identities have been anonymised. No additional ethical issues arose during this research.

AI Declaration

ChatGPT 5.1 was used as a writing aid for wording support, grammar improvement, and occasional rephrasing.

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Tourism Through the 15-Minute Lens: A Case Study of Porto

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Abstract: The 15-minute city concept has become a cornerstone of modern urban planning. Despite its worldwide application, research has mostly focused on accessibility to essential services, while accessibility to tourism remains less explored. Tourism, key to urban identity, livability, and visitor management, needs to be considered within proximity planning. In this context, analysing travel times and accessibility to tourist locations across different travel modes represents a key opportunity to gain insight into how these shape cities. This study applies the 15-minute city framework to tourism, characterizing accessibility from a visitor's perspective. Porto, Portugal, a city facing the impacts of massive tourism, is used as a pilot area to measure access to touristic amenities. Using the Porto open data portal, we compiled 290 points of interest across eight tourism categories. For every Base Reference Geographical Information (BGRI) cell, the Portuguese census tracts, we computed the centroid and generated network-based travel times to each amenity for walking, cycling, and driving. From the origin-destination matrices, we derived a set of 15-minute city indicators, namely minimum travel time required to reach the amenities and counts and percentage of amenities reachable within 5/10/15 minutes. Results show how accessibility patterns vary by parishes and travel mode and offer a reproducible base for urban planning and destination management. The outcomes reveal that accessibility to tourism is strongly centre-weighted: the historic centre offers short walking times and high amenity variety, while the eastern and northern edges face slower access and fewer choices. Trips starting from two central parishes reach 43% of amenities within a 15-minute walk, while trips originating in peripheral parishes typically reach only 5% to 9%. Cycling enhances accessibility by making accessible a variety of amenities across most parishes within 10 minutes and nearly citywide by 15 minutes. This work reframes 15-minute accessibility around tourism, providing a multimodal transportation assessment, translating analytics into actionable indicators. The framework supports policymaker in diversifying attraction availability in underserved areas, distributing visitor flows, and aligning cultural-access goals with livability agendas, promoting smart cities' development.

Keywords: 15-minute City, Tourism, Multimodal Transportation, Urban Planning, Smart Cities, Sustainable Tourism

1. Introduction

Cities are attractive not only because they are places to live, but also because they are places to experience, and accessibility is central to both. Within the tourism context, accessibility was defined by Ghose & Johann (2018) as the ease with which desired destinations can be reached through the availability, affordability, and convenience of transport and information, or the geographic distribution of activities and destinations. As a key attribute of destination image, accessibility directly influences tourist satisfaction (Rajesh, 2013; Handayani, 2016). Castro et al. (2017) emphasised the crucial role of tourist accessibility in trip planning, as tourists require accurate and timely information about activities and sites. Taken together, these perspectives underscore the need for a proximity-oriented lens that links ease of reach, information, and network design to the tourists' experience of cities.

The 15-minute city (FMC) offers a guiding framework for urban planning, proposing that essential amenities should be reachable within a 15-minute walk or cycle, complemented by public transport for longer trips (Moreno *et al.*, 2021a). The FMC emphasises proximity, mixed use, and decentralised networks of daily-life amenities, showing through the experiences from Barcelona, Paris, and Milan, that proximity-oriented strategies can measurably improve livability and environmental performance (Moreno *et al.*, 2021b; Pozoukidou and Chatziyiannaki, 2021). Touristic sites are pivotal to urban identity and local quality of life, yet in high-demand contexts they can also produce congestion and uneven burdens on neighbourhoods. Thus, assessing accessibility in tourism through the FMC lens provides a basis for improved environmental policies and for evaluating how the city welcomes visitors to its touristic sites. Assessing tourism through the FMC framework can help planners assessing proximity patterns, identifying where targeted interventions could enhance tourist access while mitigating negative externalities. Even though the FMC framework presents strong potential for the tourism domain, only a limited number of studies have applied FMC-based analyses to assess tourism accessibility. While

some research has explored how this accessibility is conceptualised and measured, multimodal, time-dependent approaches remain underdeveloped (Moreno *et al.*, 2025).

To address this gap, this paper reframes the FMC for tourism, using Porto Municipality, Portugal, as a case study. This region is the second-largest urban centre in Portugal. It has an area of 41.42 km², comprising seven parishes and a total of 1,659 census tracts, with a total population of 248,769 inhabitants (estimate 2023) (*Portal do INE*, no date). Almost 30 years after being declared a World Heritage Site by UNESCO (1996), and positioned as a major European capital, the city suffers the impacts of massive tourism, with 1,137,756 yearly overstays in the Metropolitan Area of Porto during 2024 (*Portal do INE*, no date). In this context, the FMC framework offers a timely and relevant analytical lens. Its principles align with Porto's compact morphology, historic street fabric, and existing mixed-use patterns, especially in its central and intermediate neighbourhoods. This makes it particularly suited to inform more integrated mobility and land-use strategies that position accessibility as a key objective of tourism planning.

The study presents multimodal accessibility indicators to tourism amenities at the BGRI scale, allowing fine-grained analysis of how touristic opportunities are distributed in urban areas. By analysing tourism accessibility within the FMC framework, this study aims to demonstrate how this approach can generate valuable insights for the tourism domain. Specifically, it seeks to (1) propose a replicable set of FMC-based indicators to characterize urban accessibility to touristic amenities, (2) quantify the spatial distribution of accessibility across different areas of Porto Municipality, and (3) evaluate how accessibility varies by amenity type and travel mode, using location-based measures to compare outcomes across walking, cycling, and public transport. Altogether, this approach can turn into a dynamic tool for urban planners and policymakers to simulate the visitor experience through the FMC lens and to identify challenges and opportunities in areas of the city with varying levels of accessibility.

2. Related Work

How cities distribute opportunities and how networks stitch these together determines how far, how often, and by which modes people travel (Crane, 2000). This premise has shifted urban research and practice to an accessibility-first lens. The FMC, formalised by Moreno et al. (2021b), translates this paradigm into a planning framework, promoting compact, mixed-use neighbourhoods where essential services, such as work, education, healthcare, commerce, culture, and leisure are reachable within a short walk or cycle, complemented by public transport for longer trips (Moreno *et al.*, 2021a; Pozoukidou and Chatziyiannaki, 2021). Centred on proximity, diversity, and decentralisation, the FMC framework seeks to reduce car dependence and encourage active modes, linking accessibility to sustainability, social equity, and public health (Allam *et al.*, 2024; Moreno, 2024).

During the last years, a solid corpus of literature has explored how the FMC framework can assess and improve accessibility inequalities across a diverse set of use cases and urban context. In the local context of Porto, a set of studies have already operationalised the FMC principles, demonstrating its suitability for identifying accessibility patterns and inequalities for different types of amenities, transportation modes and population groups. Alves et al. (2021) developed a walkability index for the elderly within Porto historic centre, incorporating distance, steepness, safety, and land use. Guerreiro et al. (2026) expanded this analysis for Porto Municipality extension, focusing on a network-distance based approach. Using the same approach, Silva et al. (2023) analysed accessibility to general interest amenities in ten categories for Porto Metropolitan Area, categorizing the territory in different classes according to their walking accessibility. Fonseca et al. (2022) complemented these works by addressing walkability perception, developing a comparative study between Porto and Bologna through citizens questionnaires. Collectively, these studies demonstrate the suitability of the FMC framework for assessing equity and service accessibility in the geographic context of Porto. However, they remain narrowly focused on residential and daily-life functions, such as healthcare, commerce, and education, while overlooking tourism-related opportunities and experience, a key driver shaping the urban experience and mobility patterns in the city.

Within the tourism domain, accessibility has been mainly addressed in relation to transport efficiency or destination attractiveness, rather than proximity planning. Li et al. (2022) analysed accessibility of tourism attractions using real-time travel data and a modified gravity model, exploring the impact of transport infrastructure and destination attractiveness. Zhang et al. (2020) introduced a route-optimisation model considering travel time, inter-destination distance, and departure time. From a behavioural perspective, Kim et al. (2023) highlighted how tourists' valuation of time can lead to a Time-Use Rebound Effect, with new travel technologies inducing additional trips and activities. Although these approaches integrate multimodal and

temporal factors within tourism analysis, they fall short of developing frameworks for embedding accessibility within broader urban proximity approaches such as the FMC, where tourism is examined as part of a wider urban system.

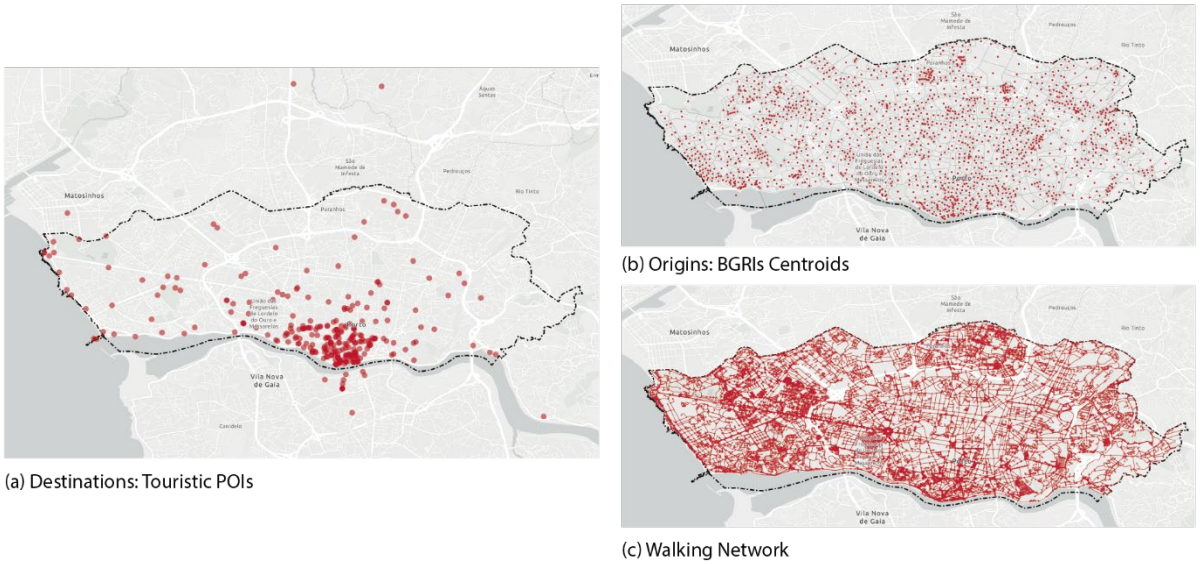
Scholars studying historic centres have stressed the increasing pressure of tourism on cultural assets and residential areas, underscoring the need to integrate tourism accessibility analysis into proximity planning (García-Hernández, De la Calle-Vaquero and Yubero, 2017). In the context of tourism, transport and accessibility are means to broader goals, such as equity, inclusion, sustainability, rather than ends in themselves (Allam *et al.*, 2022). Yet, existing FMC research rarely addresses tourism explicitly, and existing tourism accessibility studies scarcely adopt an accessibility–equity lens rooted in proximity planning. This need is further supported by recent work from Moreno et al. (2025), who calls for methods that make accessibility to tourism sites visible within proximity planning, rather than treating it as a by-product of general service accessibility.

Responding to this gap, the present study operationalises the FMC framework in the context of tourism accessibility, using Porto as a case study. It presents multimodal accessibility indicators to tourism amenities at the BGRI scale, allowing fine-grained analysis of how touristic opportunities are distributed in urban areas. By combining multimodal network analysis with spatial accessibility metrics, it examines how this distribution aligns, or conflicts, with FMC principles. This integration offers a methodological contribution towards bridging proximity-based urban planning and tourism studies, providing a replicable framework for assessing equitable and sustainable access to cultural and touristic amenities in historic urban settings.

3. Methodology

3.1 Origin and Destination Data

Running an accessibility analysis requires a set of origin points and destination points. For this project, the analysis was carried out at the spatial resolution of census tracts. Accordingly, the set of origins was defined by calculating the centroid for all census tracts within the Municipality of Porto, obtained from the official 2021 census geographical base provided by INE (*Portal do INE*, no date), comprising a total of 1659 origins.



(a) Destinations: Touristic POIs

(b) Origins: BGRIs Centroids

(c) Walking Network

Figure 1: Spatial datasets used for the travel distance and times calculation

The set of destination points was defined based on touristic attractions located in the Municipality of Porto and its surroundings. The data was retrieved from the Porto Open Data Portal (Município do Porto, no date) by selecting eight geospatial datasets containing information relevant to the tourism sector. Specifically, these datasets included information on cinemas, statues and sculptures, water fountains, art galleries, viewpoints, museums and thematic centres, concert halls, and theatres.

The selected datasets were merged, resulting in a dataset with 290 destinations. Pre-processing was then applied using Python to ensure that each amenity contained standardized attributes. Additionally, using a geospatial administrative dataset of Portugal, each point of interest (POI) was enriched with its corresponding

census tract (BGRI), Parish, Municipality, and District. Touristic destinations located outside the administrative limits of the Municipality of Porto were also retained in the dataset to minimize boundary effects (Griffith, 1983) (Figure 1).

3.2 Accessibility Modelling

For this work, we modelled multi-modal distance and time-based accessibility to cultural touristic Points of Interest (POIs) in eight categories, using census tracts centroids as origin points.

To retrieve routing information for the different transportation modes, namely walk, bike and drive, data from OpenStreetMaps was used. One network covering the analysis area was downloaded for each transportation mode, using the Python library OSMnx (Boeing, 2017). The library makes uses of the OSM tags to determine suitable segments for each mode, including directional restrictions attributes among others.

Based on this network, travel impedance was operationalized by inputting travel speed for each travel modality and network edge. For the driving network, the OSM native edge travel speeds were considered. In the case of the two other networks, a constant speed of 4 km/h for walking and 15 km/h for biking was manually input, following conservative average values considered in previous related studies (Schleinitz *et al.*, 2017; Hosford, Beairsto and Winters, 2022; Willberg, Fink and Toivonen, 2023). For each transportation mode, the shortest path in the network between each origin and destination point was retrieved using Python NetworkX library (Hagberg, Schult and Swart, 2008). Based on the length and speed attributes of the edges, the total trip distance and time was calculated.

The final results were appended to a single table containing, for each origin-destination pair, the distance, and travel time for each travel mode, in addition to the destination category.

3.3 15-Minute City Indicators

To implement the FMC lens for tourism, we computed three complementary, accessibility indicators from the results table described above. These indicators follow standard location-based approaches used to assess FMC compliance and related neighbourhood-scale accessibility (Kelobonye *et al.*, 2020), and they are reported for walking, cycling and driving, both across all amenities and by amenity category.

a. **Minimum travel time to the nearest amenity**: for each BGRI origin o and mode m, we take the minimum network travel time, min t, to any touristic amenity destination *d*:

$$T_m^{min}(o) = \min_{d \in D} t_m(o, d)$$

b. **Cumulative opportunities within time thresholds (5, 10, 15 min)**: for each BGRI origin o, mode m, and threshold $\tau \in \{5, 10, 15\}$ minutes, we count how many amenities are reachable within τ:

$$A_{m,\tau}(o) = \sum_{d \in D} 1\{t_m(o, d) \leq \tau\}$$

c. **Percentage of amenities reachable within time thresholds (5, 10, 15 min)**: for each parish p, mode m, and threshold τ, we calculate the proportion of touristic amenities that a trip originating in that parish can reach within τ:

$$P_{p,m,\tau}^{c} = \frac{\sum_{o \in O_p} A_{m,\tau}^{c}(o)}{D}$$

4. Results and Discussion

The accessibility results obtained through the operationalization of three defined 15-Minutes City indicators were visualized using choropleth maps, allowing a clear identification of unequal spatial accessibility patterns to touristic POIs in different areas of Porto municipality.

A mode-by-mode accessibility analysis exposes clear differences to the closest amenity between the three studied transportation means (Figure 2). When analysing the minimum time to reach the closest touristic POI by walking, it is possible to identify areas with poor accessibility at the east side of the city, on the periphery, especially in Campanhã parish. Contrary, the area with higher accessibility in tourism corresponds to the historic centre and along the Douro riverfront, reflecting a dense network of accessible touristic sites. When analysing

cycling accessibility, trips duration is reduced, with the average travel time to a touristic POI falling from 32 to 18 minutes, a reduction of 43% of the time. With this transportation mean, most of the city becomes a 10-minute city for at least one touristic option, and a 15 or 20-minute city for at least one touristic option for each category. By car, the average time to reach any touristic amenity is within a 5-minute ride.



Figure 2: Travel time (minutes) to the nearest touristic amenity by walking (left), cycling (centre), and driving (right). Red indicates lower accessibility; green indicates higher accessibility.

If focusing specifically on walking accessibility, the 5-minute walking map shows that only the inner-city parish achieves several amenities (10), with north and east parishes reaching very few to none (Figure 3). A 15-minute walking trip, the accessible belt widens and becomes continuous from the river upwards thı traditional central neighbourhoods. Yet, trips starting from outer belts remain achieving few touristic a This analysis highlights that, when studied from a touristic pedestrian-friendly perspective, the city clear inequalities, falling away from the FMC objectives mainly at peripherical areas.

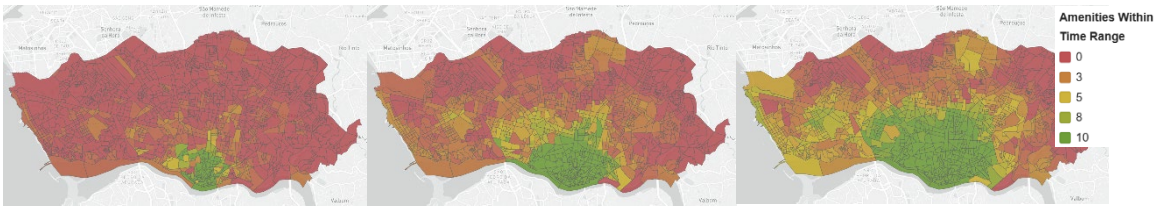


Figure 3: Number of touristic amenities reachable by a 5-minute (left), 10-minute (centre), and 15-minute (right) walk. Red indicates lower accessibility; green indicates higher accessibility.

Cycling reduces these gaps. The 5-minute biking map (Figure 4) reaches ≈94% (273) of amenities, similar to the results for a 15-minute walk trip, and 10 and 15 minutes by bike raise coverage to ≈96% (279) and ≈98% (284), respectively, with most areas attaining high choice. Driving, as expected, yields near-universal coverage even at 5 minutes (≈83–88% per parish) and becomes effectively complete by 10 minutes (100%, 290 amenities). By car, at least one touristic site of each category is accessible within a 5-minute trip.

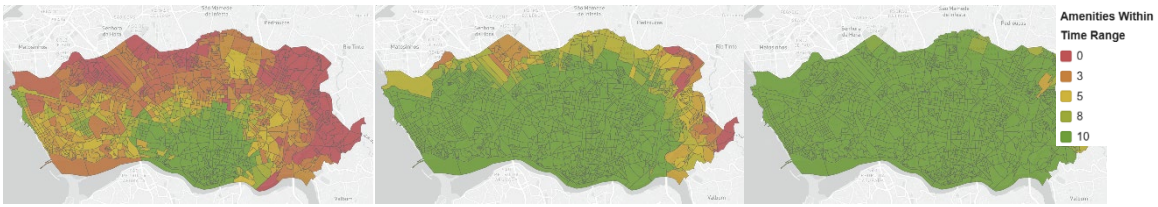


Figure 4: Number of touristic amenities reachable by a 5-minute (left), 10-minute (centre), and 15-minute (right) bike ride. Red indicates lower accessibility; green indicates higher accessibility.

The parish versus category matrices highlights origin-destination accessibility patterns. As expected, the walking trips that start from parishes in the historic centre, União de Freguesias (UF) de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória, are the ones having a higher percentage of amenities covered, followed by UF de Lordelo do Ouro e Massarelos. Peripheral parishes such as Campanhã, Ramalde, and Paranhos have only 5% to 9% of accessible touristic amenities for every amenity category, corroborating the maps' evidence of a persistent outer ring of low walking accessible tourist options. The statue or fountain, monument, museum and art gallery categories show a high walking accessibility rate for trips that start in the historic centre parish, which is expected since most of these touristic amenities are located in that parish. For all the other parishes and categories, the pedestrian accessibility to touristic amenities is low. These scarcities imply that beyond the historic core, many residents and visitors will not find touristic POIs within a walking distance.

Table 1: Percentage of accessible touristic amenities by a 15-minute walk, by parish and category.

