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Proceedings BOOK

XV International Tourism Congress
23rd to 25th of November
The Image and Sustaintability of
Tourism Destinations

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ISBN:

978-83-67405-28-7

DOI:

10.34620/978-83-67405-28-7

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WITH THE SUPPORT OF:

CITUR - Centre for Tourism Research, Development and Innovation

https://doi.org/10.34620/978-83-67405-28-7

DOI: 10.34620/978-83-67405-28-7-toc

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DOI: 10.34620/978-83-67405-28-7-001 • 2024 • 1-11

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Empowering rural tourism: a sustainable solution for energy independence

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Abstract

This study addresses the emerging need for sustainable tourism strategies in response to shifting tourist consciousness and rural exodus in Portugal. It conceptualizes a model for rural tourism that promotes energy self-sufficiency and low carbon footprint. Through thermal quality analysis, sustainable housing implementation, and energy requirement definition, the research aimed to achieve sustainability and position a modular house as a Nearly Zero Energy Building with an A+ rating. A solar thermal and photovoltaic system with energy storage was also proposed to ensure energy autonomy of the modular house. The renewable energy systems proposed have the capacity to avoid an annual emission of 1.65 tons of CO_2 into the atmosphere. The environmental impacts of the house implementation, including potential disturbances to local flora and fauna, water and soil contamination, and greenhouse gas emissions, were assessed, and mitigation measures were proposed. The study affirms the possibility of harmonizing rural tourism development and environmental sustainability. The transformation of a hypothetical rural setting into an energy-efficient, self-sufficient model with a low carbon footprint demonstrates the potential for stimulating rural development through a lens of sustainability. The research offers a viable response to the increasing concerns of tourists about environmental, social, and economic issues.

Keywords

Energy efficiency • Renewable energy • Rural tourism • Sustainability

1. Introduction

Tourism is one of the world's largest industries and has the potential to influence consumer behaviours towards more consumerist lifestyles (Hunter, 2002). However, rural tourism, as a subset of tourism, offers an opportunity to promote sustainable, mindful consumption patterns by emphasizing local communities, natural surroundings, and the preservation of cultural heritage.

Rural tourism can foster a deeper connection to nature and promote a more conscious and responsible approach to consumption. As a matter of fact, in today's fast-paced world, the allure of rural landscapes and the desire for sustainable travel experiences are on the rise. However, many rural areas face challenges in catering to the needs of tourists while ensuring their own energy independence.

With energy self-sufficiency as the foundation, rural areas can unlock their full potential as tourist destinations. Sustainable infrastructure development, including eco-friendly accommodations, efficient transportation systems and well-designed visitor centres, enhances the overall experience for tourists. By incorporating renewable energy solutions into these structures, the ecological footprint is minimized, and the natural beauty of the surroundings is preserved (Chaoqun, 2011; Riojas-Díaz et al., 2022).

Moreover, the integration of energy independence and sustainable tourism has far-reaching socio-economic benefits for rural communities. Local residents are empowered through skill development and employment opportunities in the renewable energy sector, leading to enhanced livelihoods and economic growth (Chaoqun, 2011; Silva, 2022). The revenue generated from sustainable tourism activities contributes to the socio-cultural preservation of the region, allowing communities to celebrate and share their unique heritage (Hunter, 2002; Saputro et al., 2023).

Portugal has emerged as one of the European nations highly reliant on the tourism industry, particularly inbound tourism. The significance of tourism in the country's economy has witnessed a notable upswing in the last decade (Silva, 2022).

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For example, in 2018, tourism constituted 11.5% of Portugal's gross domestic product, making substantial contributions of 9.4% to employment and 22.3% to total exports (Silva, 2022). Portugal's rural areas boast rich natural landscapes, cultural heritage, and unique experiences that attract both domestic and international tourists. Rural tourism plays a vital role in showcasing the authentic charm of these regions while providing economic opportunities for local communities. However, it is crucial to balance tourism development with environmental conservation and the preservation of rural lifestyles.

One key aspect of sustainable rural tourism is the integration of renewable energy sources (Silva, 2022). The installation of renewable energy systems, such as solar panels, wind turbines, or biomass facilities, in rural tourism establishments can have numerous benefits. Firstly, it reduces dependence on non-renewable energy sources and decreases carbon emissions, contributing to the global fight against climate change. Secondly, it allows tourists to witness sustainable practices first-hand and fosters an appreciation for environmentally conscious lifestyles.

To promote the adoption of renewable energy in rural tourism, Portugal has embarked on several initiatives. The government, through its Tourism Strategy 2027, has set ambitious targets for energy efficiency in tourism businesses, aiming for over 90% adoption by 2027 (Resolution of the Council of Ministers No. 134/2017, of September 27th). This strategic approach emphasizes the importance of sustainability and acknowledges the role of rural tourism in achieving these goals. Regarding solar energy, as of 2019, approximately 43% of tourist accommodations had incorporated solar thermal panels, while only 14% had installed solar photovoltaic panels (Turismo de Portugal, 2020).

Thus, this work aims to harness the potential of rural areas by integrating sustainable energy solutions with tourism development. By doing so, it not only addresses the energy demands of tourist activities but also ensures long-term benefits for local communities and the environment. The key focus of this work is to implement solar energy technologies in modular houses that enable tourism housing in rural areas to become self-sufficient in meeting their energy requirements.

This work sets the stage for a harmonious coexistence between tourism development, renewable energy and rural communities. It demonstrates that sustainable tourism is not only about minimizing negative impacts but also about actively contributing to the well-being of local ecosystems and societies.

This work is structured into 5 parts: the introduction, which presents the state of the art of sustainable tourism and the objectives of this study; the literature review, which describes the importance and evolution of rural tourism, and also its intertwined with the concept of sustainability; the methodology, which describes the methods and techniques adopted; the results and discussion; and, finally, the conclusions.

2. Rural tourism

2.1. Evolution

Over the past decades, rural tourism has experienced a remarkable evolution, undergoing a transformative journey that has reshaped the way we perceive and experience the countryside (Rosalina et al., 2021; Lane et al.,2022). From its humble beginnings as a niche concept, rural tourism has emerged as a vibrant and sought-after travel trend, captivating the hearts of adventurers and seekers of authentic experiences.

The 1990s marked a turning point for rural tourism, as travellers began to seek alternative experiences beyond traditional sun and beach vacations. During this period, rural tourism primarily focused on offering accommodations in farmhouses or rural guesthouses, providing a unique opportunity to experience rural life first-hand.

As entering the new millennium, rural tourism experienced a significant shift driven by advancements in technology and changing consumer preferences. The digital revolution played a pivotal role in democratizing rural tourism and expanding its appeal beyond a niche market.

Moreover, the evolution of rural tourism was closely intertwined with the growing demand for sustainable and responsible travel (Rosalina et al., 2021). Environmental concerns gained prominence, leading to a shift towards eco-friendly practices and a greater emphasis on preserving the natural landscapes of rural areas. This sustainability-focused approach transformed rural tourism into a vehicle for both exploration and environmental stewardship (Lane et al.,2022).

In recent years, rural tourism has embraced the concept of experiential travel, catering to the growing demand for immersive and personalized experiences (Rosalina et al., 2021). Social media has become a powerful tool for promoting rural destinations (López-Sanz et al., 2021), with influencers and travellers sharing their experiences and recommendations, generating curiosity and interest among a global audience.

In summary, the evolution of rural tourism over the years has been a dynamic and transformative journey. From its modest beginnings, rural tourism has expanded its reach, incorporating sustainability, technology, and experiential travel into its core principles.