Amenity Category	Bonfim	Campanhã	Paranhos	Ramalde	UF de Aldoar, Foz do Douro e Nevogilde	UF de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória	UF de Lordelo do Ouro e Massarelos	Total
Art Gallery	4%	1%	2%	2%	1%	13%	10%	**16%**
Cinema	1%	0%	0%	1%	0%	1%	1%	**2%**
Concert Venue	1%	0%	0%	0%	0%	2%	1%	**2%**
Monument	3%	1%	1%	2%	2%	17%	7%	**20%**
Museum	3%	2%	3%	2%	2%	12%	8%	**19%**
Statue or Fountain	8%	0%	1%	1%	3%	20%	9%	**23%**
Theatre	2%	0%	0%	0%	0%	3%	1%	**4%**
Viewpoint	1%	0%	0%	0%	1%	6%	3%	**8%**
Total	**22%**	**5%**	**8%**	**8%**	**9%**	**76%**	**38%**	**95%**

Cycling closes the accessibility gap showed on foot. Within a 10-minute bike ride, trips starting in outer parishes reach between 13% to 45% of city's touristic amenities, while trips starting in central parishes reach more than 80% of all touristic amenities. When increasing the maximum bike ride to 15-minutes, trips from every parish surpass 66% of covered touristic amenities, and trips from central parishes reach around 90% coverage. The only exception is UF de Aldoar, Foz do Douro e Nevogilde parish, who is isolated and whose accessibility do not increase as much as the others with the increase in maximum trip duration. Although accessibility increases in general for bike trips, accessibility to amenity categories with low density remains scarce.

Table 2: Percentage of accessible touristic amenities by a 10-minute bike ride, by parish and category.

Amenity Category	Bonfim	Campanhã	Paranhos	Ramalde	UF de Aldoar, Foz do Douro e Nevogilde	UF de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória	UF de Lordelo do Ouro e Massarelos	Total
Art Gallery	8%	4%	11%	10%	2%	15%	14%	**16%**
Cinema	1%	1%	2%	1%	1%	2%	2%	**2%**
Concert Venue	1%	1%	1%	1%	0%	2%	2%	**2%**
Monument	14%	4%	6%	4%	2%	18%	18%	**20%**
Museum	12%	5%	9%	7%	4%	18%	13%	**22%**
Statue or Fountain	19%	8%	13%	4%	2%	21%	20%	**22%**
Theatre	3%	2%	2%	1%	0%	4%	4%	**4%**
Viewpoint	4%	2%	1%	2%	1%	7%	7%	**8%**
Total	**62%**	**27%**	**45%**	**29%**	**13%**	**86%**	**79%**	**96%**

Table 3: Percentage of accessible touristic amenities by a 15-minute bike ride, by parish and category.

Amenity Category	Bonfim	Campanhã	Paranhos	Ramalde	UF de Aldoar, Foz do Douro e Nevogilde	UF de Cedofeita, Santo Ildefonso, Sé, Miragaia, São Nicolau e Vitória	UF de Lordelo do Ouro e Massarelos	Total
Art Gallery	14%	8%	15%	14%	5%	15%	15%	**16%**
Cinema	1%	1%	2%	1%	1%	2%	2%	**2%**
Concert Venue	2%	2%	2%	1%	0%	2%	2%	**2%**
Monument	17%	14%	17%	17%	4%	19%	19%	**20%**
Museum	18%	16%	17%	15%	6%	21%	19%	**23%**
Statue or Fountain	20%	19%	21%	19%	3%	22%	22%	**23%**
Theatre	3%	3%	4%	3%	1%	4%	4%	**4%**
Viewpoint	6%	4%	7%	6%	3%	7%	8%	**8%**
Total	**82%**	**67%**	**84%**	**77%**	**23%**	**91%**	**91%**	**98%**

The results suggest that cycling notably improves the accessibility to tourism POIs, with the capacity to convert Porto into a 15-minute tourism city. These findings highlight the need to bring attention to this active mode and increase the efforts to promote it, particularly for the tourism sector. A special attention is needed regarding UF de Aldoar, Foz do Douro e Nevogilde, which is segregated from the rest of the city in terms of tourism accessibility. Promoting cycling within Porto is crucial, according to Rocha & Ferreira (2025), only 2% of city trips are made by bike. This arises from Porto's challenging topography, characterized by hilly and narrow streets that complicate cycling infrastructure development (Silva, Altieri and Teixeira, 2023), and the absence of a cohesive active-mobility strategy. Metropolitan growth led mainly by private actors, without long-term mobility planning, has produced fragmented infrastructure that discourages active travel, particularly cycling (Serra, Gil and Pinho, 2017).

The fact that higher accessibility results are found at the historic centre, while areas with low accessibility are found on the outskirts is in line with findings from recent literature in other cities, even when analysing other type of amenities. A previous study by Guerreiro et al. (2026) in Porto showed similar spatial patters regarding general urban services concentration. The work findings highlighted the highest accessibility in the historic centre and lower in the periphery of the city, with particularly bad accessibility in the eastern parishes of the municipality. For Barcelona case, Ferrer-Ortiz et al (2022) found out that parcels with the best access cluster in the oldest areas, notably the historic centre and its surroundings, while periphery shows weaker accessibility. These outer zones suffer from low service coverage due to non-residential, mono-functional land uses that disrupt continuity and limit access.

The findings from this study are also in line with the previous analysis on Porto tourism concentration conducted by Municipio do Porto (2024), which identified the historic centre as an area of high tourist concentration, with uneven distribution of visitors across the municipality parishes. Building upon the re-distribution proposals made by the authors and considering that some categories will remain scarce by design in Porto, itinerant programmable cultural offers in the eastern and northern regions could raise the effective touristic POIs choice. This would help to redistribute visitors throughout the city without diluting the historic centre.

In summary, Porto functions as a 15-minute city for tourism on foot, in the historic centre, and by bicycle across almost the entire municipality. Prioritizing a connected cycling network and last-mile walking quality conditions would close the remaining accessibility gaps, particularly in Campanhã, Ramalde, and Paranhos. These efforts would turn today's uneven access into a richer set of choices for visitors.

5. Conclusions, Limitations and Future Work

This study analysed accessibility to tourism POIs in Porto, Portugal, through the FMC lens. It presents multimodal accessibility indicators to tourism amenities at the BGRI scale, allowing fine-grained analysis of how touristic opportunities are distributed in urban areas. By using proximity-based indicators at census tract scale, we show how these patterns vary by regions and travel mode, offering a reproducible base for urban planning and destination management. The results revealed unequal accessibility patterns, highlighting key challenges and opportunities to enhance sustainable tourism. The study concluded that accessibility to tourism is high on the historic centre, in part explained by the high density of touristic POIs and the city's compact morphology, exposing the periphery where tourism walking accessibility is much lower. The results show that shifting from walk to bike overcomes these gaps, having a high impact on accessibility to tourism and turning the periphery more connected.

Despite the insights regarding accessibility to tourism in Porto, it is important to acknowledge certain limitations inherent to the study's methodological framework. Specifically, the analysis focused exclusively on quantitative dimensions of distance-based travel time, excluding qualitative aspects such as perceived safety or user satisfaction. Furthermore, it lacked consideration of land-use characteristics at trip origins and destinations, and paths characteristics such as steepness and road type, factors that could influence travel duration and mode choice.

Regarding POIs, the analysis was focused solely on cultural amenities existing in Porto Open Data Portal. Future work could include other destinations of interest for tourists, such as bars and restaurants or public spaces, for better modelling tourism accessibility. The location of tourism accommodation, such as hotels and 'local accommodation' (AL) points, could also be added as a new analysis layer. In this sense, a foreseen research direction is to correlate accessibility results with tourism accommodation locations, to analyse the potential existence of spatial patterns. Adding a time dimension to the analysis, by incorporating POIs opening hours and schedules and fine-scale data regarding visitors' displacements, would also help deepen the understanding of these complex interactions, enhancing the development of tourism management decision support tools.

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Ethics Declaration

Ethical clearance was not required for the research.

AI Declaration

This paper was partially developed with the assistance of ChatGPT (OpenAI, GPT-5 model). The tool was used to support the drafting and refinement of text, including grammar checking, rephrasing for clarity, and generating structure suggestions. All ideas, analyses, and final interpretations are the author's own, and all outputs generated by AI were reviewed, edited, and validated by the author before inclusion.

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Industry-Academia Co-Creation in Hospitality Education: Sensory-Driven Innovation to Enhance Anchor Product Sales in Gastronomy

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Abstract: The alignment between hospitality education and real-world industry needs remains a critical challenge in tourism studies. In response, experiential learning models that foster direct collaboration between academic institutions and private enterprises are gaining prominence as effective strategies to develop practice-oriented competencies among students. This paper presents a co-creation project between a Portuguese higher education institution (School of Hospitality and Tourism, Polytechnic of Porto) and Gresso, a Portuguese premium gastronomy brand, designed to stimulate sales of the company's ten "anchor products" by developing complementary sweet offerings through sensory-driven innovation. Hospitality students were tasked with creating original dessert concepts that could enhance the appeal and commercial performance of these core items. Four proposals were developed and refined through iterative feedback: a creamy custard with orange–lemon compote, a baked red berry cheesecake, a pistachio *brigadeiro* enrobed in dark chocolate with a red berry coulis. These were then submitted to a blind tasting evaluated by Gresso's frontline sales representatives, who rated each product based on taste, originality, and perceived market potential. The pistachio *brigadeiro* emerged as the overwhelming favourite and was subsequently selected by the company for potential integration into its product portfolio. This outcome not only validated the students' creative and technical skills but also demonstrated the tangible business value of embedding industry challenges into academic curricula. The project exemplifies a "family trip" approach applied to gastronomy—where industry defines the problem, academia proposes solutions, and industry validates the results—thereby reinforcing a cyclical model of knowledge exchange. Findings underscore the importance of sensory literacy, customer-centric design, and authentic learning contexts in hospitality education. Moreover, they highlight how such partnerships can serve as incubators for product innovation while preparing students for the dynamic demands of tourism and foodservice sectors. For the ICTR community, this case offers practical insights into bridging theory and practice, fostering resilience through education, and leveraging co-creation as a tool for sustainable industry–academia engagement.

Keywords: Hospitality Education; Industry–academia Collaboration; Sensory Analysis; Co-creation; Experiential Learning; "Family Trip" Model.

1. Introduction

The persistent misalignment between hospitality education and the evolving demands of the global tourism and foodservice industries remains one of the most pressing challenges in contemporary higher education. Despite decades of curricular reform, many graduates still struggle to translate theoretical knowledge into actionable, context-sensitive competencies required in fast-paced, customer-centric environments (Ruhanen, 2005; Giousmpasoglou and Pantelidis, 2025). This gap not only undermines graduate employability but also calls into question the relevance of academic programs that prioritise abstract theorisation over experiential skill. In response, scholars and practitioners alike have increasingly advocated for pedagogical models that embed real-world industry challenges directly into the learning process, models that treat education not as a transmission of fixed knowledge, but as a dynamic, co-constructed practice rooted in authentic experience. Experiential learning, particularly when coupled with structured industry, has emerged as a powerful cure to this disconnect. By situating students within live business contexts, such approaches foster sensory literacy, creative problem-solving, and customer-centric design, skills that are difficult to cultivate through traditional lecture-based instruction alone (Steriopoulos, Goh and Harkison, 2022). Yet, while the principle of industry engagement is widely endorsed, concrete examples of scalable, mutually beneficial co-creation projects, especially those yielding tangible business outcomes, remain underrepresented in the literature.

In response to this persistent theory-practice gap, this paper presents a detailed case study of a strategic partnership between the School of Hospitality and Tourism at the Polytechnic of Porto (Portugal) and Gresso, a premium Portuguese gastronomy brand. The aim of this paper is twofold: first, to examine the efficacy of a

structured co-creation model, which we term the 'family trip' approach, in bridging academic learning and industry innovation; and second, to elucidate the key mechanisms that enable its success. Through an analysis of this sensory-driven innovation project, we specifically investigate: (1) how sensory literacy operates as a core competency for driving commercially viable culinary innovation within student-led projects; (2) how authentic, industry-defined challenges shape student engagement and the development of practice-oriented skills; and (3) how structured industry-academia partnerships can function as reciprocal incubators for tangible business outcomes and enhanced graduate employability. By doing so, this study contributes to the literature on experiential learning and collaborative pedagogy in tourism and hospitality by moving beyond principal endorsement to provide an empirical, process-oriented account of a successful co-creation cycle. We argue that the 'family trip' model—where industry defines the problem, academia generates solutions, and industry validates the results—offers a replicable framework for fostering resilience, relevance, and responsiveness in hospitality education and the wider tourism sector.

2. Theoretical Framework

2.1 Experiential Learning Frameworks

Experiential learning (EL) is defined by Lin et al. (2017) as a process where knowledge is generated through the transformation of experience, requiring students to understand and actively transform what they encounter. The historical and philosophical foundations of experiential learning (EL) are rooted in the ancient precept that "to learn is to do". The most prominent contemporary framework is from Kolb (1984) Experiential Learning Theory (ELT), which describes a four-stage recursive cycle: Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC), and Active Experimentation (AE). According to Kolb (1984), learning is the process whereby knowledge is created through the transformation of experience, requiring the resolution of creative tensions between action and reflection, and experience and abstraction. Furthermore, EL posits that learning is a holistic process of adaptation involving the total person—thinking, feeling, perceiving, and behaving. In the context of higher education and the development of generic skills, Chan and Yeung (2019) argue that while academic deep learners may focus on grades, holistic development requires an "engagement" approach, where students actively participate in experiential activities rather than avoiding them. According to Ruhanen (2005), this approach is vital for bridging the persistent divide between academic theory and practical skills in Tourism, Hospitality, and Events (THE) education. As noted by Lyu, Li and Wang (2016), common instructional tactics within this framework include role-playing, field trips, professional practice, and internships. Research by Croft and Wang (2023) suggests that EL frameworks contribute significantly to student learning by elevating interest in the discipline and enhancing the ability to determine solutions for practical problems. Furthermore, Ruhanen (2005) highlights that such approaches lead to better knowledge retention because students are actively involved in a hands-on process rather than being passive recipients of information. However, De la Mora Velasco, Huang and Renduchintala (2024) argue that current assessments of EL effectiveness often prioritise short-term student reactions over objective, long-term learning gains. Steriopoulos, Goh and Harkison (2022) also observe that the pandemic-induced shift to online delivery challenged the implementation of these frameworks, necessitating a pivot toward virtual platforms and digital adaptations. Finally, recent literature has expanded the scope of experiential learning to include "Learning through Play" as a developmentally appropriate strategy beyond preschool years.

Recent expansions of EL also encompass playful, iterative pedagogies like problem-based learning, which emphasise experimentation and learning from failure (Parker, Thomsen and Berry, 2022), a mindset directly applicable to culinary prototyping. Therefore, the present case study employs Kolb's (1984) cycle as the foundational pedagogical process, structuring the student journey from receiving the brief (CE) to developing and refining their dessert prototypes (AE).

2.2 Co-Creation and Collaborative Learning in Higher Education

Higher education is shifting from a transmission model toward dynamic, shared-responsibility learning. Central to this evolution is co-creation: a transactional process between social knowledge and personal learner experience (Kitchen et al., 2025). This approach, grounded in social constructivism, emphasises collective meaning-making through interaction (De la Mora Velasco, Huang and Renduchintala, 2024). Co-creation is facilitated through "playful pedagogies"—collaborative approaches where meaningful peer interaction develops cognitive, social and emotional skills (Parker, Thomsen and Berry, 2022). Authentic agency is critical: when

students make genuine choices and negotiate learning content, motivation and ownership increase. While digital technologies can enhance co-creative settings (Huang, De la Mora Velasco and Haney, 2022), the present project privileged direct, sensory-based interaction through physical product creation and tasting. Steriopoulos, Goh and Harkison (2022) emphasise that co-creating authentic assessments—with rubrics negotiated among students, industry experts and teachers—clarifies outcomes and boosts engagement. Liang (2021) adds that this fosters empowerment and social responsibility as students tackle real-world issues autonomously. Holistic competency development—teamwork, leadership, communication—is particularly suited to collaborative environments. Chan (2022) distinguishes between an academic "Approach to Learn" and competency-based "Approach to Develop," noting that collaboration transitions students from grade-focused "avoiders" to "engagers" who embrace competency practice. This is supported by "learning relationships": connections that propel movement through a "learning spiral." However, barriers persist. Chan (2022) identifies "lack of institutional and curriculum support," with some universities not prioritising holistic competency training. Educators face "change fatigue" and insufficient professional development for facilitating rather than directing inquiry. Assessment remains problematic: traditional grading fails to capture social and emotional growth, leading some students to view collaboration as "time-consuming." To address these gaps, scholars propose metacognitive models like the "Chain of Mirrors" —providing "Appraisal and Feedback" from peers and mentors. This recursive process of "reading and flexing"—alternating between receiving and acting on feedback—creates responsive, adaptable learning environments. Ultimately, successful co-creation depends on a "hospitable, welcoming space" characterised by mutual respect, where learners direct their developmental path (Chan, 2022). The project examined here embodies this principle through triadic collaboration among students, faculty and Gresso's managers, who collectively negotiated the problem space and solution criteria, demonstrating how theoretical co-creation principles translate into practice.

2.3 Sensory Literacy and Culinary Innovation in Gastronomy Education

In gastronomy education, innovation is increasingly driven by sensory literacy, the ability to understand, design, and manipulate the multisensory experience of food within contextual and commercial frameworks. Sensory literacy extends beyond flavour profiling to include the interaction of intrinsic food properties (e.g., texture, aroma) and extrinsic factors (e.g., plating, ambiance, brand narrative) (Vázquez-Araújo, 2024). This competency is foundational for culinary innovation, which today spans from molecular gastronomy to sustainability-driven design (Galarraga and Martínez de Albeniz, 2024). However, sensory literacy alone is insufficient without authentic contexts for application. Industry–academia partnerships provide the necessary scaffold for situating sensory innovation within real business challenges, such as revitalizing anchor products—core, high-margin items central to a brand's identity and revenue (Keller, 1993). These partnerships transform abstract sensory training into applied, market-relevant learning, fostering industry-ready graduates equipped to navigate volatile, experience-driven markets (Giousmpasoglou and Pantelidis, 2025; Kitchen et al., 2025). Such collaborations also address wicked problems—complex, multi-stakeholder challenges like sustainability, waste reduction, and product line revitalization—through co-creative pedagogy (Steriopoulos, Goh and Harkison, 2022). By embedding sensory innovation within industry-defined briefs, educators can bridge the persistent theory–practice gap while delivering tangible business value.

2.4 Industry–Academia Partnerships as Catalysts for Innovation and Employability

Strategic partnerships between higher education and industry are essential for cultivating "industry-ready" graduates, individuals equipped for dynamic labour markets. These collaborations often focus on real business problems, such as innovating around "anchor products": core offerings vital to brand identity and financial performance (Keller, 1993). Such high-stakes challenges provide students with authentic learning experiences.

Industry-readiness reflects a graduate's capacity to contribute meaningfully from day one. It is fostered through sustained engagement including guest lectures, mentoring, and industry advisory groups that inform curriculum design (Kitchen et al., 2025). These partnerships align academic content with workplace demands while reintegrating hospitality education's applied foundations. Giousmpasoglou and Pantelidis (2025) argue they are necessary to reclaim vocational roots and counter "academic snobbery"—the privileging of theory over practice.

Moreover, such partnerships enable incorporation of "wicked problems"—complex challenges like sustainability and technological disruption—into pedagogy. Co-creating authentic learning scenarios with industry allows students to apply critical thinking to real-world issues. Steriopoulos, Goh and Harkison (2022) contend this co-

creation is vital for skill development and for fostering resilience in a post-pandemic sector marked by uncertainty.

Despite benefits, structural barriers persist. Giousmpasoglou and Pantelidis (2025) caution that "managerialism" in business schools—emphasising quantifiable outputs like research publications—can marginalise vocational learning. Kitchen et al. (2025) advocate for an extended authentic learning framework positioning industry connections and practice-oriented competencies as core pedagogical standards. Hospitality education must value vocational relevance as highly as academic prestige, ensuring theory and practice evolve in tandem.