2.2. Importance

Rural tourism has emerged as a significant component of the travel industry, captivating the hearts of adventurers seeking authentic and immersive experiences. It entails venturing

beyond urban landscapes and delving into the charm and tranquillity of rural areas, offering a delightful escape from the fast-paced city life. This type of tourism presents a unique opportunity for travellers to connect with nature and experience the authentic local culture. The importance of rural tourism extends far beyond leisure and relaxation, as it holds tremendous benefits for both visitors and the local communities they engage with, playing a pivotal role in the economic development of rural areas (Fons et al., 2011; López-Sanz et al., 2021; Saputro et al., 2023).

By attracting visitors, it stimulates local businesses, creates job opportunities, and bolsters the income of rural communities (López-Sanz et al., 2021; Saputro et al., 2023). These tourists spend money on accommodations, local food and beverages, handicrafts, and various services, injecting vital funds into the local economy. In turn, this contributes to the growth of infrastructure, education, healthcare, and other essential amenities, enhancing the overall standard of living for residents (Popescu et al., 2022).

Furthermore, rural tourism fosters cultural preservation and heritage conservation. Many rural destinations boast rich historical significance and traditional practices that have been passed down through generations. By exposing travellers to these unique cultural assets, rural communities can ensure their preservation for future generations (Popescu et al., 2022).

Another vital aspect of rural tourism is its positive impact on the environment (Fons et al., 2011; Rosalina et al., 2021; Saputro et al., 2023). Unlike mass tourism, which often burdens popular tourist destinations, rural tourism promotes sustainable practices and responsible travel. Many rural destinations focus on eco-friendly initiatives, such as organic farming, renewable energy, and conservation efforts. This emphasis on environmental stewardship encourages visitors to embrace sustainable habits and appreciate the importance of preserving fragile ecosystems.

In addition to its economic, cultural, and environmental benefits, rural tourism also enhances the well-being and quality of life for both visitors and local residents. It offers a respite from the stresses of modern life and provides a platform for reconnecting with nature and oneself. The peace and tranquillity of rural areas promote mental and physical well-being and engaging in outdoor activities fosters a healthy lifestyle. Moreover, the warm hospitality and genuine interactions with locals create a sense of community and leave lasting memories for travellers.

Finally, rural tourism stands as a beacon of opportunity, allowing travellers to discover the hidden treasures of rural landscapes while empowering local communities. Its significance lies not only in providing memorable experiences for tourists but also in contributing to the sustainable development of rural areas. By embracing rural tourism, one can preserve cultural heritage, protect the environment, and promote economic growth, ultimately forging a path towards a more inclusive, sustainable, and harmonious world.

2.3. Sustainability

Rural tourism, with its focus on exploring the countryside and immersing oneself in nature, has become increasingly intertwined with the concept of sustainability (Fons et al., 2011). By embracing sustainability principles, rural tourism not only ensures the preservation of pristine landscapes but also creates a positive impact on local communities and fosters a deeper connection between travellers and nature.

Sustainable rural tourism practices prioritize the conservation of ecosystems, striving to minimize negative impacts on the environment. This includes promoting responsible waste management, reducing carbon footprints, using modular houses, and supporting initiatives like renewable energy (Chaoqun, 2011; Riojas-Díaz et al., 2022) and water conservation. By adopting sustainable practices, rural tourism aims to protect fragile ecosystems and ensure their longevity for future generations to enjoy (Fons et al., 2011; Saputro et al., 2023).

Modular houses can play a significant role in rural tourism since they offer numerous advantages for rural tourism, from their cost-effectiveness and sustainability to their flexibility and ability to blend with natural surroundings (Garusinghe et al., 2023; Kader, 2023). These dwellings enhance the authenticity and immersion of rural and natural experiences in various ways:

i) Quick and cost-effective construction: Modular houses are designed to be assembled quickly and efficiently, reducing construction time and costs. In rural areas where resources and infrastructure may be limited, this can be a major advantage for tourism operators looking to expand their accommodations;
ii) Sustainable design: Many modular houses are designed to incorporate eco-friendly materials, energy-efficient systems, and even off-grid capabilities such as solar panels and composting toilets;
iii) Customization and flexibility: Modular houses offer a high degree of customization, allowing tourism operators to design and configure accommodations that blend seamlessly with the natural surroundings;
iv) Mobility and adaptability: Modular houses can be relocated relatively easily, making them suitable for seasonal tourism or for adjusting to changing demand;
v) Blend with natural environment: Modular houses can be designed to have a minimal visual impact on the rural landscape;
vi) Rural job creation: The manufacturing and installation of modular houses can generate employment opportunities in rural areas, contributing to the economic development of local communities;

vii) Diverse accommodation options: Modular houses can be used to create various types of accommodations, such as cabins, lodges, glamping pods, or even entire eco-villages;
viii) Technology integration: Modular houses can be equipped with modern amenities and technology, enhancing the comfort and convenience of guests while still providing a rural experience;
ix) Year-round operation: With proper insulation and climate control, modular houses can be used year-round, extending the tourism season in rural areas and reducing the reliance on peak-season tourism;
x) Safety and quality assurance: Modular construction often involves strict quality control processes, ensuring that the accommodations are safe, durable, and meet industry standards, which is essential for the well-being and satisfaction of tourists.

In addition to environmental conservation, sustainable rural tourism also places great emphasis on supporting local communities. Sustainable tourism initiatives seek to engage and empower these communities by promoting local economic development (Hunter, 2002). By encouraging tourists to purchase local products and engage with local services, rural tourism helps generate income and employment opportunities, contributing to the socio-economic well-being of the community (Popescu et al., 2022).
Furthermore, sustainable tourism practices aim to celebrate and protect the cultural heritage, offering visitors authentic and meaningful experiences. By valuing and respecting local culture, sustainable rural tourism helps preserve the unique identities of rural communities and strengthens cultural diversity (Fons et al., 2011; Saputro et al., 2023).
Education and awareness play a crucial role in sustainable rural tourism. Travelers are provided with opportunities to learn about the local environment, culture, and sustainable practices. This knowledge empowers visitors to make informed choices that minimize their impact on the environment and support sustainable initiatives. It also encourages a deeper appreciation and understanding of the natural and cultural wonders they encounter during their rural tourism experiences. By fostering this connection and sense of responsibility, sustainable rural tourism can inspire travellers to become ambassadors for sustainable practices in their own lives and future travels.

3. Methodology

In the methodology applied, the hypothetical-deductive method was used, resorting to case study research, in a qualitative and quantitative approach to the data. This is exploratory research of applied nature, for which the following tasks were defined:

i) Implementation of the housing – design and orientation of the housing, 3D modelling with integration into the field and description of the materials used;
ii) Sizing of a solar photovoltaic and solar thermal systems – study on the feasibility and sizing of a solar photovoltaic and solar thermal systems, considering the calculation of the energy needs of housing and the production capacity of renewable energy systems;
iii) Assessment of energy efficiency of housing according to National Regulation, namely calculation of the energy consumption for heating, cooling, ventilation, domestic hot water and renewable energy and energy performance indicators; identification of the energy rating assigned to the house and the fulfilment of requirements to be a Nearly Zero Energy Building (NZEB);
iv) Analysis of the impacts of the implementation of the housing – analysis of the environmental, social and economic impacts of the implementation of the housing in the rural area and proposal of mitigation measures.

For the described tasks the techniques used are described in Table 1.