2.5 A Synthesised Framework for Sensory-Driven Co-Creation

The preceding review outlines the discrete yet interrelated theoretical pillars underpinning this study. To provide a coherent analytical lens for the present case, we synthesize them into an integrated framework (see Figure 1). This framework posits that strategic Industry-Academia Partnerships (2.4) create the essential scaffold and authentic context. Within this partnership, the pedagogical engine is Experiential Learning (2.1), specifically operationalized through Kolb's cycle, where concrete experience (the project challenge) leads to reflective observation, abstract conceptualization, and active experimentation (prototyping and refinement). This experiential process is fundamentally structured as a Co-Creation (2.2) endeavour—a transactional, socially-constructed process where students, faculty, and industry practitioners collectively generate knowledge and solutions. The specific content and objective of this co-creative process, in our gastronomic context, is the development of Sensory Literacy (2.3)—the ability to understand, manipulate, and innovate based on the interaction of food's intrinsic properties and extrinsic contextual factors. The commercial focal point of this innovation is the enhancement of anchor products—defined here as flagship, high-margin items central to a brand's identity and revenue (Keller, 1993), which in this case are Gresso's ten core dairy products. Thus, our study examines how a sensory-driven co-creation project, rooted in experiential learning and enabled by a formal partnership, functions to generate innovative complementary offerings for commercial anchor products. This synthesized framework guides our methodological design and subsequent analysis.

3. Methodology

This research adopts a mixed-methods instrumental case study design (Creswell and Plano Clark, 2025) to investigate the co-creation process and its outcomes. The case—the partnership between the Polytechnic of Porto and Gresso—is instrumental in providing insight into the broader phenomenon of industry-academia collaboration. A mixed-methods approach was necessary to capture both the complex, subjective processes of innovation and learning (qualitative data) and the objective, collective validation of the final product (quantitative data). This design aligns with the synthesized theoretical framework (Section 2.5), allowing us to examine *how* experiential co-creation unfolds and *what* tangible results it yields.

The methodology was structured in four sequential, experiential stages, mirroring Kolb's learning cycle. To inform the initial 'Concrete Experience' phase, a preliminary consumption frequency study of Gresso's ten anchor products was conducted with a relevant consumer sample (detailed in Findings). This data served as background market intelligence, provided to students to ground their creative work in real consumer usage patterns and highlight commercial opportunities (e.g., the potential to pair desserts with high-consumption items like sliced cheese).

This methodological choice is particularly robust for investigating innovation processes in real-world contexts, where the practical experience and know-how of students are concretely evaluated in the face of real-world problems, in this case, a commercial product line designated as anchor products by Gresso. The scientific rigour of the research design is ensured by the experiential learning structure and the co-creation model, which functions as a product "incubator". The methodology went through 4 phases: Stage one - Problem Identification and Contextualization: Gresso's commercial department identifies and defines the critical parameters, focusing on and having as its main objective the need to enhance the commercialisation of ten specific "anchor products" through the creation of solutions and options for real gastronomic application; Stage two - Sensory Innovation and Creativity: Students from the 1st year of the Bachelor's Degree in Catering and Restaurant Management and the 1st year of the Higher National Diploma (CTeSP, in its Portuguese acronym) in Hotel Operations, acting as innovation agents, develop original dessert concepts based on sensory literacy and the briefing from the previous stage, but also having sustainability and reducing the carbon footprint as crucial pillars for this phase; Stage three

- Iterative Feedback Cycle: The research design incorporates moments of refinement of the proposals, guided by the teachers of the involved academic subject, Kitchen and Restaurant Practices, and partners of the classes, allowing technical adjustment based on feasibility criteria; Stage Four - Real-World Validation: The final design phase utilises the "blind tasting" method, where the market, represented by Gresso's national sales agents, acts as the ultimate validator of the proposed solution's effectiveness. This design not only seeks to validate the final product but also to explore how these partnerships function as tools for sustainable engagement and resilience for the educational and business community. By adopting this methodological structure, the research transcends the description of a conventional academic project, establishing itself as a model for the co-production of services and products within the gastronomy and tourism ecosystem. This approach equips students with skills that go beyond the technical mastery of 'know-how', integrating an investigative mindset and reinforcing the strategic relevance of the relationship between academia and the industrial sector.

As a complement to the study carried out, the consumption of Gresso's 10 flagship products was analysed during the development phase of the dishes.

3.1 Research Design and Data Triangulation

Data collection was designed to document the co-creation process holistically and ensure robustness through methodological triangulation (Denzin, 1978). We collected three distinct streams of evidence:

1. Process Documentation (Qualitative): This included the project brief, student concept sheets, ingredient rationales, sensory profiles, iterative recipe versions, and field notes from faculty/partner feedback sessions. This data chronicles the 'how' of innovation and reflective learning.
2. Outcome Validation (Quantitative): The blind tasting evaluation with Gresso's sales representatives (n=27) generated standardized rating data (flavour, originality, market potential, purchase intent). This data provides the 'what'—a measurable, collective assessment of the commercial viability of the outputs.
3. (Acknowledged Gap) Participant Experience Data: While the design implicitly captured student output, it did not include formal, retrospective data collection on the students' subjective learning experiences (e.g., surveys, focus groups, reflective journals). This constitutes a limitation in fully capturing the experiential learning dimension from the learner's perspective, a point we address in the discussion on limitations and future research.

This tripartite approach—combining process, outcome, and the *acknowledged absence* of a third stream—allows for a comprehensive, critical analysis of the case. The convergence of process evidence and positive outcome validation strengthens the claims about the model's effectiveness.

Data collection was planned to document the project as a co-creation and validation process in a real-world context, combining process evidence (the how) and outcome evidence (the what and with what acceptance), as recommended in case studies seeking robustness through triangulation. The study was conducted as follows: first, all information regarding the company's objective, anchor products, premium positioning requirements, and success criteria were gathered, followed by alignment meetings between lecturers and the company. Subsequently, the items/products produced by the students were collected, including concept sheets, ingredient rationales, sensory intent (flavour/aroma/texture profile and pairing logic with anchor products), recipe versions and preparation notes, as well as records of teacher feedback and partner inputs at checkpoint moments. This collection allows for a description of the progression of the proposals and how knowledge is adjusted through feedback loops, a mechanism compatible with learning and adaptation perspectives in complex systems. This phase resulted in four refined proposals: (i) cream/custard with orange-lemon jelly, (ii) red fruit cheesecake, (iii) pistachio *brigadeiro* wrapped in dark chocolate, and (iv) red fruit coulis.

In a third phase, industry validation was verified. The company conducted a blind tasting with frontline sales representatives, selected for being privileged mediators between product, consumer perception, and sales potential. Data were collected using standardised evaluation grids, where each proposal was classified according to three criteria: flavour, originality, and market potential.

Data collection included also a study about the consumption preferences of Gresso's 10 flagship products.

4. Findings

To capture the how of innovation and reflective learning, comprehensive process documentation was collected throughout the project. This included: the initial project brief detailing Gresso's strategic challenge; student-generated materials at multiple stages—concept drafts, ingredient sourcing rationales with sustainability considerations, sensory intent statements, and iterative recipe versions with modifications; structured feedback records from faculty technical evaluations, peer tastings, and industry partner input; and reflective field notes documenting informal interactions, student questions, and rationales behind key creative pivots.

To ground the innovation challenge in market reality, a consumption frequency analysis of Gresso's ten anchor products was conducted. This revealed a clear hierarchy: high-consumption staples like sliced cheese and salted butter represented guaranteed volume but limited growth through mere complementarity, while low-consumption specialties such as mozzarella-type cheese and unsalted butter presented opportunities for desserts to act as drivers, increasing appeal and usage occasions. Students thus faced a dual challenge: create compelling desserts while considering strategic portfolio roles.

Twenty-seven Gresso sales professionals evaluated the three proposals through blind tasting. The Creamy Custard with Orange-Lemon Compote received mixed to positive evaluations, with flavour as its main highlight (86% positive: 52% "Good", 34% "Very Good"). However, colour emerged as a weakness, with only 26% positive ratings and 22% finding it "Unpleasant." Overall appearance reached 74% positive, texture 70% positive, and aroma 52% positive. Purchase intent was the lowest among the three products: only 33% expressed positive intention (26% "Probably Yes", 7% "Certainly"), while 44% indicated negative intention and 22% remained undecided.

The Baked Red Berry Cheesecake demonstrated very strong acceptance across all attributes. Colour received 82% positive (63% "Good", 19% "Very Good"), appearance 74% positive, and taste 63% positive with no negative ratings. Texture and aroma both achieved 82% positive, with texture scoring 41% "Good" and 41% "Very Good," and aroma 30% "Good" and 52% "Very Good." Purchase intent was substantially higher: 52% positive (26% "Probably Yes", 26% "Certainly"), with an additional 34% undecided, raising potential reach to 86%. Only 11% would not buy.

The Pistachio Brigadeiro in Dark Chocolate with Red Fruit Coulis showed exceptional visual appeal. Colour received 90% positive (34% "Good", 56% "Very Good"), and overall appearance 86% positive (26% "Good", 60% "Very Good"). Flavour achieved 66% positive (33% "Good", 33% "Very Good"), though 22% considered it "Average" and 7% "Unpleasant." Texture reached 66% positive (44% "Good", 22% "Very Good"), and aroma 63% positive (41% "Good", 22% "Very Good"), with 33% "Reasonable." Purchase intent matched the cheesecake at 52% positive, with 33% undecided yielding 85% potential reach. Fifteen percent would not buy.

While both cheesecake and *brigadeiro* demonstrated equal purchase intent (52%), the Pistachio Brigadeiro emerged as the strongest overall performer. Its exceptional visual appeal (90% positive for colour, 86% for appearance) addressed critical first impressions in retail contexts. Gresso's commercial team selected it for three strategic reasons: differentiation through Brazilian-inspired novelty in the premium market, versatility as stand-alone item or plated component, and production scalability through component-based assembly. The product was formally selected for potential portfolio integration, validating the co-creation model's capacity to generate commercially viable innovation.

5. Discussion

This study examined the efficacy of a structured co-creation model, validating the "family trip" approach while providing insights into why and how it functions. The initial project brief established clear parameters: develop dessert concepts enhancing Gresso's ten anchor products with premium positioning and commercial viability. Analysis of student-generated materials revealed over 15 concepts exploring varied approaches—textural contrast and flavour complementarity—while prioritizing local Portuguese ingredients. The Pistachio Brigadeiro's selection was not serendipitous but resulted from alignment with sensory literacy and market logic. First, it mastered novelty within familiarity (Vázquez-Araújo, 2024): elevating a traditional sweet through premium ingredients (pistachio, dark chocolate) while retaining approachability. Second, it delivered multisensory contrast: crunchy interior against smooth chocolate enrobing, complemented by acidic red fruit coulis—creating an engaging sensory arc that enhanced, rather than overwhelmed, anchor products. Strategically, its high visual appeal (90% positive) addressed critical "first impression" in retail contexts, while format versatility answered

the need for a flexible, high-margin complement. Our case elucidates three critical mechanisms distinguishing this model from simpler engagements: First, authentic problem ownership: Gresso provided a clear, high-stakes brief tied to real revenue targets, establishing immediate relevance and motivation. Second, validation authority with frontline practitioners: sales representatives—who gauge consumer reaction daily—embedded market realism into assessment. Third, iterative, reflective prototyping guided by faculty (technical pedagogy) and industry partners (commercial feasibility), creating a "protected yet real" space for experimentation embodying Kolb's cycle. Unlike linear "consultancy" models delivering final reports, value resided in the co-creative process itself—a continuous negotiation of knowledge (Kitchen et al., 2025).

The project answers the call to move beyond abstract endorsements of industry collaboration (Ruhanen, 2005). Bridging the theory-practice gap requires a structured, reciprocal framework, not ad-hoc engagement. The persistent divide stems from context: theory taught in isolation, practice experienced without reflection. The "family trip" model fuses these by making the industry problem the classroom curriculum and classroom output subject to commercial validation. This closes the loop, ensuring academic learning is stress-tested against practical utility while industry innovation benefits from fresh, research-informed perspectives.

6. Conclusion and Implications

This study provides empirical evidence that sensory-driven, co-creative projects can simultaneously achieve business innovation and experiential learning. The "family trip" model offers a replicable blueprint for industry-academia synergy. Educators should design curricula around live industry briefs with tangible outcomes, transitioning from teacher to facilitator within a co-creative triad. Assessment must value process, iteration and professional feedback alongside final output. For industry, engagement is not merely CSR but low-risk R&D and talent scouting. Companies access creative ideation from digitally native students. Managers must invest time in co-defining challenges and participating in iterative feedback—the return is both innovative concepts and early talent identification. For researchers, this study contributes a process model connecting experiential learning and social constructivism to operational practices. It suggests sensory literacy as a core, teachable competency for innovation. Limitations point to future research: (i) lack of systematic data on students' lived experience—future iterations should include reflective assignments and longitudinal surveys; (ii) single partnership context—generalisability requires testing in other hospitality sub-sectors; (iii) validation panel limited to sales representatives—future research should include consumer tasting panels; (iv) snapshot in time—longitudinal follow-up on the *brigadeiro*'s commercial performance would evidence long-term impact.

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Ethics Declaration

Personal and organisational identities have been anonymised. No additional ethical issues arose during this research.

AI Declaration

ChatGPT 5.1 was used as a writing aid for wording support, grammar improvement, and occasional rephrasing.

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Digital Marketing Strategies for Creating a Sustainable Image in Tourism Companies

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Abstract: The tourism sector, in addition to driving economic growth, plays an important role in encouraging and adopting sustainable practices. Digital channels emerge as the ideal means for this promotion and for raising awareness about sustainability. Thus, digital marketing presents itself as an effective tool for promoting an image of sustainability within organizations, both internally and externally. This study aims to understand how organizations' digital marketing strategies con-tribute to promoting a sustainable image within tourism companies, both internally with employees and externally with customers. To this end, a qualitative approach was adopted, through a multiple case study of 21 tourism companies. The results reveal that some invest in strategies such as email, WhatsApp, or intranet, while others still face limitations in internal communication. Regarding external communication with customers, the most effective digital strategies include social media, campaigns, and videos, which help strengthen companies' sustainable image. This study provides a better understanding of the connection between digital marketing and sustainability in the tourism sector, highlighting the relevance of consistent and integrated digital strategies to promote an image of sustainability.

Keywords: Digital Strategies, Sustainable Image, Digital Marketing, Sustainability, Tourism.

1. Introduction

The tourism sector is one of several sectors currently demonstrating a growing concern for sustainability. This reality drives a strategic redefinition of companies' positioning regarding sustainability. Sustainability is a necessity that requires new attitudes, employing appropriate and effective strategies that can reach everyone, both internally with employees and externally with consumers and stakeholders. It is undoubtedly a strategy for improving the image of organizations and for attracting more consumers, as a sustainable image always gains prominence.

According to Burgos & Mertens (2015), sustainable tourism emerges as a solution that seeks to balance the interests and needs of all parties involved. It aims to simultaneously highlight the advantages of a destination and contribute to reducing negative impacts. By preferring conscious practices, tourists play a fundamental role in preserving destinations.

The role of organizations is fundamental, as they have a responsibility to develop and promote sustainable practices and activities. Companies not only contribute to general well-being but also reinforce their image of sustainability in the market. Therefore, an effective communication tool becomes essential for promoting and disseminating these practices.

Digital marketing is essential for expanding knowledge about sustainability issues, encouraging the adoption of behaviors and attitudes that promote collective wellbeing. In a scenario where attention to the impacts of human practices on society and the environment is growing, the use of well-designed digital strategies helps organizations build a lasting and trustworthy online reputation, aiming for a more sustainable future. It is vital that organizations demonstrate a genuine commitment to sustainability by implementing digital marketing strategies geared towards this goal, which can strengthen the credibility and trust of consumers and employees who are increasingly seeking sustainable brands.

Brahmana & Cristina (2020) argue that internal marketing strategy has been a frequent topic of study in companies, analyzed through the communication of the company's vision and the recognition and development of employees.

Many argue that the first customer of an organization, regardless of its size, is its employee. Chipuca (2020) adds that motivation involves the responsibility of reaching, managing, and understanding employees, so that each one feels an integral part of the group, seeking both external and internal satisfaction.

For more effective and lasting internal communication, it is essential for companies to utilize digital channels. These platforms streamline the dissemination of in-formation, speeding up processes, which sparks employees' interest in participating in company initiatives. They are an excellent tool for integrating sustainability values into company principles, fostering a more responsible and conscientious work environment.

Although there are many studies on sustainability and digital marketing in tourism (Paiva et al., 2023; Afren, 2024; Bassi et al., 2020; Jati-Morales et al. 2022), there is a significant lack of literature on how digital strategies directly influence the construction of organizations' sustainable image, both internally and externally.

Furthermore, few studies investigate how internal and external digital strategies complement each other to reinforce sustainable values (Kotler et al., 2020; Chaffey & Chadwick, 2019; Neiva, 2019). This study aims to contribute to this area of knowledge.

1.1 Digital Marketing

The pressure of the new technological world has transformed the world of information. The way we communicate today has changed, and this change, not only in forms and techniques, but also in the content transmitted (Maia, 2022).

The transfer of social interactions from the physical world to the online environment has enabled more agile communication between people in different locations. The adoption of digital technologies, which has enabled this greater connection, represented considerable progress in the trajectory of marketing (Moreira & Laraich, 2021).

McGruer (2020) argues that, today, an active digital presence is as crucial as a physical presence, since it is online that people research, buy, and interact. However, this digital revolution brings with it enormous challenges, requiring significant investments, both budgetary and resource wise. Therefore, the choice of digital communication strategies can be crucial.

Chaffey & Chadwick (2019) define digital marketing as the process of achieving objectives using digital channels, information, and technological tools. They emphasize that it is the results achieved with technology that determine investment in digital marketing, not the simple adoption of the technology itself. Digital marketing focuses on managing the different forms of an organization's online presence (applications, websites, social media), integrated with online communication techniques (search engine marketing, email marketing, social media marketing, online advertising, etc.).

The constant growth of digital technologies has transformed and will continue to transform traditional marketing practices. Today, marketers must learn to deal with an increasingly connected and intelligent audience, manage the vast amount of available data, and understand that, while the digital age offers countless opportunities for organizations to progress, it can also bring challenges and high costs. Therefore, planning, implementing, and measuring digital strategies that are tailored to today's consumers is crucial (Kotler et al., 2019).

1.2 Sustainability

The tourism sector is one of the largest industries in the world, having a significant impact on economic development. These activities, on the other hand, have negative effects on the environment and the community, jeopardizing the image of tourism organizations, which has led to the concept of sustainability and its implementation. Although the term "sustainability" has existed for several decades, the concern and attention given to it appears to be more recent.

The concept of sustainability is vast and establishing a precise and universally accepted definition is difficult. To be sustainable, organizations need to incorporate social, economic, and environmental responsibilities, both internally and externally (Paiva et al., 2023).

Boni et al. (2019) explain sustainability within organizations as the sum of actions implemented by the company, aiming for the sustainable development of a given community. The authors also state that this responsibility is not exclusive to large companies, as small and medium-sized enterprises can assist with actions and projects that benefit the community.

Paiva et al. (2023) describe sustainability as "enough, for everyone, everywhere, always," where it is necessary to reduce excesses and ensure decent living conditions for all, now and in the future. The great challenge lies in

collaborating on sustainability in harmony with the organizations' profit objectives. In this sense, the authors assert that organizations that adopt sustainable practices can ensure a pleasant environment for all involved and also obtain greater profits by adopting these practices.

Boni et al. (2019) also argue that the correct adoption of sustainable practices contributes to improving the company's sustainable image among its target audience, fostering greater awareness. The authors emphasize that concerns should not reside solely in the environmental dimension but rather maintain a commitment to society and to employees themselves, since everyone suffers the same consequences of the negative impacts of unconscious consumption.

Paskova & Zelenka (2019) argue that awareness of the harmful effects of the tourism sector on society and the environment encourages the adoption of sustainability practices in tourism, affecting both demand and supply.

The process of implementing sustainable practices in tourism organizations provides existing and emerging techniques and procedures to make tourism sustainable, and this implementation remains a challenge for these organizations.

It is important that government leaders adopt measures based on contributing to a healthier and more sustainable planet, achieving, through influence and power, an active role with positive results in contributing to environmental protection (Gonçalves et al., 2022).

The tourism sector is a massive phenomenon that moves millions of people and encompasses various activities and sectors, such as the hotel industry. This must be aligned with the SDGs, as there is a reciprocal relationship between them, in which they mutually benefit.

Due to the involvement of various stakeholders, tourism is strongly committed to sustainability. Therefore, it is essential that it be sustainable, contributing to environmental protection, educating people about environmental, social, and economic causes, raising awareness, among other aspects.