4. Results and discussion

4.1. The housing

This case study was designed for the implementation of a modular housing in a rural area in the centre of Portugal. A Treehouse Spot T1 house, from the company, was selected, with solar panels installed on the roof to increase roof shading and thermal insulation. The house has a total floor area of 32.2 m² and a balcony (deck) of 8.70 m² (Figure 1).
Assuming a common topography in the centre of Portugal (land with 50 – 300 m of altitude and 0 – 20º slope), the topographic survey was imported into the SketchUp® software to make the 3D modelling of the house (Figure 2A). The house was designed to integrate harmoniously into the land, respecting its topography and the layout of the green areas. It was assumed that there was a predominance of low vegetation with some scattered trees, such as pines, poplars and fruit trees. The 3D model was later exported to Twinmotion® software for a more detailed and realistic view of the project (Figure 2B).
The house is made up of a lattice wooden structure, made up of props, crossbeams and diagonals that are interconnected, creating a latticework model. In this way, the transfer of

Table 1. Techniques used in each methodological task**.**

Task	Technique	
	Description	**Programme / Software**
Housing implementation	3D modelling	SketchUp® software Twinmotion® software
	Calculation of the material's thermal transmission coefficients	Microsoft Excel®
Renewable energy systems sizing	Sizing of the photovoltaic solar system and calculation of supplied renewable energy	Helioscope program
	Sizing and of the solar thermal system and calculation of supplied renewable energy	SCE.ER software
Energy efficiency analysis	Calculation of primary energy consumption, renewable energy, CO_2 emissions	SCE.ER software
	Assessment of the energy efficiency and identification of the energy class assigned and NZEB classification	**Despacho n.º 10250/2008, de 8 de abril** Order No. 6476-A/2021, of July 1st Order No. 9017/2021, of September 10th
Environmental impacts analysis	Impacts quantification	Leopold matrix

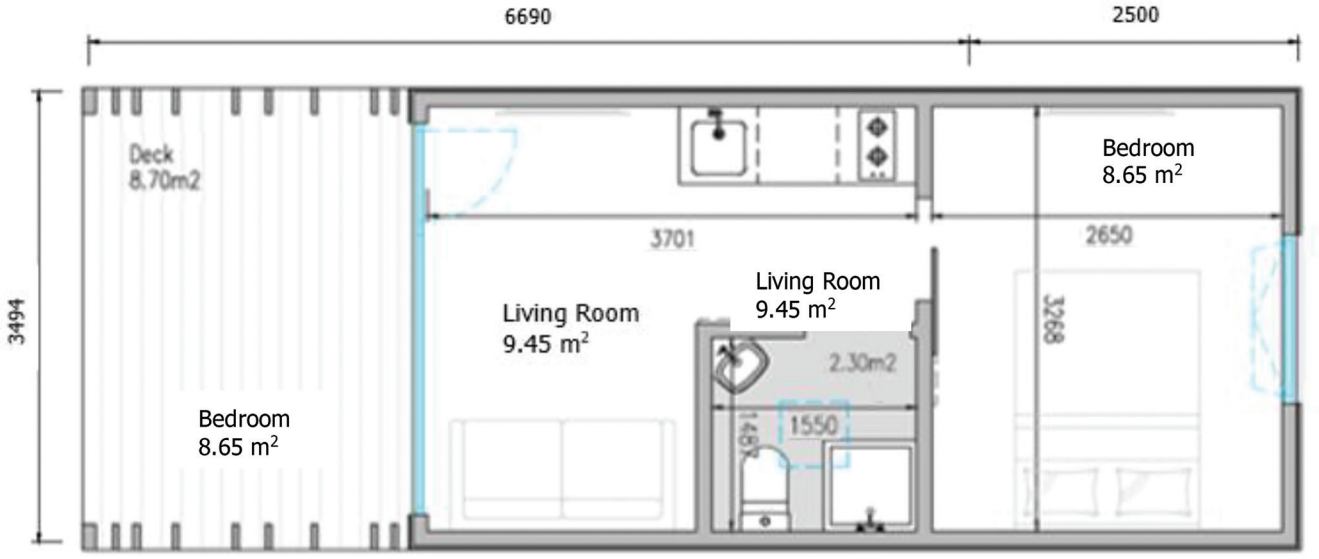


Figure 1. House plan.

loads makes it possible to take benefit of one of the greatest advantages of using wood in structures, which is its great resistance to compression.

For the materials used in the construction of the house, the thicknesses of the structural components and type of materials were defined (Table 2), based on the usual construction practices and the typical standards of the industry of prefabricated wooden houses (modular houses).

The thermal resistance of each material (Table 2) was calculated according to the equation (Eq. 1): $R = l / \lambda$, where R is the thermal resistance ($m^2\ K\ W^{-1}$), l the thickness (mm) and λ the thermal conductivity ($W\ m^{-1}\ K^{-1}$).

As for energy performance, Portuguese legislation (Ordinance No. 138-I/2021, of July 1st) specifies the performance requirements for construction and for the energy certification of buildings, which must be suitable to the type of use of the house and the technical characteristics. For each selected construction element, the thermal transmission coefficient ($U\ [W\ m^{-2}\ K^{-1}]$) was calculated (Eq. 2: $U = 1 / R$) and results are presented in Table 3, showing that all elements meet the energy performance requirements (Table 3).

To meet the needs and well-being of tourists, and according to the electrification of energy consumption foreseen in National Energy and Climate Plan 2030 (PNEC 2030) (Resolution of the Council of Ministers No. 53/2020, of July 10th) and Roadmap to Carbon Neutrality 2050 (RNC 2025) (Resolution of the Council of Ministers No. 107/2019, of July 1st), it was considered that the house will be equipped with the following

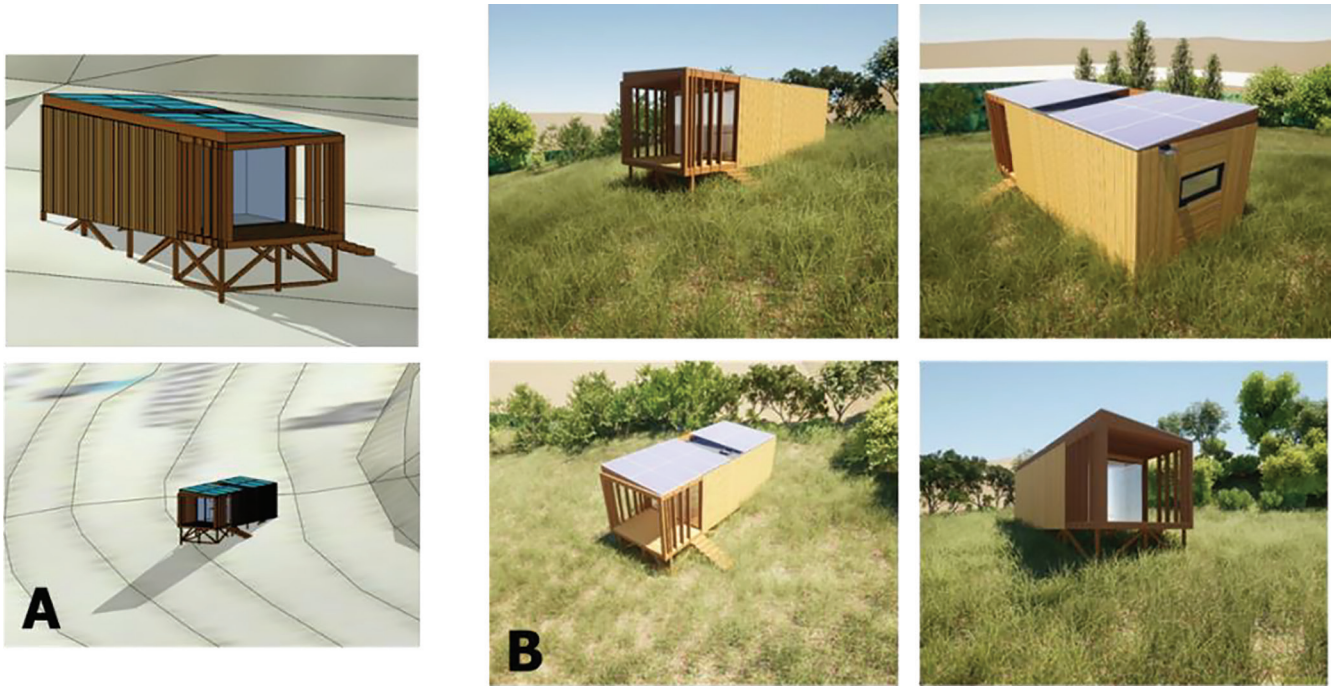


Figure 2. Modular house 3D modelling with software (A) SketchUp® and (B) Twinmotion.