To stand out in the market, it is advisable to have a competitive advantage that remains in the minds of customers in the long term and maintains the survival of companies in the market. Organizations that choose sustainability for this purpose are more likely to achieve significant results, such as improved image, increased profits, attracting more customers, and even a competitive advantage (Bassi et al., 2020).

A sustainable organization that participates in social initiatives stands out from other companies in the market. Nowadays, employees and consumers seek sustainable organizations with which they can feel identified.

Market stability and growth are guaranteed for companies that demonstrate their commitment to sustainability.

2. Methodology

A multiple case study was conducted with the collaboration of 21 companies, in Porto metropolitan area, in the tourism sector recognized digitally for adopting sustainable practices, based on their presence on social media and institutional websites.

2.1 Study Design

This research adopted a qualitative approach, as it was considered the most appropriate for the exploratory nature of the study. Thus, the qualitative research aims to answer the research question "How do digital marketing strategies promote the creation of a sustainable brand image in tourism companies?" A multiple case study was conducted with the collaboration of 21 tourism companies recognized digitally for adopting sustainable practices.

2.2 Instrument

Data collection was conducted through interviews using a semi-structured interview guide, which allowed for an in-depth exploration of the companies' perceptions and sustainable practices. To this end, two guides were developed: one for employees and the other for marketing managers. The guides were developed based on the concepts from the literature review, along with the specific objectives of the study.

The employee guide consists of 20 open-ended questions, organized into two groups: (1) Sociodemographic characteristics (age, gender, marital status, education, role in the company, and length of tenure); and (2) Digital

marketing strategies for promoting a sustainable image internally: this study aimed to understand the internal marketing strategies that companies in the tourism sector use to promote a sustainable image internally.

The marketing managers' script consists of 22 open-ended questions, also organized into two groups: (1) Sociodemographic characteristics; and (2) Digital marketing strategies for promoting a sustainable image to understand the internal marketing strategies that companies in the tourism sector use to promote a sustainable image externally.

2.3 Sample

The interviews were conducted with employees of sixteen companies in the tourism sector, including travel agents, store managers, and tour guides. Subsequently, the second phase of interviews was conducted with marketing managers at seven companies, also including human resources professionals, store managers, and travel agents. All study participants were directly involved in the implementation and reception of digital sustainable communication strategies. In two of the companies, interviews were conducted with two different participants: an employee and a marketing manager.

2.4 Procedure

To obtain the highest possible response rate, initially, email was used to request participation in the study and schedule interviews. The interview was included in the final analysis process. Prior to data collection, an interview guide was presented to all participants, including information regarding the study's objective, an audio recording, and informed consent. All the interviews were audio-recorded and transcribed verbatim, and conducted remotely via Google Meets, according to the participants' schedules. To ensure confidentiality, participants were coded as "E1, E2, E3...". The average length of the interviews ranged from 15 to 40 minutes and were conducted between March and May 2025.

3. Results

Regarding employees' perception of the digital marketing strategies that the analysed companies use to promote an image of sustainability internally (n=16), five main themes were identified: Digital Communication, Sustainability, Culture, Digital Marketing and Organizational Climate.

3.1 Digital Communication

The theme "Digital Communication" refers to the digital channels and practices that companies use to communicate with employees about sustainable practices and initiatives. This theme emerged from four codes that demonstrate different realities regarding the promotion of sustainability to employees: Lack of information; Information Sharing; Training and WhatsApp. These codes demonstrate the frequent use of digital platforms, while also pointing to a lack of formal digital communication channels.

Training, in ten interviews, refers to the holding of training sessions for employees for professional development. These actions represent a powerful strategy for encouraging greater employee involvement in the acquisition of sustainable values.

Information Sharing, in seven interviews, describes the sharing of content on digital platforms, from superiors to employees and among them. Some organizations encourage the dissemination of information through digital channels (email, social media, newsletters), demonstrating a clear intention to raise employee awareness and keep them informed: "Because we have these groups and then we all share the information there" (E4).

On the other hand, Lack of information, in seven interviews, characterizes institutional contexts where there is no formalized digital structure for promoting sustainability practices. In some organizations, the absence of a sustainability-focused communication structure is evident, specifically the lack of specific platforms used to disseminate sustainability-related information. This characterizes a significant gap in internal processes: "It's not like that. We have WhatsApp groups and stuff, but beyond that, no" (E10).

Additionally, WhatsApp, identified in five interviews, presents itself as a digital communication channel for sharing information, from superiors to employees and among them. Some consider it an informal communication tool, but it is extremely effective in some organizations, as it enables the exchange of information and more direct interaction with employees.

3.2 Sustainability

The analysis of the interviews enabled the identification of some sustainability practices in companies in the tourism sector. The theme “Sustainability”, covers employees' perceptions of sustainable practices in the organizational context, highlighting the different behaviours, actions, and types of organizational involvement: Responsibility; Compliance; Sustainable Practices; and Internal Awareness.

Sustainable practices, in six interviews, encompass a set of actions implemented by organizations, including social, environmental, and economic ones. Practices such as waste separation and Paperless, which reduces the use of paper in internal activities, opting for digital means for communication and documentation, stand out: "For example, with the delivery of documentation, we try to do everything digitally so that there is no need for the client, neither the client nor us, to waste paper" (E3).

Associated with it, Compliance stands out, with five occurrences, referring to adherence to the guidelines established by the organization, especially those of a sustainable nature, and the organization's own commitment to fulfilling its duties. Overall compliance with institutional best practices is notable: "And we are a company committed to sustainability" (E7).

Responsibility, in five interviews, represents the understanding of a personal and/or organizational commitment. This commitment reveals the importance employees place on performing their work properly and acting conscientiously regarding socio-environmental issues. This responsibility appears as a shared organizational value: "Employees try to do their best" (E15).

Internal awareness, with five occurrences, reveals employee awareness of the relevance of sustainability. This awareness aims to change mindsets, behaviours, and habits: “Everyone needs to internalize these needs” (E9).

3.3 Organizational Climate

The "Organizational Climate" resulted from nine codes and demonstrates how employees classify and experience the work environment and team dynamics: Company; Positive Evaluation; Positive Reflection; Suggestion for Improvement; Availability; Active Participation; Sectoral Division; Feedback; Verbal Communication. These codes allow us to understand not only the perceived workplace environment, but also how it affects interest and engagement in sustainable initiatives and internal communication.

Positive Evaluation reflects employee satisfaction with the company's environment and performance. Responses highlight a sense of inclusion and comfort within the organization: “So, in terms of inclusion, spectacular" (E12).

Feedback (in seven interviews) refers to formal and informal feedback provided to employees regarding the company's results and employee performance. Feedback is a constant practice: "They provide weekly, monthly, and annual feedback on the results of both the company as a whole and the team's specific store, and it's always honest, whether things are going well or poorly" (E15).

This environment is also reflected in the Positive Reflection, in seven interviews, which highlights the perception that the organization, through digital media promotion, effectively reflects the sustainable values it promotes. Employees recognize the consistency between the organization's discourse and its practices, as mentioned by one employee: "In terms of training and so on, what I've always noticed is that the company truly demonstrates its commitment to the employee's personal and professional development. It ends up being reflected" (E9).

Despite the positive aspects, Suggestions for Improvement also emerged, with six occurrences, with recommendations and proposals from the organization's employees, such as internal platforms, other types of communication, and increased sharing of sustainable information: "Maybe a different type of communication" (E9).

Availability, in six interviews, refers to employees' willingness to participate in sustainable initiatives. It is noteworthy that such participation often depends on their workload and schedule: "If everything is well-scheduled, then it's easier for us to know which activities we can and cannot at-tend" (E4).

This factor is related to Active participation, in six interviews, which addresses employee involvement in organizational activities and practices. Employees report direct involvement in company initiatives, as well as suggestions for promoting greater colleague participation in initiatives: "I think it's a bit like what I mentioned earlier, having some activities in person to try to motivate people a bit more" (E6).

Sectoral division, in five interviews, describes the existence of different departments in the organization and the distinct responsibilities of each. This division sometimes limits knowledge, interaction, and communication among employees: "Because those social and economic issues don't really translate here into customer service anymore" (E3).

The term Company, in five interviews, refers to employees' observations about the size of organizations, their differences from others, and some of the organizational challenges they face. It's worth noting that large companies are sometimes more prone to challenges than small companies: "But that doesn't just have to do with sustainability communication; it's a challenge we face due to the multidisciplinary nature of our team" (E16).

Finally, Direct Communication, with five occurrences, highlights the preference for direct oral communication between employees and superiors, rather than formal channels, which is more common in small companies: "That's why, since we're small, we rarely use verbal communication" (E14).

3.4 Digital Marketing

The data highlights the use of varied digital marketing strategies by the organizations analysed. The theme "Digital Marketing" resulted in six codes that reflect different levels of digitalization and the implementation of strategies to promote sustainability: Campaigns, Absence of Limitations, Transparency, Intranet, Email, and Instagram. These codes demonstrate how digital tools are used in internal communication to promote sustainability, highlighting channels, strategies, and employee perceptions.

Email, in twelve interviews, proves to be a digital channel for sharing and promoting content. It stands out as the most used digital communication method to inform employees about specific actions and updates: "And also by email. Email is very important; we always receive daily emails with information and updates" (E15).

Transparency, with nine occurrences, reflects clarity in digital communication regarding the organizations' sustainable values and their applicability. It highlights employee recognition of organizations' effective efforts to convey sustainable values through digital channels: "They're transparent. Whenever we have a goal and then achieve those results, they publicize it" (E5).

In this context, the Lack of limitations, in six interviews, highlights the absence of operational constraints in the digital environment. It's worth noting that digital marketing is a functional resource in some organizations: "I don't think there are any limitations" (E8).

The Intranet, in six interviews, refers to the internal channel for sharing and updating information, as well as company guidelines. In some cases, it is also mentioned as a suggestion for improvement: "We employees have a platform, the Intranet, that publicizes everything related to marketing" (E15).

Regarding digital strategies, Campaigns, in six interviews, refers to the dissemination of initiatives by organizations through digital campaigns. These campaigns target both external and internal audiences: "Fundraising campaigns for some institutions..." (E7).

Finally, Instagram, in five interviews, refers to one of the social networks used by organizations to promote internal sustainability. This platform is characterized as one of the main social networks for internal and external brand and sustainable practices promotion: "And we have a page there, I think the most active one is on Instagram, where we share some environmental activities we do, like races" (E4).

3.5 Culture

The "Culture" theme appears as one of the least developed, resulting from two main codes. It refers to the values, behaviours, and beliefs that influence employees in the workplace: "No Knowledge" and "Individual Relevance." The data reveal an interpretation of the absence of a solid organizational culture focused on sustainability.

No Knowledge, in nine interviews, reveals the lack of knowledge among many employees about the practices, values, strategies, and/or guidelines associated with sustainability in their company. This may indicate a lack of communication or elaborate practices that implement sustainability into organizational strategies: "I don't know to what extent it adds to us or involves us, to be honest" (E1).

Furthermore, Individual Relevance, in five interviews, reveals the perception that the adoption of sustainable practices often results from employee initiatives rather than from a generalized culture fostered by

organizations. This perception highlights that sustainability is understood as a personal choice: "I do my part not because I'm asked, but because it's the right thing to do" (E12).

Regarding marketing managers' perceptions of the digital marketing strategies used by the companies analysed to promote an external image of sustainability (n=7), two main themes were identified: Sustainability and Digital Marketing. This analysis also includes professionals from other fields due to the difficulty in interviewing marketing professionals from all the companies analysed.

4. Discussion

In general, organizations in the tourism sector highlight digital marketing as a crucial ally in driving sustainability. The use of digital tools has proven essential for giving visibility to sustainable initiatives, raising public awareness, and consolidating the brand image. However, not all companies analysed demonstrate a full understanding and widespread implementation of digital strategies. Externally, significant investment is noted in digital strategies with relevant visual and emotional appeal (campaigns, social media, websites). Internally, the implementation of digital strategies is less uniform: even with strategies such as email, training, and internal platforms, many employees report a lack of knowledge or an inability to actively participate in the organization's sustainable initiatives.

The specific objective—to identify the digital marketing strategies that companies in the tourism sector use to promote a sustainable image internally—was achieved with the codes "Email," "WhatsApp," "Training," and, in some cases, platforms such as "Intranet." From the employees' perspective, these strategies helped reinforce the organizations' messages, disseminate "Sustainable Practices," and encourage "Active Participation" in activities. Employees emphasize the importance of direct involvement in company initiatives. However, the frequency and impact of these strategies vary greatly across companies, revealing a lack of consistency. Some companies highlighted the lack of a formalized digital structure to promote sustainable practices and activities, evidenced by the code "Non-existent."

Once again, a lack of internal alignment is noted, which can hinder employee engagement. Clarity in communication and alignment in contributing to feelings of inclusion and commitment to the organization's mission are crucial. Thus, the lack of structure in digital communication in some companies reveals itself as a technical flaw, but also as an opportunity for improvement, highlighted in the "Suggestion for Improvement" code, particularly regarding the consistency of shared information. This idea aligns with Kotler et al. (2019), who demonstrate that internal digital communication is closely linked to employee engagement with the organization's values and the clarity of the information conveyed. This connection is essential to ensuring alignment with sustainability principles. The results also highlight that the adoption of sustainable practices by employees often results from individual initiatives rather than a generalized culture fostered by organizations. This perception, highlighted in the "Individual Relevance" code, demonstrates that sustainability is understood as a personal choice.

Regarding the specific objective—to identify the advantages of digital marketing strategies that tourism companies use to promote an image of sustainability internally, employees recognized that internal digital strategies, when used correctly, encourage "internal awareness," "information sharing," and feelings of inclusion, as revealed in the results. Transparency and consistency of digital content were highlighted as important for understanding the organization's sustainability goals. This view aligns with the ideas of Kotler et al. (2019), who argue that internal digital communication helps with strategic and cultural alignment. This recognition by employees demonstrates a greater understanding of the vital role of digital tools in developing and enhancing the organization's reputation. This view is also in line with the perspective of Cooper (2020) and Chaffey & Chadwick (2019), who highlight the importance and effectiveness of digital marketing in strengthening relationships with the target audience and solidifying a sustainable brand image, in which consistency and coherence are essential to increase credibility and trust.

The "Positive Reflection" code demonstrates the reality of some companies, highlighting the perception that the organization, through digital media promotion, effectively reflects the sustainable values it promotes. Employees recognize the coherence between the organization's discourse and practices. Regarding the specific objective – Identifying the limitations of the digital marketing strategies used by tourism companies to promote an image of sustainability internally – the greatest weaknesses identified were the lack of specific platforms, highlighted in the "Non-existence" code, irregular information sharing, and the concentration of communication in certain departments. These aspects sometimes make employees feel left out of the process or uninformed about the company's actions. This situation reduces the potential of internal digital marketing as a tool for

incentive and engagement. This observation may also indicate that, in certain contexts, the sustainable values promoted by organizations are not fully incorporated.

This perspective echoes the thinking of Neiva (2019), who states that when an internal culture is not consistently considered, it becomes difficult to foster feelings of inclusion and align employees with the organization's objectives. When employees do not recognize or identify with the values promoted by the organization, the impact of sustainable actions tends to be reduced. The author argues that organizational culture should be built based on the practical experience of company values, avoiding the risk of continuing as an organizational discourse disconnected from reality. Organizational culture reflects daily practices, and internal alignment is vital for employee cohesion and engagement with organizational objectives. Lack of awareness or limited employee involvement can mean that sustainability is understood as a responsibility of a specific department, rather than a cross-cutting value across the entire company.

Regarding the challenges of digital marketing strategies that companies in the tourism sector use to promote an image of sustainability internally, this was answered by the codes "Sectoral division" and "Availability." The challenges observed point to the existence of different departments, a lack of availability that hinders employee involvement in company initiatives, and the absence of an organizational culture that truly values sustainability across the board. The situation is exacerbated by the lack of clear and integrated communication, as Neiva (2019) point out. These aspects demonstrate the importance of fostering a collaborative environment and effective communication to ensure employee engagement in company strategies. It is important to highlight the direct influence of the environment on employee behaviour. Furthermore, the existence of multiple stores and different organizational realities impacts how employees experience the organizational environment, internal communication, and sustainability itself. This observation is consistent with the ideas of Chaffey & Chadwick (2019), who emphasize the importance of organizational structure and communication management in internal processes. This variety of reality requires the selection of adapted digital solutions to promote greater uniformity and a sense of inclusion among all members of the organization.

In short, although the tourism sector is increasingly interested in using digital strategies to drive sustainability, challenges remain in communication and structure, particularly in how the company communicates internally and how different departments interact. To effectively build a sustainable image, the coordination of internal and external communication will be crucial to reinforcing the image, both for customers and employees. Coherent action across environmental, social, and business dimensions are essential to ensure that the company is trustworthy, authentic, and legitimate.

5. Conclusions

It was possible to identify a set of digital marketing strategies used to promote a sustainable image among external audiences, including the consistent use of social media, digital campaigns, websites, and multimedia content. These strategies offer clear advantages, including increased credibility within the tourism market, strengthened brand positioning, and closer engagement with the target audience. They are effective in building companies' online reputations and reinforcing their sustainable image among consumers. However, significant limitations were also identified, such as the lack of metrics to evaluate the performance and impact of digital strategies, the lack of a comprehensive strategic vision (in some cases contributing to internal misalignment), and differences in the level of professionalization. Regarding external challenges, these were not mentioned with great emphasis by the interviewees, which may indicate a general perception of digital maturity or a possible lack of critical reflection on the challenges of the digital world. Regarding digital marketing strategies aimed at employees, it was found that these exist in some companies. These strategies include the use of institutional email, online training, and platforms such as intranets and WhatsApp. By applying digital strategies with precision and care, a positive impact was observed, including increased awareness, information sharing, and the strengthening of a more sustainable organizational culture, which encourages greater alignment with the company's principles. However, it was noted that not all organizations use digital tools equally, which may be due to the level of digital development, as well as limitations and difficulties in the transversal dissemination of sustainability practices and internal communication. The lack of clear communication and the impact felt by divisions between departments hinder the recognition of the effective role of digital strategies. The results indicate that, in some companies, sustainable values are not fully communicated among employees, which somewhat hinders the creation of a sustainable organizational culture. This finding becomes more evident in contexts where internal communication fails, leading to a lack of information or knowledge about the organization's goals and practices. It's important to highlight that this study offers important contributions as it provides a practical and in-depth connection between the concepts of digital marketing and

sustainability in the tourism context, considering both external and internal perspectives, and it contributes to the broader debate on sustainability.

The results provide practical suggestions for tourism organizations to reflect on how to improve internal and external digital communication, drive employee engagement in sustainable actions, and develop effective digital strategies. By identifying limitations, the study can help managers making decisions about how to invest in the digital field, aligned with the SGDs. Finally, this study reinforces the role of the tourism sector as a promoter of sustainability. Companies that implement digital strategies focused on sustainability increase their competitiveness and commit to fostering more conscious attitudes among employees, customers, and communities.

However, the study has some limitations that should be highlighted. The sample consisted of operational employees, with only three interviews with marketing directors, which may have limited the depth of the study. Furthermore, some interviews were brief and provided poorly developed answers, which limited the data density. It was also observed that participants attributed greater importance to the environmental dimension of sustainability during the interviews, rather than its combination with the economic and social dimensions, which makes the analysis less comprehensive. Finally, it is worth noting that there are few recent empirical studies that directly link sustainability and digital marketing strategies in tourism, which hindered a more in-depth theoretical discussion. After analysing the results and acknowledging the limitations founded, we recommend that future research explore this topic further, combining qualitative and quantitative analyses to better understand the reality of organizations. We also suggest conducting studies specifically focused on small and medium-sized enterprises to better understand the challenges they face compared to large companies. Furthermore, it is important for future research to delve deeper into the role of influencers in promoting sustainable content on digital platforms to increase knowledge about sustainability marketing.

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Ethics Declaration

This work didn’t require any ethical clearance.

AI Declaration

No AI tool was used to develop this work.

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Tourism Walkability Index: A Data-Driven Tool for Tourism Urban Planning

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Abstract: Walking plays a central role in how tourists experience cities, yet most walkability measures remain oriented toward residents and do not reflect the specific spatial behaviours, sensitivities, and motivations of visitors. Existing indices typically overlook the importance of cultural access, environmental comfort, and safety perceptions for tourist mobility. As a result, there is a need for tourism-specific approaches that can capture how walkability varies within cities and how it relates to tourist mobility patterns. This paper proposes the Tourism Walkability Index (TWI), a fully geospatial and street-level framework designed to quantify walkability from a tourist perspective. The TWI integrates three dimensions – accessibility to relevant points of interest, access to public and shared transport systems and comfort conditions shaped by infrastructure and environmental quality. These dimensions are operationalised using a pedestrian network with slope-adjusted travel times and geospatial datasets describing urban amenities, mobility services, and comfort-related variables such as lighting, pedestrianisation, heat exposure, air quality, noise and traffic safety. The TWI is applied to four cities in northern Portugal – Porto, Braga, Guimarães and Vila Real – representing contrasting data environments and urban morphologies. Across all cities, the TWI reveals a recurring spatial structure: historic centres emerge as the most walkable areas, while peripheral zones consistently score lower. The fine spatial resolution reveal micro-scale contrasts that broader neighbourhood metrics obscure, including highly accessible but low-comfort streets, and comfortable yet poorly connected areas. These patterns highlight opportunities for targeted interventions, improved tourist dispersal, and enhanced alignment between tourism mobility and urban liveability goals. The multi-city application further demonstrates that the TWI yields coherent results even when only open data are available, indicating that its conceptual structure is robust and transferable. By providing a replicable, open-source workflow and fine-grained urban diagnostics, the TWI offers a practical tool for integrating walkability into tourism planning and sustainable mobility management.

Keywords: Walkability Index; Data-driven Tourism; Tourist Experience; Urban Mobility

1. Introduction

Walking is a central mode of mobility for tourists in urban destinations, enabling access to cultural landmarks, leisure areas, and authentic local experiences. However, most existing walkability indicators have been designed for residents, reflecting everyday mobility needs rather than the distinct behaviours and sensitivities of visitors. Tourism-related walking is shaped by factors such as aesthetics, comfort, safety, and the potential for exploration and activity (Samarasekara, Fukahori and Kubota, 2011; Ujang and Muslim, 2015; Dihingia, Gjerde and Vale, 2022), which are only partially captured by traditional indicators. Although one study has proposed a tourism-specific walkability index for Sydney (Bassiri Abyaneh *et al.*, 2021), its reliance on subjective survey inputs and its narrow geographic scope limit broader applicability. As a result, a scalable, data-driven, street-level framework tailored for tourism remains lacking.

This paper addresses this gap by developing the Tourism Walkability Index (TWI) and applying it across four cities in northern Portugal – Porto, Braga, Guimarães and Vila Real. By integrating accessibility, mobility and comfort into a single, data-driven measure designed for tourists, the TWI provides a fine-grained understanding of walkability that reveals both expected spatial patterns and micro-scale disparities with strong planning relevance. The multi-city application demonstrates that the framework is adaptable and produces meaningful results even in data-scarce contexts, while richer datasets - such as those available in Porto - enable more detailed comfort and safety diagnostics. Crucially, the TWI is replicable, relying on an open-source analytic workflow, allowing other cities to adopt the approach in support of more evidence-based tourism mobility strategies.

2. Literature Review

Walkability can be understood as a multidimensional quality of the built environment that reflects how effectively urban spaces enable and encourage walking - by ensuring safety, comfort, connectivity, and visual appeal - while

recognizing it as a complex spatial capacity embedded in urban form rather than a direct measure of walking activity (Southworth, 2005; Dovey and Pafka, 2020).

Traditionally, walkability studies assess the built environment using urban form indicators such as density, land-use mix, and street connectivity, used as spatial proxies for accessibility and proximity (Hall and Ram, 2018; Rundle *et al.*, 2019; Frank *et al.*, 2021). More recent approaches expand this focus to include physical, social, and perceptual dimensions of walking, integrating objective and subjective elements like topography, safety, comfort, aesthetics, and individual motivations (Cerin *et al.*, 2013; Jardim, de Castro Neto and Barriguinha, 2023).

In the context of tourism, walking is a primary mode of mobility, providing visitors with opportunities for exploration and immersion in the urban landscape. Studies applying walkability metrics to tourism have emerged only recently. Hall and Ram (2019), for example, used Walk Score to examine links between walkability and tourism performance across English attractions, finding only weak, nonlinear relationships overall and concluding that tourism-specific walkability assessments are needed. In fact, most walkability indicators were developed for residents and focus on everyday mobility needs rather than tourist experiences.

Dias and Wijeweera (2021) can be seen as an early, tourism-relevant attempt: they operationalised a street-level walk score oriented to visitor activity by integrating proximity to amenities relevant for tourists: banks, restaurants, ATMs, shopping malls and transit stops, and used it to identify optimal walking routes between attractions. However, the approach relied on extensive field audits and covered a limited range of touristic features. Building on the need for tourism-specific metrics, Abyaneh (2021) developed one of the few walkability indices explicitly designed for tourist environments, combining perceptions and spatial attributes in ten tourism precincts in Sydney. While this study provided valuable insights into the role of aesthetics, safety, and accessibility, it remained constrained by its survey-based methodology and small geographic scope. Moreover, several of the meso-level factors it incorporates - such as land-use mix or population density - reflect residential dynamics that may not directly align with tourists' needs or preferences.

Empirical studies have identified a range of factors influencing tourist walking behaviour. These include street infrastructure conditions, the availability of wayfinding signage and accessibility infrastructure (Dias and Wijeweera, 2021; Das and Maitra, 2025). Perceptions of safety and comfort are equally decisive, as tourists tend to be more sensitive than residents to issues such as environmental appearance, personal security and traffic safety (Samarasekara, Fukahori and Kubota, 2011; Ujang and Muslim, 2015; Bassiri Abyaneh *et al.*, 2021; Dias and Wijeweera, 2021; Dihingia, Gjerde and Vale, 2022). Climatic and weather conditions also significantly affect tourist walking choices (Hall and Ram, 2021). Furthermore, connectivity between pedestrian networks and public transport is central to tourist mobility, as visitors often rely on seamless links between transit nodes and walkable areas to navigate unfamiliar cities efficiently (Liow, 2022). Importantly, tourists' primary motivation for walking lies in exploration and the potential for discovery, linking walkability not only to mobility but to the experiential and cultural dimensions of travel (Samarasekara, Fukahori and Kubota, 2011; Farkic *et al.*, 2015).

While reinforcing walkability can enhance tourist experiences and support sustainable mobility, it also requires attention to local community needs. As Clavé (2019) cautions, promoting pedestrian-friendly environments that attract tourists must go hand in hand with ensuring accessibility and quality of life for residents.

Despite growing interest, the literature on tourism walkability remains sparse and fragmented. Existing approaches often rely on aggregate neighbourhood indicators, overlooking the fine-grained variations that shape the tourist experience. This study addresses these gaps by proposing a tourism-specific walkability index based entirely on geospatial data. Overall, the TWI builds on resident-oriented walkability indices that conceptualise walkability as a composite of accessibility and granular street-level urban qualities, but reorients these ingredients toward visitor-relevant destinations and conditions. Whereas resident indices typically proxy everyday needs, the TWI foregrounds dimensions that have been shown to be especially salient for tourists. In doing so, it complements tourism-specific walkability measures that rely heavily on subjective surveys or single-city case studies, and provides a tool capable of capturing micro-scale discrepancies.

3. Methodology

3.1 Conceptual Framework

Building on the literature, the TWI translates key factors influencing the tourist walking experience into quantifiable, spatially explicit indicators. The methodology draws from the recurrent dimensions identified in previous research - such as accessibility, safety, comfort, aesthetics and connectivity - and focuses on those that

can be operationalised through objective geospatial data. This approach provides a scalable, data-driven way to operationalise subjective dimensions of walkability. The proposed indicator is structured around three core dimensions:

- Accessibility to Points of Interest (POI), capturing how easily tourists reach attractions and places of cultural and practical relevance;
- Transportation Accessibility, reflecting access to available public or shared transport modes;
- Comfort, encompassing environmental and infrastructural conditions that influence the pleasantness and perceived safety and security of walking.

Together, these dimensions capture the key factors of tourist walking. The framework operationalises the literature's multidimensional understanding of walkability within a geospatial analytical structure implemented in Python with open-source data, ensuring scalability and reproducibility.

3.2 Analytical Framework

3.2.1 Network Construction

All analyses were conducted on a pedestrian network extracted from OpenStreetMap (OSM) (OpenStreetMap contributors, 2025). To maintain street-level precision, long network edges were divided into shorter segments. The network was enriched with elevation data from the ALOS PRISM Digital Elevation Model (DEM) (JAXA, 2025; Gonçalves, Pinhal and Bio, 2026). The derived slopes were used to estimate travel times according to Tobler's hiking function (Tobler, 1993). This weighted network forms the basis for all accessibility and comfort calculations.

3.2.2 Accessibility to POI and Transportation

The accessibility components measure how easily tourists can reach relevant destinations within a 30-minute walking range. The analysis considers two complementary sets:

- Tourism-related POI: cultural and heritage attractions, natural and scenic spaces, food and beverage establishments, areas of authentic local character, tourist information points, ATMs and money services, and accommodation facilities.
- Transportation facilities: metro, tram, and bus stations, ferry terminals, taxi ranks, shared mobility services such as bicycles and scooters and tourist-oriented transport services.

Accessibility was computed through a network-based gravity measure using walking travel time (Equations 1 and 2), assigning maximum scores to destinations reachable within 5 minutes, with diminishing values for longer travel times. A_i represents the accessibility at the node i for a certain category of amenities, n is the number of destinations for the specific category in the area of study. $f(t_{ij})$ is the Gaussian decay function, where t_{ij} represents the travel time between origin node i and amenity destination j, in seconds.

$$A_i = \sum_{j=1}^{100} f(t_{ij}) \quad (1)$$

$$f(t_{ij}) = \begin{cases} e^{\frac{-(t_{ij}-300)^2}{129842.6}} \\ 1 \; if \; t_{ij} < 300 \end{cases} \quad (2)$$

For each network node, the model identified up to 100 nearest amenities at less than 30 minutes. To ensure spatial consistency, polygonal and linear features (such as parks or large attractions) were converted into regularly spaced representative points along their extent, so that the closest point to the node could be considered. Accessibility scores were then normalised on a 0–1 scale for each POI or transport category, then aggregated into composite sub-indexes for overall POI accessibility and transport accessibility.

3.2.3 Comfort Dimension

The comfort dimension evaluates the environmental and infrastructural conditions that influence the pleasantness, safety, and perceived effort of walking. This dimension includes the following variables:

- Public lighting: Street segments intersecting street lamps or lit features received a binary score representing perceived evening security.

- Urban furniture: Accessibility to benches and drinking water points was computed using distance- and time-based thresholds (100 m for benches, 10 minutes for water points), with values decreasing with travel time.
- Pedestrianised streets: Segments tagged as pedestrian or pedestrian-priority were assigned the highest comfort value.
- Urban heat: This indicator accounts for the thermal conditions that affect tourists' willingness to walk, particularly in summer. Surface temperatures were sampled at network nodes and normalised so that cooler areas received higher comfort values.
- Air quality: Air quality was assessed using either sensor-based or raster data, with pollutant levels compared against WHO guideline thresholds and normalised accordingly.
- Noise exposure: Average day–evening–night sound levels were sampled across the street nodes. Areas located in quieter zones obtained higher comfort values.
- Traffic safety: Traffic accidents from Waze were spatially clustered and linked to close street segments, with higher accident densities resulting in lower comfort scores.

Each comfort indicator was normalised to a 0–1 scale, with higher values representing more favourable walking conditions.

3.2.4 Aggregation and Composite Index

Edge-level indicators (e.g., lighting, pedestrianisation) were combined with node-based scores (e.g., accessibility, air quality) by averaging start and end node values for each edge. Then, all variables were normalised and aggregated by dimension to obtain 3 sub-indices: POI accessibility, transport accessibility and comfort. These dimension-level scores were finally combined with equal weighting to produce the TWI, ranging from 0 (least walkable) to 1 (most walkable). This choice reflects a deliberate baseline assumption that the three dimensions contribute equally to the overall tourist walking experience, providing a neutral reference scenario.

The final output includes:

1. A walkability map representing the TWI at the street-segment level;
2. Sub-index layers for each dimension (POI, transport, comfort);
3. An analytical dataset including all indicator and dimensions data, allowing reweighting of dimensions.

This flexibility follows Blečić et al. (2015), who emphasised that walkability varies across user types - tourists, parents, or cultural visitors – and motivations. Similarly, the TWI allows the weighting of its dimensions to be fine-tuned, supporting differentiated evaluations of walkability for distinct tourist profiles or trip purposes.

3.3 Study Area and Data

This study focuses on four northern Portuguese cities - Porto, Braga, Guimarães, and Vila Real (Figure 1). These cities represent different scales of urbanisation, data availability, and tourism maturity, offering a basis for testing the flexibility and transferability of the TWI.



Figure 1: Location of the 4 case study municipalities in northern Portugal (Porto, Braga, Guimarães and Vila Real)

The most complete implementation of the TWI was developed for Porto, where a rich dataset, supported by the city's extensive open data infrastructure, enables a comprehensive analysis (Table 1). For reproducibility, the full codebase is openly available at https://github.com/novacidade-org/turismo-porto-walkability. To test adaptability in data-scarce contexts, the TWI was also applied to Braga, Guimarães, and Vila Real (https://github.com/novacidade-org/turismo-norte-walkability) using only open data (Table 1). These cities are typical examples of smaller Portuguese destinations, relevant for cultural and heritage tourism but with less developed spatial data infrastructures.

Table 1: Data sources. Municipal Master Plan (Câmara Municipal do Porto, 2022), ECMWF (Lauwaet *et al.*, 2024), Waze App, no date, *Porto Digital*, no date

Amenity/Dimension		Porto	Braga	Guimarães	Vila Real
POI	Heritage	Porto Digital (monuments, heritage streets and squares, fountains, statues)	OSM (monasteries, cathedrals, castles, historic sites, cultural and historical heritage protected sites)		
	Culture	Porto Digital (art galleries, cinemas, museums, concert halls, theatres)	OSM (museums, art galleries, arts centres, exhibition centres, music venues, nightclubs, planetariums, cinemas, theatres, aquariums, theme parks)		
	Authentic character	Porto Digital (viewpoints, marketplaces, fado houses)	OSM (marketplaces and viewpoints)		
	Nature	Porto Digital (green areas, beaches, river)	OSM (gardens, parks, nature reserves, forests, meadows, orchards, vineyards, coastal and water bodies, river and canals)		
	Lodging	Turismo de Portugal			
	Information point	Porto Digital	OSM		
	ATM	OSM (ATM and money transfer services)			
	Bars and restaurants	OSM (restaurants, cafés, bars, pubs, beer gardens, ice cream shops, food courts)			
Transport	Bus stops	Porto Digital	OSM		
	Subway station	Porto Digital	-	-	-
	Taxi ranks	Porto Digital	OSM		
	Bike and scooter docks	Porto Digital	OSM	-	-
	Touristic vehicles	Porto Digital	-	-	-
	Tram stops	OSM	-	-	OSM
	Train station	OSM	OSM		
	Ferry	OSM	-	-	-
Comfort	Benches	OSM			
	Drinking water fountains	OSM			
	Public lighting	OSM (lit streets and street lamps)			
	Traffic safety	Waze (accidents)	-	-	-
	Urban heat	ECMWF	-	-	-
	Air quality	Porto Digital ($PM_{2.5}$, PM_{10}, NO_2, O_3, CO)	EEA ($PM_{2.5}$, PM_{10}, NO_2, O_3)		
	Pedestrianised streets	OSM			
	Noise	Municipal Master Plan	-	-	-

4. Results

4.1 Interrelations between Dimensions and Indicators

To explore the internal structure of the TWI, a Spearman rank correlation analysis was conducted using normalised dimension scores and sub-indicators (Figure 2). This method helps identify whether accessibility and comfort vary together or express distinct spatial logics.

The results show that POI accessibility and transport accessibility are strongly aligned, indicating that areas rich in tourist amenities tend to be well connected to public transport. In contrast, the comfort dimension displays weak correlations with both accessibility dimensions, revealing that environmental and infrastructural comfort is not inherently associated with proximity to POIs or transit nodes. This relationship suggests that high-accessibility streets often coincide with lower comfort, pinpointing critical segments where targeted interventions could enhance the tourist walking experience. Environmental variables contribute to this divergence: air quality and heat tend to worsen in highly accessible areas, reflecting central mobility pressures.

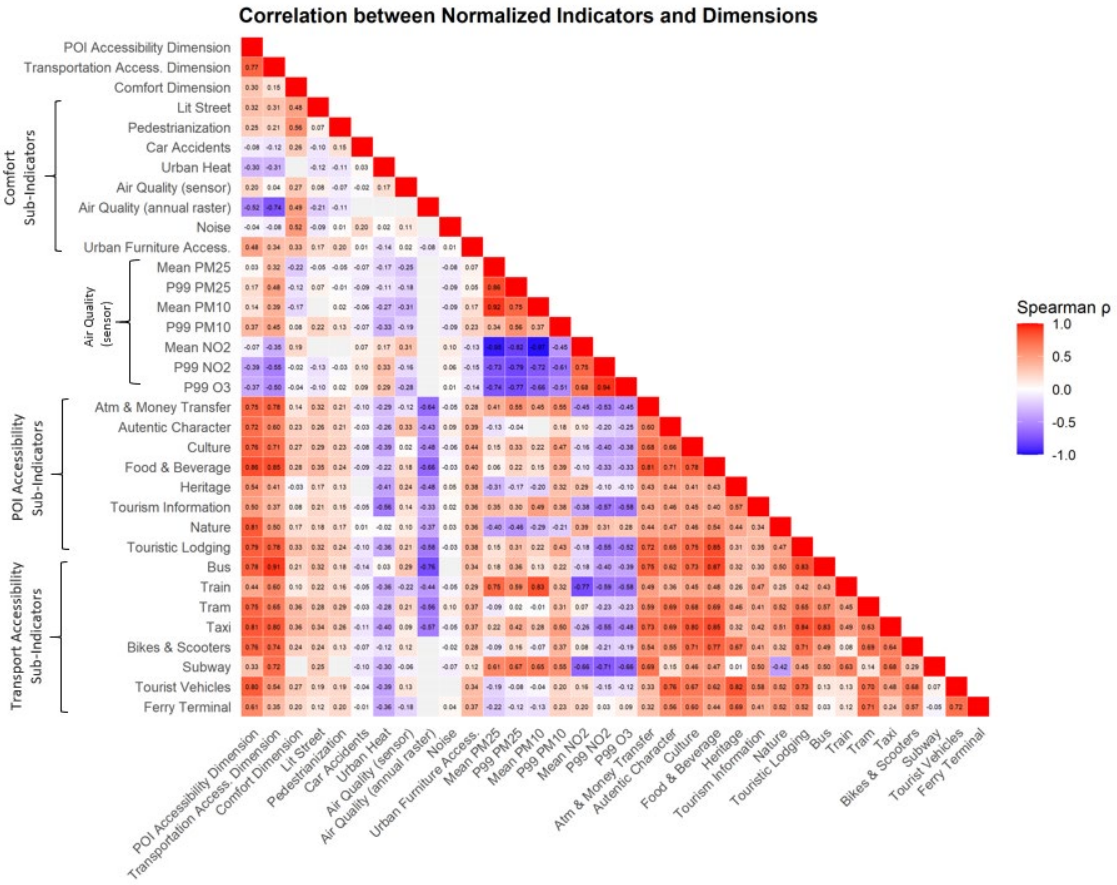


Figure 2: Spearman correlation matrix showing relationships between the TWI dimensions and their underlying sub-indicators, based on normalised street-level scores.

4.1.1 Mapping Walkability Patterns

Figure 3 maps the street-level TWI for the four cities, while Figure 4 shows parish averages based on TWI per metre of street. In all cases, the highest values concentrate in and around historic cores, where tourism POIs, pedestrian-priority streets and public transport converge. Outside these cores, walkability declines rapidly, with large portions of each municipality dominated by low-scoring streets. Differences between parishes are marked: central or university areas show the highest averages, while peripheral, residential or industrial parishes consistently score lower. At the micro scale, some secondary corridors emerge as local hotspots – typically around train and metro stations or along comfortable streets with moderate POI access.

The maps also reveal several "blind spots" in the tourist walking network. In each city there are parishes where important attractions or natural areas are only connected by low-walkability streets (e.g.: Parque de Serralves in Porto or Bom Jesus in Braga), forcing visitors to cross low-comfort, traffic-dominated segments.

4.2 Tourism Walkability Typologies

Lastly, street segments were classified into walkability typologies by computing quartiles for each dimension and assigning each segment to a category based on whether its scores fell in the top or bottom 25% of each dimension (Figure 5). Segments with high scores across all three dimensions cluster around historic centres (green), contrasting with peripheral zones with uniformly low walkability (red) (Figure 3).

The analysis also identifies imbalanced areas where high accessibility coincides with low comfort (purple). These patterns mostly reflect safety and security-related factors – such as non-pedestrianised or unlit streets, higher car accident densities, or lack of benches and drinking water points – which helps explain the discrepancy with nearby highly walkable streets. Such areas represent prime candidates for targeted, small-scale interventions that could help redistribute tourist flows across a broader set of routes.

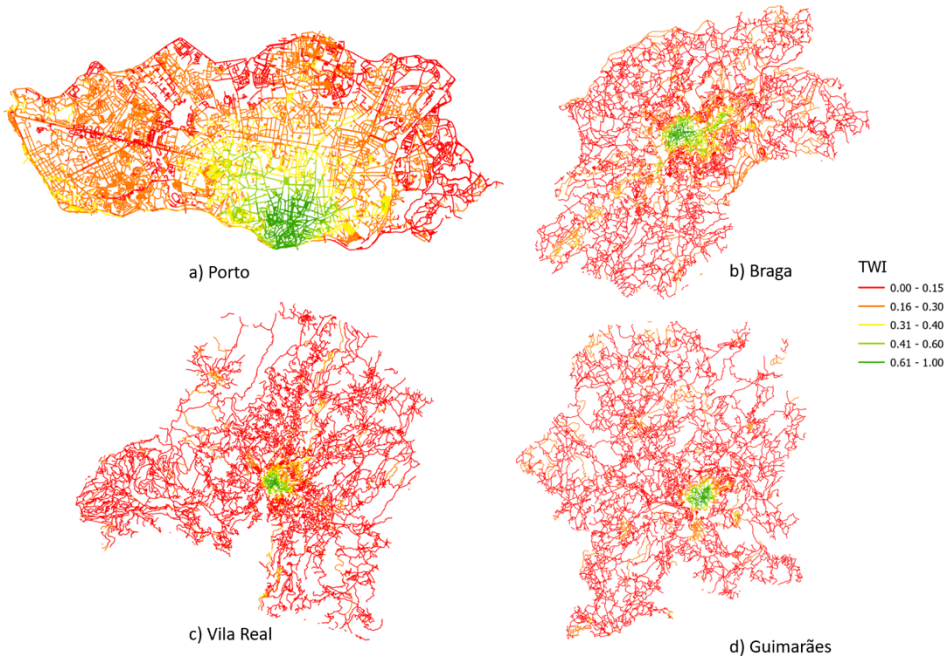


Figure 3: Street-level TWI for the 4 study cities, highlighting highly walkable streets (green) and lower scored ones (red).

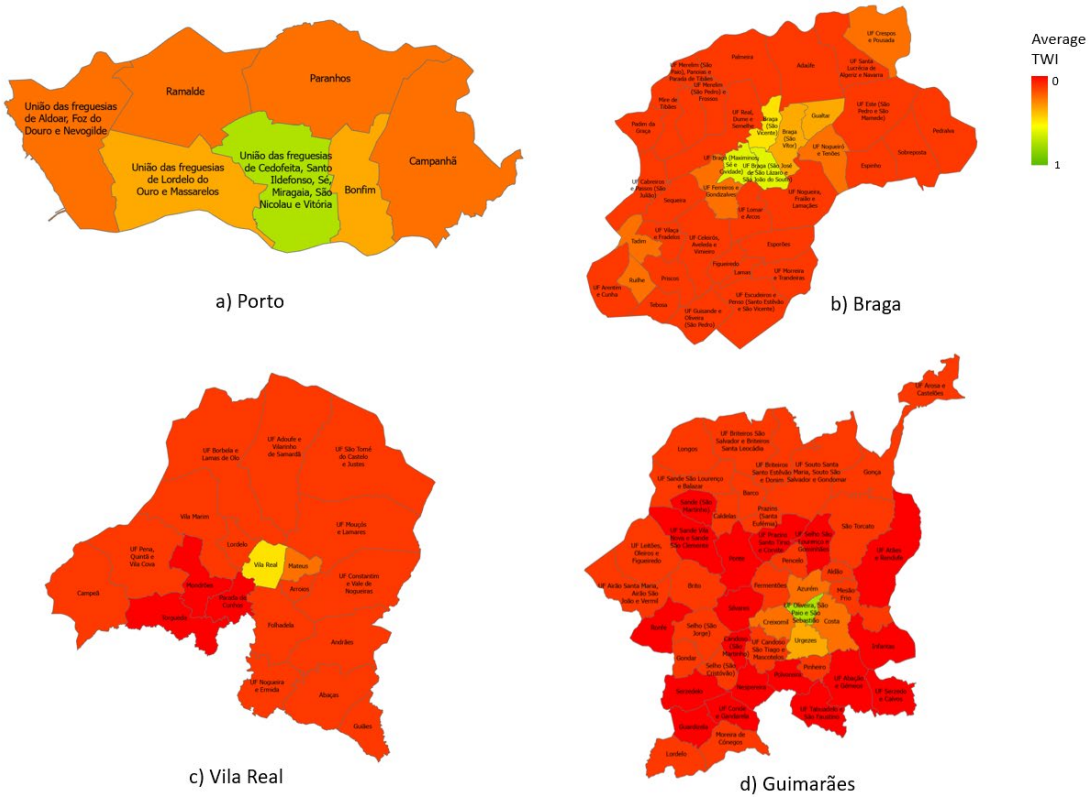


Figure 4: Average parish-level TWI for the 4 study cities, illustrating pronounced contrasts between central and peripheral parishes.

Conversely, segments with high comfort but low accessibility (pink) appear primarily in quieter residential districts or green areas (e.g., Parque da Cidade in Porto). Enhancing connectivity or interpretative infrastructure in these zones could support greater tourism dispersal while maintaining high environmental quality, while a better redistribution of services or cultural activities could unlock latent walkability potential in these otherwise pleasant but poorly connected areas.

Areas with high POI density but limited transport accessibility (blue and light blue) also warrant attention, as improved mobility connections could increase their attractiveness and reduce visitor reliance on private vehicles (e.g., Parque da Penha – Guimarães). In Porto, this is particularly relevant on the western side of the city, where natural areas offer high comfort but remain poorly connected compared with the city centre.

In the less dense municipalities (Vila Real, Guimarães and Braga), clusters of high transport accessibility but low POI accessibility (yellow) were also identified, typically corresponding to train stations or transport nodes located far from major tourist attractions.

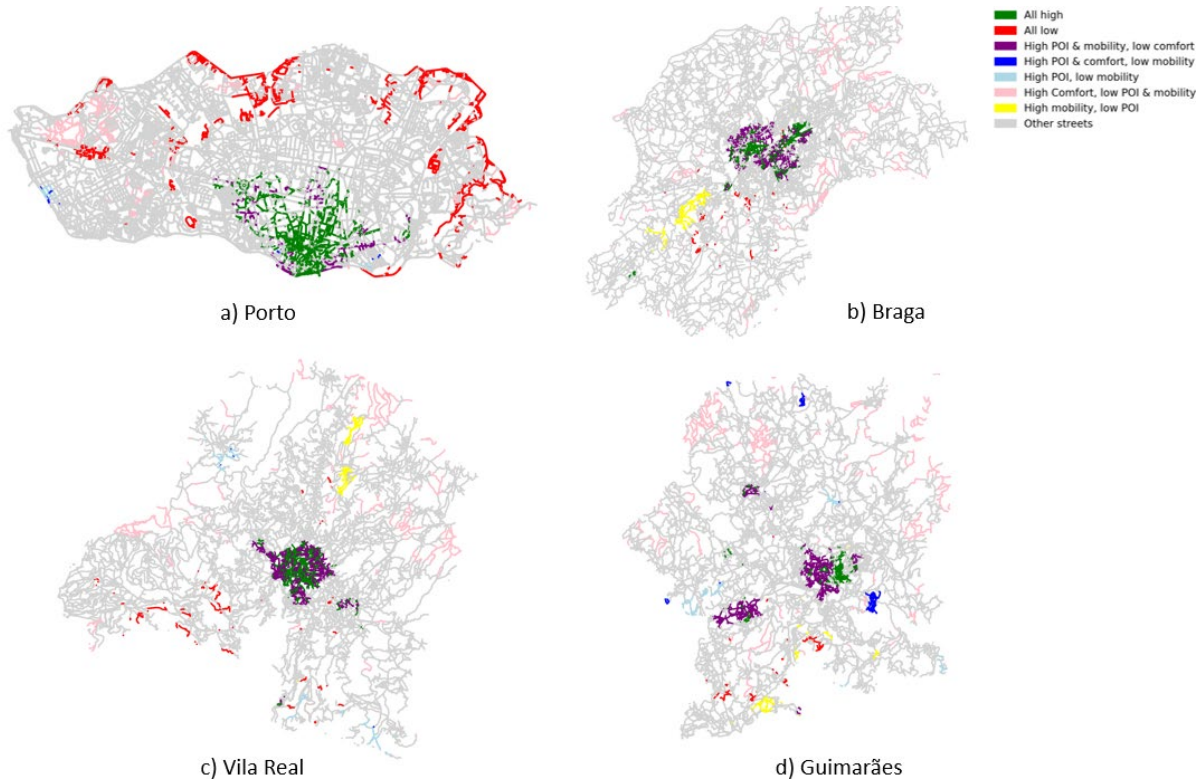


Figure 5: Walkability typologies across the 4 study cities, derived from quartile-based classification of the TWI dimensions.

Together, these patterns highlight where improvements in pedestrian infrastructure, environmental quality or public transport integration could most effectively extend walkable conditions beyond the traditional heritage core and redistribute tourist flows more evenly across the urban fabric.

4.3 Sensitivity Analysis

Sensitivity testing indicates that the spatial structure of the TWI is largely robust to alternative weighting schemes. Across all tested scenarios, including accessibility- and transport-oriented profiles, the overall spatial pattern remains consistent. Notable changes emerge only under scenarios that strongly prioritise the comfort dimension. In these cases, the contrast between central and peripheral areas becomes less pronounced, and walkability scores exhibit a more decentralised spatial distribution. This reflects the higher relative performance of quieter residential streets and green areas in terms of environmental comfort, which gain importance when accessibility to points of interest and transport is down-weighted.

5. Discussion

The TWI proposed in this study demonstrates that a fully geospatial and street-level approach can meaningfully represent the spatial structure of tourism walkability. Across the four case-study cities, the TWI consistently identifies the same tendency: historic centres concentrate the highest walkability, while peripheral areas remain predominantly low-scoring. This reflects the spatial logic of European heritage-driven tourism and aligns with findings from previous work linking cultural clusters, multimodal access and pedestrian comfort to higher walkability (Farkic *et al.*, 2015; Liow, 2022; Ujang and Muslim, 2015).

Beyond confirming expected patterns, the TWI reveals subtle intra-neighbourhood contrasts. By operating at the street-segment scale, the index exposes micro-level variations – for example, highly walkable corridors adjacent to streets with very low comfort, or quiet residential segments with high comfort but limited accessibility. This granularity represents a methodological advantage over indicators that operate at larger spatial scales or rely on subjective survey data. It supports the idea that tourist experiences are also shaped by highly localised conditions of infrastructure, safety, and environmental exposure. This level of detail allows planners to identify specific streets where small-scale interventions – such as benches, shading, improved lighting or traffic calming – could substantially enhance the walking experience for visitors and residents.

The TWI's structure aligns with factors identified in the literature as relevant to tourist walking - accessibility to cultural and leisure-oriented POIs, connectivity to transport, and environmental comfort - yet it operationalises them using objective geospatial data. While this enables reproducibility and scalability, it also introduces limitations: OSM data is not always systematically validated, and comfort indicators might rely on data of uneven precision or coverage (e.g., Waze reports, noise maps). Implementations should therefore incorporate verified local data where possible, and pursue validation through passive mobility sources (e.g., mobile network records, GPS traces).

The multi-city application demonstrates the adaptability and robustness of the index. Porto's richer dataset allowed a more complete implementation, yet using only open data, in Braga, Guimarães, and Vila Real still produced coherent spatial patterns and meaningful typologies. This suggests that the TWI can support tourism walkability assessments in both data-rich and data-scarce contexts, with input layers expanding as more datasets become available. Importantly, the use of city-specific standardisation means the index captures relative variation within each city rather than enabling absolute comparability across cities; interpretations should therefore remain context-sensitive.

While the sensitivity analysis confirms the robustness of the TWI under alternative weighting schemes, further work could extend this approach by defining explicit tourism profiles and systematically exploring weighting configurations tailored to different visitor preferences, following approaches such as Blečić et al. (2015)..

Finally, the discussion of walkability must consider its broader implications. As noted by Clavé (2019), improving walkability for tourism can generate opposing dynamics: it may relieve pressure by dispersing visitors to less frequented areas, but it can also increase visitor flows to levels that exceed local tolerance, exacerbating tensions between tourists and residents. For this reason, the TWI should be understood as a diagnostic tool, and its outputs can inform planners about where walkability improvements may benefit tourists and residents, but decisions should prioritise community well-being and avoid tourism-induced imbalance.

6. Conclusion

This paper introduced the TWI, a geospatial framework that integrates accessibility, mobility, and comfort into a single, data-driven measure tailored to tourists. By relying primarily on geographic data, the TWI is scalable, replicable, and suitable for monitoring walkability over time and across different urban contexts. Its fine spatial granularity captures micro-level disparities that neighbourhood indicators cannot, making the index actionable: targeted improvements on low-scoring streets can help redistribute tourist flows and benefit both visitors and local communities. Although grounded in objective indicators, the index also reflects key subjective factors highlighted in previous research – such as security and safety – through consistent and transparent spatial proxies.

The TWI provides a practical bridge between tourism studies, urban analytics and planning practice. It operationalises the idea that tourism walkability is not simply the ability to move between attractions, but the experience of doing so in environments that are safe, secure, and environmentally acceptable. The application across four Portuguese cities demonstrates the framework's adaptability and potential to support more equitable, evidence-based integration of walkability into tourism and mobility strategies.

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AI Declaration

This paper was partially developed with the assistance of the AI tool ChatGPT (OpenAI, GPT-5). The tool assisted with drafting tasks, such as grammar checking, rephrasing, and improving structure. All ideas, analyses, and interpretations are the author's own, and AI-generated content was reviewed and validated before inclusion.

Ethics Declaration

Ethical clearance was not required for the development of this study.

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Home of the Brave! New Perspectives on Military Tourism

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Abstract: Purpose: This study aims to deepen understanding of the tourist experience in European military museums by examining elements that influence both positive and negative evaluations and analysing how interactive features encourage a closer understanding of military history. Methodology: A content analysis of 17,500 TripAdvisor reviews from 35 European military museums was conducted using Leximancer 5.0, revealing thematic patterns across visitor experiences. Findings: Three key clusters emerged: the lively museum experience, the daily guided tour, and the practical facilities. Immersive displays and engaged staff enhance satisfaction, while ticketing delays and accessibility issues are primary sources of dissatisfaction. Practical implications: Museum directors should prioritise interactive exhibitions, streamline ticketing procedures, and improve transportation access to boost visitor engagement and expand audience reach. Originality: This study introduces a SWOT framework and Leximancer-based thematic analysis of military museum visitor experiences, highlighting the emotional aspects of heritage tourism.

Keywords: Military Tourism, Battlefield Tourism, Military Museums, Online Reviews, Europe

1. Introduction

Military tourism plays a role in broadening our perspectives, helping to rebuild common ground, and learning to create connections rather than encourage division. The concept of Military Tourism refers to visiting sites associated with war and conflict. A significant body of literature has focused on fortifications, museums with extensive collections of weapons and military artifacts, factories producing weapons and equipment, and battlefields (Venter, 2017; Graham & Lennon, 2002). Despite increasing interest in battlefield and military tourism, important gaps remain in understanding its complex impacts and the diverse motivations of visitors to Military Museums. Current research has primarily examined specific aspects of battlefield tourism, including its role in political identity (Brown & Ibarra, 2017), visitor motivations (Chen & Tsai, 2019), and regional tourism development (Zienkiewicz et al., 2021). However, these studies often treat battlefield and military tourism as separate, unrelated phenomena, without thoroughly exploring their connections. Furthermore, the emotional and psychological effects on different visitor groups are still insufficiently studied. There is also a lack of research specifically analysing visitors' experiences in Military Museums across Europe (see Table 1 for recent evidence).

Studying military museums is essential because they preserve and interpret the history of conflict, offer insights into the complexities of battles, and encourage discussions about how war impacts civilisations. Military museums serve as vital educational resources and spaces for reflecting on military history, the evolution of defence technologies, and the human toll of conflict. By connecting visitors with the past, they provide new perspectives on geopolitical realities and promote reconciliation and peacebuilding. Therefore, the present research aims to gain a deeper understanding of visitors' experiences at military museums. In brief, this study has three main objectives: (1) to explore how visitors describe their experiences at military museums; (2) to evaluate the ratings that indicate museum quality; and (3) to perform a SWOT analysis to identify the internal and external factors that influence best practices in museums.

This study includes 17,500 TripAdvisor reviews of 35 Europe's military museums, covering both positive and negative feedback. The Leximancer 5.0 software was used to qualitatively analyse the collected data. Leximancer is a text analytics tool designed to interpret data semantically, identify concepts and themes, and reveal relationships between them (Leximancer, 2023). Unlike other content analysis programmes such as CATPAC and Atlas, Leximancer employs an algorithm based on lexical co-occurrence to perform content analysis, thereby reducing researcher bias and enhancing reliability (Sanz-Blas et al., 2019).

Table 1: Recent Studies Contributing to the Debate on Military Tourism (Source: author)

Research Field/Authors	Main Research Objective
Battlefield Tourism	
Clarke & McAuley, 2020	Explores battlefield tourism dimensions including identity, place branding, thana tourism, and nostalgia.
Brown & Ibarra, 2017	Examines how visits to Spanish Civil War sites contribute to political identity.
Chen & Tsai, 2019	Insights into engagement with historical sites with complex narratives at the intersection of cultural heritage and personal interpretation.
Noivo et al., 2022	Identifies aspects that promote heritage through historical event recreations.
Military Tourism	
Zienkiewicz et al., 2021	Strategies to promote military tourism in northern Poland, considering historical significance, infrastructure, and visitor experiences.
Chylińska, 2022	Lower Silesia as an essential region for military tourism in Poland.
Juan et al., 2020	Develops a scale (Conceptualizing Views on War) to examine tourists' behavioral intentions towards dark tourism sites.
Dark Tourism	
Heritage/Military Museums	
Czarnecka, 2020	Polish-Romanian and Polish-Bulgarian research on the purpose of Military Museums.

2. Literature Review

2.1 Military Tourism

Military tourism is a relatively new segment of travel, also known as war tourism, battlefield tourism, or armament tourism. Although not yet officially defined, it involves visiting locations associated with war and conflict, such as fortifications, weapons museums, and battlegrounds (Venter, 2017; Graham & Lennon, 2002). Participants often attend military-themed events like historical reenactments, fan conventions, and military picnics, attracting a wide range of tourists.

As Venter (2017) explains, military tourism is closely linked with heritage tourism, which is itself a part of mass tourism. Heritage tourism, focused on exploring historical and cultural legacies, includes the specific niche of military tourism (Alabau-Montoya & Ruiz-Molina, 2020). Such sites serve as powerful reminders of human conflict, providing visitors with a unique insight into past struggles and difficulties.

Military tourism also overlaps with dark tourism, which Stone (2012) describes as exploring sites associated with death, suffering, and the macabre. Within dark tourism, military tourism stands out as a distinct category that highlights the solemn aspects of armed conflicts throughout history. Battlefields, forts, and military cemeteries are often recognised as heritage sites, while concentration camps and war memorials further establish the link between military and dark tourism. This dual recognition positions military tourism at the intersection of heritage and dark tourism, underscoring its role as a reflective journey into the historical and darker sides of human conflict (Noivo et al., 2022).

2.2 Military Museums

Military museums are a growing part of military tourism attractions. They showcase important historical artefacts and serve as vital elements within the tourism system (Venter, 2017), with collections that include weapons, equipment, tactics, and personnel involved in past conflicts. Museums may focus on a particular military branch, unit, or conflict, and are found across the globe (Szitanyi, 2015). They also exhibit material culturally linked with armies, such as uniforms, medals, weapons, and flags (Scott, 2015).

The military histories depicted in these museums have traditionally emphasised "the common soldier, the experience of war, and the place of the armed forces in society" (Hacker & Vining, 2013, p.42). Museums should be reliable sources of information and offer a genuine connection to the past (Scott, 2015), while also honouring the women and men who served their countries (Venter, 2017).

However, military museums remain contested spaces. Winter (2012) warns that "bringing war to life" can be dangerous, given the large gap between the real past and the reconstructed past. He argues museums must exhibit the less pleasant aspects of history, even where this disrupts romantic or nostalgic notions. In military museums, war may be portrayed as either positive or negative, evoking feelings of pride or guilt (Scott, 2015). Between the 1960s and 2000s, many European countries abolished mandatory military service, prompting museums to modernise their collections and broaden their appeal to civilian audiences while maintaining traditional exhibitions for established visitors (Raths, 2013).

3. Methodology

3.1 Data Collection

Qualitative research was carried out to explore the personal experiences of museum visitors at military exhibits across Europe. For this project, 500 TripAdvisor comments from each of Europe's top 35 military museums were collected, totalling 17,500 reviews. TripAdvisor, founded in 2000, started travel-related word-of-mouth by enabling travellers to share opinions on travel and hospitality experiences (Chittiprolu et al., 2021), and is now regarded as the leading online travel guide and a significant influence in the hospitality sector (Saydam et al., 2022). Reviews were collected from each museum's opening through the date of data collection, including the review title, author, profile review count, and overall satisfaction rating (1-5 stars).

The sample covers museums across England, France, Malta, Poland, Austria, Spain, Finland, Ireland, Russia, Guernsey, Albania, and the Czech Republic, showcasing diverse European military heritage contexts. Prominent examples include the Lascaris War Rooms in Malta, the Musée de l'Armée des Invalides in France, and the Imperial War Museum in England.

3.2 Data Analysis With Leximancer

Leximancer V5.0 produces a colourful visual concept map in which main concepts are shown in clusters that reflect their relationships; larger circles indicate more significant themes (Sanz-Blas et al., 2019). Concepts mentioned together tend to cluster closely on the map, indicating semantic co-occurrence. Leximancer has been widely used in tourism and hospitality research (Goh & Wilk, 2022), including studies of Petra, Jordan (Olorunsola et al., 2023), and the Shaanxi History Museum in Xi'an, China (Chen & Ryan, 2020).

For this study, overly generic terms (such as "lots", "left", "during") and location-specific proper nouns (e.g., "English", "German", "Malta") were removed. A data cleaning procedure merged plural and singular forms, such as "display/displays", "museum/museums", and "visit/visiting/visited", to ensure consistent thematic mapping.

4. Results and Discussion

4.1 Concept Map View of Military Tourism Based on Tourists' Post-Experiences

Analysis of the 17,500 reviews (Figure 1) revealed three thematic clusters: The Museum Lively Experience (centred on "museum", 36,337 hits; "display", 9,788 hits; "story", 4,775 hits); The Daily Tour (centred on "day", 21,035 hits); and The Facilities (centred on "tickets", 4,555 hits). "Castles" (2,286 hits) also emerged as a related military heritage concept. Ticket-related comments were most frequently associated with negative reviews, while the Daily Tour cluster attracted the most consistently positive evaluations.

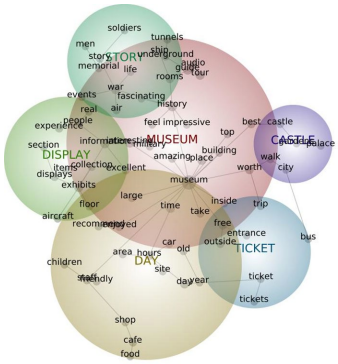


Figure 1: Overall analysis based on tourists' post-experience. (Source: Leximancer outputs)

4.1.1 The Museum Lively Experience

The visitor experience in military museums extends well beyond static displays and historical objects. The set of ideas outlined by "The Museum Lively Experience" explores what captures visitors' interest and resonates most with those engaging with historical narratives. The concepts of "displays", "collections", and "exhibits" are fundamental, with visitor feedback expressed through words such as "amazing", "enjoyed", and "big". The museum becomes a stage, with each exhibit acting as a monument to the wonder experienced by visitors (Venter, 2017):

> *"Unbelievable breadth and amount of exhibits. Not just aircraft but military vehicles and equipment of every description."*
>
> *"I am a history buff so I loved it. The exhibitions on the more recent history (World War II) are somewhat disappointing but I enjoyed it overall. Would recommend it."*
>
> *"This large museum building is part of an interesting historical military base. Lots to see."*

The museum also appeals to a variety of interests, from specialist military history enthusiasts to casual visitors. Brown & Ibarra (2017) observe that well-curated sites can serve diverse demographic groups, and the concepts of "location" and "children" confirm how military museums strike a balance between attracting knowledgeable visitors and casual observers:

> *"Simply amazing. This museum is designed to engage the world's youth with the history of the Warsaw uprising. It's interactive and interesting."*
>
> *"This museum has a nice tagline about war belonging in museums. We had a group with both people interested in military history and those who were not, but both enjoyed the visit for somewhat different reasons."*

This cluster raises important questions about how dynamic curation can captivate a wide range of interests and encourages further research into how this approach promotes inclusivity, transforming military museums into engaging, interactive environments appealing to a wide range of visitors.

4.1.2 The Daily Tour

This cluster represents visitors' opinions on the tours offered by most military museums. These tours are a preferred way of viewing exhibits, aligning with Chen & Ryan's (2020) findings on the organization and popularity of guided tours as a means to enhance visitor experiences. Other military tours take visitors underground through wartime tunnels and caves. Words such as "experience", "underground", and "down" are associated with this theme:

> *"After arriving at the well-organised reception, you're given a helmet and audio kit and taken down 20 metres in a lift shaft to start the tour of the limestone quarry and tunnels."*
>
> *"Very good guided tour and it did bring home what life was like in the caves in the First World War."*
>
> *"The tour is suitable for all ages and it would be an excellent educational opportunity for younger members of the family."*

The "staff" theme reveals the human dimension of military museums. Comments using "friendly" and "knowledgeable" were consistently positive:

> *"Really friendly staff, decent food available, kids' play areas, but most importantly, tonnes and tonnes of tanks!"*
>
> *"Knowledgeable staff and enthusiasm to share, set alongside some incredible machines and displays plus an excellent shop and facilities."*

Graham & Lennon's (2002) study on human resource management in the Scottish visitor attraction sector aligns with these findings, underscoring the pivotal role of staff in shaping visitor perceptions and educational outcomes within cultural institutions.

4.1.3 The Facilities

Beyond captivating exhibits, the visitor experience depends on practical factors within the "Facilities" cluster. Ticketing costs and accessibility are most frequently remarked upon. Whether admission fees are perceived as reasonable is a recurring concern:

> *"Very much worth even the full entrance fee, but as older people we got in even more cheaply."*
>
> *"Quite expensive to spend the whole day there and ultimately if museums aren't your thing, you need only an hour or two here."*

Accessibility is also a recurring theme, as many museums are situated outside city centres. Prior research from Chen & Ryan (2020) recommends that museums adapt their facilities to meet visitor needs. Improving ticketing signage, transportation links, and other enhancements can directly address visitor concerns and improve satisfaction.

> *"The palace is a fair distance outside of the city center and old town areas, there's a 40-minute trip by bus, but somehow it takes longer by car."*
>
> *"Starting with the location, it is rather far from the bus stop." (Rating 1)*

4.2 Cluster Analyzed by Ratings That Reflect the Quality of the Museums

Without a doubt, more strengths were identified than weaknesses. Of the 80 concepts, 64 relate to positive features of the military museums. Adjectives such as "interesting", "impressive", "fascinating", "excellent", "beautiful", and "amazing" are often used to describe military exhibits and period reconstructions (Figure 2). In the "Museum lively experience" cluster, we conclude that military museums make an excellent impression primarily by portraying parts of Europe's history as it happened (Lawin & Stasiak, 2009).

The more positive perceptions appeared in the context of exhibits, displays, layouts, tours, and staff. The use of Leximancer complements Goh & Wilk's (2022) study by demonstrating that online reviews offer validity for decision-making, allowing museum managers to see a visual representation of the most important visitor-related concepts.

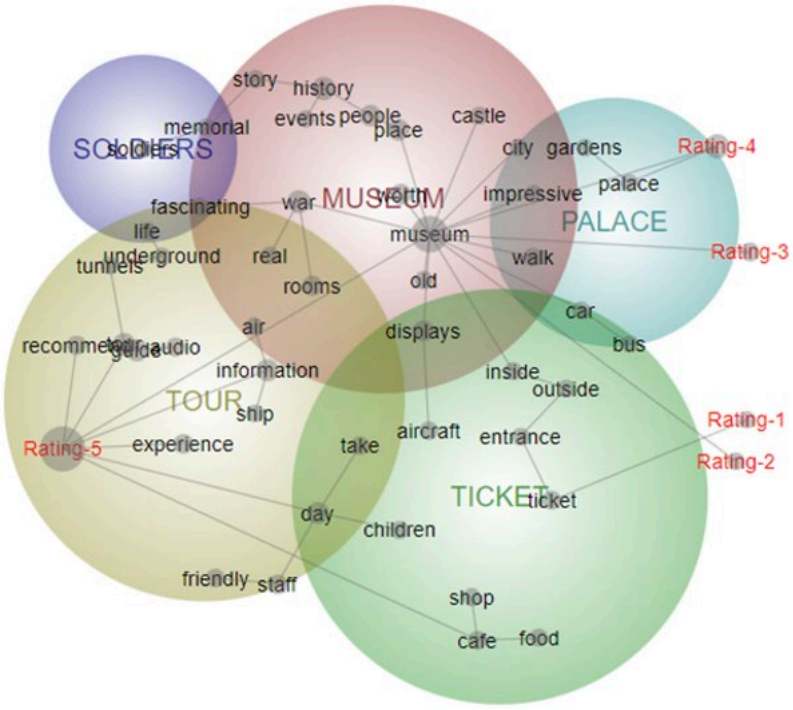


Figure 2: Analysis of ratings that reflect the quality of the museums. (Source: Leximancer outputs)

4.3 SWOT Analysis

Using concept maps and cluster analysis on 17,500 reviews of 35 European military museums, we further identified external and internal factors that support or hinder this sector. This was achieved through a SWOT (strengths, weaknesses, opportunities, and threats) analysis (Misra & Miller, 2022; Martín-Cáceres & Cuenca-López, 2016). Internal factors, including strengths and weaknesses, cover the museums' facilities, conditions, prices, and supplementary services. External factors, comprising opportunities and threats, relate to mobility, surroundings, and competing attractions.

The text highlights the use of Leximancer software to create tags on a concept map indicating internal and external SWOT elements, an approach consistent with Goh & Wilk (2022). Each of the 80 concepts was contextually verified against the full review dataset to ensure accurate attribution to SWOT categories.

Table 3: SWOT Analysis of Military Museums Comments (Source: author)

Internal	External
Strengths	**Opportunities**
• Guided tours (knowledgeable guide or audio) • Family-friendly daily visits • Immersive period reconstructions and battle memorials • Interactive displays and collections (ships, aircraft, vehicles) • Original arms, uniforms, and period objects • Virtual reality experiences (e.g., 4DX) • Well-curated, informative exhibitions • Proximity to historic places and events	• Scenic gardens and surroundings • Cultural events complementing museum visits • Online ticket booking ahead of time • Dedicated transportation to museums • Souvenir stores with varied merchandise • Airline/hotel packages for military museum visits • Partnerships with food & beverage chains
Weaknesses	**Threats**
• Crowded rooms at peak hours • Long queues for ticket purchase (often outdoors) • Limited language options for information • Expensive on-site cafés and facilities • Poor signage and lighting • Audio guides with limited artifact coverage • Understaffing • Disconnected, static exhibitions	• Competition from dark tourism (war cemeteries, concentration camps) • Forts, Castles, and heritage tourism alternatives • Film-induced tourism (e.g., Saving Private Ryan) • Medieval fairs and cultural festivals • Negative effect of current global conflicts deterring visitors

4.3.1 Internal Factors

TripAdvisor comments focused predominantly on internal factors, providing rich insights into visitor experiences inside the museums themselves. Of the 80 concepts, 64 were linked to positive interior aspects. Adjectives such as "interesting", "impressive", "fascinating", "excellent", "beautiful", and "amazing" were consistently used:

> *"Great experience for the family and amazing interactive displays to educate and entertain. Experience both the War Rooms as they were and the impressive Churchill Museum..." (Rating 5)*

> *"Fascinating museum with such an amazing collection. If you haven't been recently, it has been superbly updated. Does a great job of informing without glorifying War." (Rating 5)*

> *"I won't talk about the exhibits in this review except to say that they were exceptional. I just wanted to mention how cheerful, friendly, and knowledgeable the staff were, it made our trip." (Rating 5)*

However, not all opinions were favourable. Concepts such as "café", "food", "shop", "ticket", and "lack of Staff" were viewed negatively and considered weaknesses. Brida et al. (2013) found that food and beverage spending is typically related to cultural visitor profiles. Tourists consistently complained about the cost and quality of on-site café services:

> *"To charge nearly full price for a 3-year-old when there is very little here for young kids is criminal. Compared to other major attractions in the area, the prices here are double." (Rating 1)*

"But it seems like the museum has no system for effective ticket sales. It is not possible to buy a ticket from a machine. You have to buy a ticket at a counter, and the capacity is low. The queues were long, and I would estimate about one hour in line." (Rating 1)

4.3.2 External Factors

Other types of tourism compete with military museums for visitors, notably dark tourism related to wars, military cemeteries, and concentration camps, as well as visits to forts and castles (Noivo et al., 2022). Film and TV-induced tourism also draws attention to war events: tourists want to experience the heat of battle as depicted by Steven Spielberg in "Saving Private Ryan", visiting Omaha Beach to connect with the realities of war (Beeton, 2006).

Concepts related to opportunities were mostly linked to location and surroundings, with words such as "views" and "area" identified as beneficial for the military museums studied:

"Worth a visit to see this magnificent structure. Outside and inside are spectacular as are the views from the tower." (Rating 5)

The main threats were related to transportation, particularly the distance of museums from city centres and expensive parking. These logistical challenges discourage potential visitors and represent an area where targeted improvement could significantly boost attendance.

5. Conclusion

This study offers a detailed understanding of European military museums from the visitor's perspective, highlighting what visitors find most important in their experience. The "museum" cluster confirmed that military museums leave a strong impression by showcasing aspects of Europe's history. The "tour" cluster indicated that guided visits are highly valued as educational, engaging, and suitable for all age groups. The "staff" cluster showed that staff are generally seen as friendly and attentive, although ticket prices, café costs, and accessibility are areas that could still be improved.

Addressing the cost and difficulty of reaching museums can have a positive economic impact: easier access attracts more visitors, boosting local tourism and supporting financial sustainability (Chen & Ryan, 2020). The SWOT analysis confirmed that strengths, such as immersive exhibits, interactive displays, and informative tours, significantly outweigh weaknesses. By leveraging data-driven approaches, museum managers can continually improve offerings and better meet visitor expectations in an increasingly competitive cultural tourism landscape (Goh & Wilk, 2022; Lemelin et al., 2016).

Our findings indicate that visitors focus more on the overall experience rather than potential controversies sparked by military museums. The research highlights the importance of adapting facilities to visitor needs; more engaging and accessible environments lead to higher satisfaction and encourage repeat visits.

6. Theoretical and Practical Implications

6.1 Theoretical Implications

There is a lack of studies exploring key aspects of military museum visitor experiences, which limits comparisons with previous research. However, the use of Leximancer complements Goh & Wilk's (2022) study by confirming that online reviews, such as those from TripAdvisor, can provide valuable insights for academic and managerial decision-making. The focus of visitor comments internally offers a detailed understanding of perceived strengths and weaknesses, giving scholars in tourism and museum studies a basis for more in-depth investigation into visitor satisfaction and engagement.

Furthermore, the positive language used to describe exhibits indicates a strong emotional connection between visitors and the military history on display, offering a theoretical foundation for examining the psychological and emotional aspects of heritage tourism. Negative feedback concerning cafés, food quality, and ticketing provides theoretical insights into how additional services affect the perceived value of a museum visit.

6.2 Practical Implications

Practically, this study offers insights on multiple levels: visitor pricing strategies, location and surroundings, visitor engagement, and operational efficiencies. Negative feedback about ticket prices provides museums with an opportunity to reassess pricing, particularly for different age groups, and to introduce bundled services that improve perceived value.

Positive comments lay the foundation for understanding what attracts visitors. Museum curators can design exhibits that meet expectations and emphasising friendly and knowledgeable staff highlights the importance of training programmes. Weaknesses in cafés and ticketing reveal specific areas for operational improvement. Finally, tackling transportation issues and enhancing the museum's surroundings can convert external opportunities into meaningful visitor experiences.

7. Limitations and Further Research

This study is restricted to a single platform (TripAdvisor) and 500 reviews per museum, focusing solely on European sites. Future research could benefit from including other platforms (Instagram, Facebook, YouTube) to compare online content shared by travellers, providing a more comprehensive picture. Additionally, online reviews might underrepresent moderately satisfied travellers. Future studies should investigate military museums by region or thematic focus and utilise primary data collection methods such as surveys or interviews for more in-depth insights.

Ethics Declaration

Ethical clearance was not required for this research. The study used publicly available online reviews from TripAdvisor and did not involve human participants in primary data collection.

AI Declaration

No AI tools were used in the creation of this paper. All content, analysis, and writing were produced by the author(s).

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Nuanced Gender Perceptions and Tourism Business Capabilities in Kwazulu-Natal, South Africa: The Role of Marketing Capability in Business Performance

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Abstract: Tourism is one of the fastest growing industries, which offers possibilities for business development and expansion. Many entrepreneurs have concentrated on tourism as a lucrative sector that can generate revenue for any nation. According to earlier studies, the number of women entrepreneurs is increasing, however, many of them struggle to maintain their businesses compared to their male counterparts. With a focus on marketing capabilities and managerial capabilities, this study aims to investigate gender nuances in the performance of tourism-related enterprises in KwaZulu-Natal's Durban Central Business District. This study used questionnaire survey, a quantitative research method to collect data from 150 tourism-related business owners and managers in Durban Central Business District, KwaZulu-Natal using purposive sampling method. The participants were those who have specific knowledge in tourism-related business operations (managers and owners) and are willing to participate. Data was analysed using IBM's SPSS version 25 software. Descriptive (frequency, mean), bivariate (Spearman's Rank Correlation (two-tailed) test, Pearson's Chi-Square test, Mann-Whitney U test) and multivariate (Reliability test using Cronbach's Alpha) data analyses were applied in this study. There are no significant differences in the responses of male and female participants in this study with respect to "managerial and operational capabilities," "marketing capability," and "general entrepreneurial statements." This study did not make a conclusive finding that gender plays a strong role in differentiating business success or performance. However, marketing capability is the main factor that influence the business performance or success level. Based on this study results, authors recommend that entrepreneurial training and mentorship programmes should emphasise that formal education, marketing capability and other factors (but not gender) support business success.

Keywords: Marketing Capability, Business Capability, Gender Nuances, Business Operations, Sub-Saharan Africa

1. Introduction

Durban, the commercial hub of KwaZulu-Natal, plays a key role in South Africa's tourism economy. Tourism's contribution to the provincial GDP grew from R9 billion in 2014 to over R10 billion by 2018 (Tourism KwaZulu-Natal, 2019). The province is renowned for its heritage, culture, warm weather, beaches, and natural attractions, drawing both domestic and international tourists (Ezeuduji & Nkosi, 2017). Tourism-related entrepreneurship is essential to support growing visitor demand and benefit local communities. Like many developing countries, South Africa acknowledges entrepreneurship as a driver of economic growth (Business Environment Specialist, 2013), with tourism identified as a priority sector (Tshabalala & Ezeuduji, 2016). However, entrepreneurial activity remains relatively low in South Africa (Iwu et al., 2016).

Gender mainstreaming is increasingly becoming central to entrepreneurship studies, promoting a wholistic approach that values gender diversity and seeks to achieve equality (Shepard, 2015). Economic development is unattainable without women's active participation (Sarfaraz et al., 2014), yet their involvement in South Africa's tourism sector remains limited. Women often occupy low-level positions with few opportunities for career advancement (Tshabalala & Ezeuduji, 2016), leaving them at the margins of economic growth. Female-owned businesses also face higher closure rates and lower profitability than male-owned enterprises (Marlow & McAdam, 2013). Challenges include unfavourable societal perceptions, limited finance, weak managerial skills, and poor networks (Tshabalala & Ezeuduji, 2016). Across the SADC region, men dominate tourism management (Nyaruwata & Nyaruwata, 2013; GEM, 2012). Global efforts to empower women increasingly promote entrepreneurship, particularly in tourism, which has strong growth potential (Kimbu et al., 2019; Mkhize & Cele, 2017).

Much gender-based entrepreneurship studies (such as Kimbu et al., 2019; Kokotović et al., 2016; Mkhize & Cele, 2017; Sarfaraz et al., 2014; Todorović et al., 2016; Tshabalala & Ezeuduji, 2016; Vossenberg, 2013; Witbooi & Ukpere, 2011) focussed on women entrepreneurship as a driver of gender equality, poverty reduction, and social development. They did not specifically explore gender-induced differences or perceptions, especially from the African perspective. This study therefore explored nuanced gender perceptions on the influences that business

capabilities may have on tourism-related business operations; and also sought if gender identity drives business performance, using the case of Durban Central Business District, in KwaZulu-Natal, South Africa.

2. Overview of Literature

Managerial skills are a key resource for developing managerial capabilities (Wessels et al., 2017) and refer to the knowledge and ability to perform managerial tasks (Maurya & Sharma, 2017). These capabilities drive organisational success through effective coordination of human, tangible, and intangible resources (Seyedinejat et al., 2014). Research highlights notable gender differences in leadership styles. Female entrepreneurs often adopt a transformational approach, focusing on team development, empowerment, and collaboration (Guillet et al., 2019a). In contrast, male entrepreneurs tend to use more assertive and power-based approaches. Communication approaches also differs: men are more likely to rely on positional power, while women emphasise cooperation and team belonging (Sudarmanti et al., 2013). Women's leadership often emphasises work satisfaction, relationship building, and interactive management. Women-entrepreneurs are viewed as better listeners, more practical, and skilled at creating supportive and flexible work environments (Vázquez-Carrasco et al., 2011; Sudarmanti et al., 2013). They also display stronger social and human relation skills, empathy, and perseverance (Manzanera-Román & Brändle, 2016; Guillet et al., 2019b), which can enhance entrepreneurial success. However, women often face constraints related to lower levels of technical and managerial experience, which can limit their operations to smaller and informal enterprises (Sudarmanti et al., 2013).

Researchers highlight a strong positive link between marketing capabilities and business performance (Kimosop et al., 2016). Effective marketing enables entrepreneurs to grasp available opportunities, enhance competitiveness, and attract customers (Yadav, 2018). Poor marketing strategies remain a challenge for many women-owned tourism businesses, with dispersed craft dealers lacking signage and industry connections, making it difficult to reach customers (Tshabalala & Ezeuduji, 2016). Women entrepreneurs often rely on face-to-face communication (Jiyane, 2014) and word-of-mouth promotion (Tshabalala & Ezeuduji, 2016), which limits their market reach.

The growth of information and communication technologies has transformed tourism marketing. Internet tools such as social media, blogs, and Search Engine Optimisation (SEO) enable organisations to share information and engage with customers. A strong online presence is now a key business asset (Chetty, 2015). Tourism businesses can use platforms like TripAdvisor, Tripcast, social media, and HearPlanet to promote offerings and gain insights from visitor reviews, helping them better understand their target market (Jovicic, 2019; Gidarakou, 2015). Although women are often viewed as adept social media users, they remain less involved in technology adoption for business, showing lower confidence and participation compared to men (Orser & Riding, 2018). This limits their access to technology-driven markets (Witbooi & Ukpere, 2011).

3. Research Design and Methods

This study examines gender differences among tourism entrepreneurs in business operations and their effect on performance, focusing on traditional societal perceptions and access to financial capital. A questionnaire survey was used to collect data. Structured questionnaires were distributed through purposive sampling, targeting tourism business owners and managers with relevant knowledge and willingness to participate (Nardi, 2018). A total of 150 respondents (75 male and 75 female) from tourism establishments in Durban CBD, eThekwini Municipality, KwaZulu-Natal, were surveyed. This approach enabled a fair comparison between male and female entrepreneurs regarding managerial, operational, and marketing capabilities.

The aim of this study is to find out if are there gender differences shown by tourism entrepreneurs in running their businesses, which may affect business performance. Focusing on traditional societal perceptions and access to financial capital. The nature of this study required a questionnaire survey to address the objectives of this study. Structured questionnaires were distributed using non-probability purposive sampling. We selected those who have precise knowledge (tourism-related business owners and managers) in tourism entrepreneurship also willing to participate (Nardi, 2018). We surveyed 150 respondents (75 male and 75 female entrepreneurs) in their tourism establishments in Durban Central Business District under Ethekwini Municipality, KwaZulu-Natal, South Africa. We carefully distributed the questionnaire to create a fair comparison between the characteristics of female entrepreneurs and male entrepreneurs; and how they respond to the business performance factors: "managerial and operational capabilities" and "marketing capability"

Collected data were analysed using IBM's Statistical Package for Social Sciences (SPSS) software, version 25. We employed descriptive statistics, bivariate analyses and multivariate analysis. The data analysis showed non-normal population distributions of the ordinal variables used in assessing business operation statements (perceptions); hence this study employed Mann-Whitney U tests by comparing means of responses from two independent groups (demographic variables) to check if these are significantly different from one another. We compared business operation statements with respondents' demographic variables. We employed Spearman's correlation (two-tailed) test to checked for relationships between ranked or ordinal variables, to find out if there are negative or positive correlations between the variables, which for this study is between business operations statements and perceived business success classification. We conducted Mann-Whitney U tests based on the prescribed criteria that the dependent variables have ordinal scale, the independent variables have only two groups, and normality of distribution and homogeneity of variance did not prove true in a t-test. Pearson's Chi Square test was used to check for relationships between categorical/nominal data, where some previous variables measured in an ordinal scale were recoded to support this analysis. Respondents‟ profiles were compared with business start-up motivation and perception of entrepreneurial success.

Multivariate analysis (reliability tests) was employed by this study to check for the level of internal consistencies of variables used to describe factors influencing business operations (traditional societal perceptions, access to financial capital. Researchers suggest that a Cronbach's alpha coefficient of between 0.5 and 0.7 is acceptable in social science research, to denote adequate consistency of variables used in measuring a factor or dimension (Chawla & Sondhi, 2011). Nonetheless, Tavakol and Dennick (2011) posit that a low Cronbach's alpha score may occur if there is a weak interrelationship between the variables used in the analysis, or if few variables are being used to depict a particular dimension or factor. From the reliability tests conducted on the three business operation dimensions: 'managerial and operational capabilities' and 'marketing capability'; dimensions achieved above 0.6 Cronbach Alpha coefficient, hence this study finds the variables contained in these dimensions, internally consistent or related, to measure each of the dimensions

4. Results and Discussion

4.1 Respondent's Profile

The results in Table 1 show that respondents in this study are mostly South Africans (about 89%) and majority (about 61%) of the respondents had business experience of not more than six years.

Table 1: Respondents' profile (N=150)

Variable	Category	Frequency (%)
South African	Yes	88.7
	No	11.3
Gender	Male	50
	Female	50
Ethnic group	Black	52.7
	White	18.0
	Indian	22.0
	Coloured	7.3
Age group	Less than 40 years	61.3
	40 years and above	38.7
Business owner	Yes	63.3
	No	36.7
Business manager	Yes	58.7
	No	41.3
Motivation to start tourism business	Took opportunity	54.4
	Means of survival	45.6
Level of Education	Up to Secondary School (Matric)	44.0

Variable	Category	Frequency (%)
	Tertiary Education	56.0
Type of Business	Accommodation	16.0
	Food and Beverage	26.7
	Events Management	10.0
	Tour Operation	3.3
	Travel Agency	4.7
	Tour Guide	2.7
	Car Rentals	7.3
	Resorts	2.0
	Consultancy	2.7
	Souvenir Shop	24.7
Number of years in business	Up to 6 years	60.7
	7years and above	39.3
Self-classification as an entrepreneur	Very successful	13.4
	Successful	43.6
	Surviving	32.2
	Struggling	9.4
	Unsuccessful	1.4

Results further show that entrepreneurs' motivation to start a tourism business to take an opportunity is somewhat higher (about 54%) compared to the motivation of starting a business as means of survival (about 46%). Mersha and Sriram (2019) posit that in most African countries, entrepreneurs are pushed into business by socio-economic factors (such as unemployment). This study however found that majority of respondents started businesses based on available opportunity. The level of education was also highlighted as an important factor in business operation (Ramadani, 2015). The results of this study show that 56% of respondents have tertiary education. Majority of the respondents (57%) perceived themselves as successful in their businesses, as about 44% perceived themselves as successful and about 13% as very successful.

4.2 Business Operation Statements

Respondents were asked to show their level of agreement or disagreement with the statements used to measure 'managerial and operational capabilities', 'marketing capability'. Previous study (Mersha & Sriram, 2019) posits that entrepreneurs in Africa lack business management skills as they are likely to be pushed into business by socio-economic challenges. Results in Table 2 contradict this statement and show that 92% of respondents strongly agreed or agreed with the statement: 'I have skills and experience in running a tourism business'. The results indicate that the majority of managers and owners of tourism businesses have skills and experience to run a tourism business. Ezeuduji, Deen and Nzama, 2025; Nzama & Ezeduji, 2021 supports these results.

Table 2: Business operation statements (%)

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
2.1 Managerial and Operational Capabilities					
I have skills and experience in running a tourism business	35.3	56.7	4.7	3.3	0.0
I give my employees the opportunity to come up with ideas or decisions in running the business	23.3	51.3	18.7	6.7	0.0
Male business managers are more capable than female business managers	8.7	8.7	13.3	54.0	15.3
Male business managers are better managers than female business managers	7.3	11.3	12.0	52.0	17.3

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I send/arrange workshops for the staff members to receive training.	30.7	41.3	14.0	12.0	2.0
*Reliability statistics (**Managerial and Operational Capabilities**): Cronbach's Alpha = .664, N of items = 5, Valid cases = 150 (100%), Excluded cases = 0 (0.0%), Total =150*					
2.2 Marketing Capability					
I use Internet to market my business	42.0	32.7	8.0	14.0	3.3
I rely on different sources of media to get my business known.	30.7	43.3	5.3	20.0	0.7
I do research to find out the new market trends	36.7	41.3	6.0	16.0	0.0
I know very well how to offer my products and deliver services to meet customer need (Product)	36.7	51.3	8.0	4.0	0.0
I use different promotion techniques to sell my products and services (Promotion)	41.3	38.7	2.7	17.3	0.0
*Reliability statistics (**Marketing Capability**): Cronbach's Alpha = .875, N of items = 5, Valid cases = 150 (100%), Excluded cases = 0 (0.0%), Total =150*					

The results in this study show that respondents mostly agreed to a set of variables used in measuring 'marketing capabilities'. Majority of respondents in this study showed that they endeavour to keep up with the market trends, as 78% of the respondents strongly agreed or agreed with the statement: 'I do research to find out the new market trends'. The statements concerning the marketing-mix strategy (of product and promotion) also receive high levels of agreement. 88% of respondents strongly agreed or agreed with the statement: 'I know very well how to offer my products and deliver services to meet customer need (Product)'. Also, 80% of the respondents strongly agreed or agreed with the statement: 'I use different promotion techniques to sell my products and services (Promotion)'.

4.3 Perception of Entrepreneurial Success Level Versus Business Operation Statements

Spearman's Rank Correlation test was used to test for relationships between respondents' responses to 'perception of entrepreneurial success level' and 'business operation statements'. Based on the results in Table 3, it is evident that there is no reported correlation between gender nuanced business operation variables and perceived business success level. The variables identified to have positive correlations with perceived business success are mostly found within the dimension of 'marketing capability'. This shows that marketing capability is pivotal to business success, as all the variables within this dimension have mostly very strong positive correlation with business success. Results in this study support the findings of other authors (such as Kimosop et al., 2016) who report that there is a positive relationship between marketing capabilities and business performance.

Table 3: Correlating perception of entrepreneurial success level versus business operation statements

Statements[a]	Correlated With Perception of Entrepreneurial Success Level[b]
3.1 Managerial and Operational Capabilities	
I have skills and experience in running a tourism business	N.S
I give my employees the opportunity to come up with ideas or decisions in running the business	N.S
Male business managers are more capable than female business managers	N.S
Male business managers are better managers than female business managers	N.S
I send/arrange workshops for the staff members to receive training.	**
3.2 Marketing Capability	
I use Internet to market my business	**
I rely on different sources of media to get my business known.	**
I do research to find out the new market trends	**

Statements[a]	Correlated With Perception of Entrepreneurial Success Level[b]
I know very well how to offer my products and deliver services to meet customer need (Product)	*
I use different promotion techniques to sell my products and services (Promotion)	**

[a]Questionnaire were itemised along a 5-point Likert-type scale (business operation statements): 1, Strongly agree; 2, Agree; 3, Neutral; 4, Disagree; 5, Strongly disagree.

Questionnaire were itemised along a 5-point Likert-type scale (perceptions of entrepreneurial success level): 1, Very successful; 2, Succesful; 3, Survivingl; 4, Struggling; 5, Unsuccessful.

[b]Spearman's Rank correlation (two-tailed) test significance: **, $_P < 0.01$; N.S., no significant results

4.4 Comparing Gender Identity With Business Operation Statements

The respondents were asked to indicate their level of agreement or disagreement with business operations' variables; their responses were then compared with respondents' gender. This study employed Mann-Whitney U test to check if there are significant relationships between gender identity and the business operations variables. Results in Table 4 show that male entrepreneurs showed stronger managerial capabilities than female entrepreneurs, regarding the statements: 'I give my employees the opportunity to come up with ideas or decisions in running the business', and 'I send/arrange workshops for the staff members to receive training'. These results contradict some of the previous findings (Guillet et al., 2019) that women are more transformational business leaders than men. Therefore, from the findings of this study, compared to previous findings, transformational leadership can be argued not to be gender specific.

The results in Table 4 indicate that there is no significant difference between male and female mean scores regarding their responses to the variables within the 'marketing capability' dimension. These results support the findings of previous studies (such as Ezeuduji, Deen & Nzama, 2025; Nzama & Ezeuduji, 2021; Nzama & Ezeuduji, 2020).

Table 4: Comparing gender identity with business operation statements

Statements[a]	Mean Score (Males)	Mean Score (Females)	Compared With Gender[b]
4.1 Managerial and Operational Capabilities			
I have skills and experience in running a tourism business	1.77	1.75	N.S.
I give my employees the opportunity to come up with ideas or decisions in running the business	1.91	2.27	** Males agree more
Male business managers are more capable than female business managers	3.45	3.72	N.S.
Male business managers are better managers than female business managers	3.47	3.75	N.S.
I send/arrange workshops for the staff members to receive training.	1.91	2.36	* Males agree more
4.2 Marketing Capability			
I use Internet to market my business	1.93	2.15	N.S.
I rely on different sources of media to get my business known.	2.12	2.21	N.S.
I do research to find out the new market trends	1.83	2.20	N.S.
I know very well how to offer my products and deliver services to meet customer need (Product)	1.89	1.69	N.S.
I use different promotion techniques to sell my products and services (Promotion)	1.85	2.07	N.S.

[a]Questionnaire were itemised along a 5-point Likert-type scale (business operation statements): 1, Strongly agree; 2, Agree; 3, Neutral; 4, Disagree; 5, Strongly disagree.

[b]Mann-Whitney U test significance: *, $_P < 0.05$; **, $_P < 0.01$; N.S., no significant results.

4.5 Comparing Demographic Variables With Business Start-up Motivation and Perceptions of Entrepreneurial Success Level

We further compared demographic variables of respondents with business start-up motivation and perceptions of entrepreneurial success level (using Pearson's Chi-Square and Mann-Whitney U tests, respectively). As shown in Table 5, results show that there is no significant relationship between 'gender', 'age group', and 'number of years in business' with 'business start-up motivation'. Focussing on the purpose of this study, gender did not explain any choice between being 'opportunity' or 'survival' entrepreneur. However, nationality and educational level were identified as the socio-demographic characteristics that have significant influence on the type of motivation to start a tourism business.

Results show that respondents who have tertiary education are more 'opportunity' driven entrepreneurs while respondents who do not have tertiary education are more 'survival' driven entrepreneurs. South African respondents are more 'opportunity' entrepreneurs whereas non-South Africans are more 'survival' entrepreneurs. Non-South African entrepreneurs may struggle to find long-term resident permit in South Africa and may be discriminated against in the labour market. They may therefore decide to start businesses to survive in South Africa. Securing a decent job opportunity in South Africa may also prove difficult for those without tertiary education, hence they may end up becoming 'survival' entrepreneurs. These results support Mersha and Sriram's (2019) argument that socio-economic challenges may lead individuals to start a business (as means of survival).

Table 5: Comparing demographic variables with business start-up motivation and perceptions of entrepreneurial success

Statements		**Evidence From Analysis**	**Compared With Respondents' Demographic Variables [c]**
5.1 Motivation to start tourism business [a, c]			
		Cross-tabulation Results	
Nationality	South Africans	Expected count for opportunity entrepreneurs = 71.8; Actual count = 79	** South Africans are more 'opportunity entrepreneurs', while Non South Africans are more 'survival' entrepreneurs
	Non South Africans	Expected count for survival entrepreneurs = 7.6; Actual count = 15	
Gender	Male		N.S.
	Female		
Age group	Less than 40 years		N.S
	40 years and above		
Level of Education	Up to Secondary School	Expected count for opportunity entrepreneurs = 45.1; Actual count = 52	* Respondents with tertiary education are more 'opportunity entrepreneurs' while respondents without tertiary education are more 'survival' entrepreneurs
	Tertiary education	Expected count for survival entrepreneurs = 29.7; Actual count = 37	
No. of years in business	Up to 6 years		N.S.
	7years and above		
	7years and above	2.46	
5.2 Perceptions of entrepreneurial success level [b, d]			

Statements		Evidence From Analysis	Compared With Respondents' Demographic Variables [c]
		Mean Scores	
Nationality	South Africans	2.42	N.S.
	Non-South Africans	2.41	
Gender	Male	2.49	N.S.
	Female	2.35	
Age group	Less than 40 years	2.34	N.S.
	40 years and above	2.53	
Level of Education	Up to Secondary School	2.79	** Respondents with tertiary education agree to being more successful
	Tertiary education	2.12	
No. of years in business	Up to 6 years	2.39	N.S.
	7years and above	2.46	

[a]Questionnaire was itemised categorically: 1, Took opportunity; 2, Means of survival

[b]Questionnaire were itemised along a 5-point Likert-type scale (perceptions of entrepreneurial success level): 1, Very successful; 2, Succesful; 3, Survivingl; 4, Struggling; 5, Unsuccessful.

[c]Pearson's Chi-Square test significance: *, $p < 0.05$; **, $p < 0.01$; N.S., no significant results.

[d]Mann-Whitney U test significance: *, $p < 0.05$; **, $p < 0.01$; N.S., no significant results.

5. Conclusions and Recommendations

In this study, we explored nuanced gender perceptions on the influences that business capabilities may have on tourism-related business operations; and also sought if gender identity drives business performance, using the case of Durban Central Business District, in KwaZulu-Natal, South Africa. Our results reveal no correlation between gender nuanced business operation variables and perceived business success level. The variables identified to have positive correlations with perceived business success are mostly found within the dimension of 'marketing capability'. This shows that marketing capability is pivotal to business success, as all variables within this dimension have mostly very strong positive correlation with business success. Gender did not explain any choice between being 'opportunity' or 'survival' entrepreneur. The only socio-demographic characteristic that has a significant influence on 'entrepreneurial success level' is the 'level of formal education'. Respondents with tertiary education perceived themselves more successful than those without tertiary education. This study reveals no convincing differences between male and female respondents regarding their responses on 'managerial and operational capabilities' and 'marketing capability'. Therefore, being male or female does not make an entrepreneur a better business manager. This study therefore recommends more entrepreneurship training and mentorship programmes in KwaZulu-Natal, South Africa; and these should emphasise that formal education, marketing capability and other factors (but not gender) support business success. Hence training and mentorship should focus on building marketing capability, among others.

Ethics Declaration

Ethical clearance for this paper was obtained from the University of Zululand Research Ethics Committee (Reference: UZREC 17111-030). All procedures performed in this study were in accordance with institutional ethical standard.

AI Declaration

The authors declare that no generative artificial intelligence (AI) was used in conceptualising, drafting, analysing data and writing this paper.

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