Table 2. Materials used in the construction of the house: thickness, thermal conductivity and thermal resistance.

Surroundings	Constitution (Exterior-Interior)	Thickness (mm)	Thermal conductivity (U [W m^{-1} K^{-1}])	Thermal resistance (R [m^2 K W^{-1}])
Roof	Asphalt screen	8	0.02	0.40
	Wood	25	0.14	0.18
	Air box	20	0.026	0.77
	Mineral wool	50	0.04	1.25
	Plasterboard	12.5	0.21	0.060
Floor	Wood	25	0.14	0.18
	Air box	20	0.026	0.77
	Mineral wool	50	0.04	1.25
	Melamine	8	0.23	0.035
Exterior walls	Wood	25	0.14	0.18
	Air box	20	0.026	0.77
	Mineral wool	50	0.04	1.25
	Plasterboard	12.5	0.21	0.060
Windows	Glass	4	–	–
	Air	18	–	–
	Glass with low emissivity	6	–	–

electrical equipment: electric hob, combined fridge, television, and oven/microwave, lighting and heat pump (Table 4). To allow the assessment of energy requirements and the design of photovoltaic system, it was admitted the energy use defined in Table 4.

For each of these equipment's the energy consumed was estimated, according to the specifications of each equipment (Table 4). Thus, it was possible to estimate the monthly energy consumption of 374.26 kWh (Table 4), or 4 527 kWh $year^{-1}$.

4.2. Renewable energy systems

Leveraging Portugal's favourable conditions for solar energy, the study proposed the implementation of solar photovoltaic and solar thermal systems in the house.

After market research, photovoltaic panels with a power of 410 W, will be installed with a 10º angle south orientation in the house, to which an inverter and a battery are associated, with a total installed power of 5.74 kW for the dimensioning of the photovoltaic solar system, the Helioscope program was used, which is a reference tool in this field. Through this program it was possible to model the proposed photovoltaic system, considering variables such as the location, orientation, inclination, and specific characteristics of the solar panels. Thus, ensuring an adequate and optimized dimensioning of the system, contributing to the energy efficiency of the house. An annual energy production of 8 827 kWh year^{-1} was estimated for the solar photovoltaic system. The energy production will be greater in the months of May to September (Figure 3), matching spring and summer in Portugal, when tourism demand is greater.

The solar thermal system to be installed will be of the forced circulation type, consisting of 1 flat solar collector (Solar Collector Junkers FCC-2S) with a total opening area of 1.94 m^{-2}. The collector will be installed on the roof of the house, with 10º slope with the horizontal plane, and south orientation. Ideally the slope should be of 35º, but due to the impact on the landscape it was decided to define it at 10º, thus losing 6.1% of performance. The collector will be connected to a deposit with a capacity of 200 L. The energy contribution of the solar thermal system will be 1 396 kWh year^{-1}. This value was obtained using the SCE.ER calculation software from the Directorate-General for Energy and Geology (DGEG), where also was conformed the solar production of the photovoltaic system.

The majority (60%) of energy demand for domestic hot water (DHW) will be covered by the solar thermal system to be installed, the remainder being covered by a heat pump system with a coefficient of performance (COP) of 4.4, with a power of approximately 2 kW with a capacity of 200 L. To cover 83% of energy demand for DHW with solar thermal collector, it would be required to add a second solar collector to the system, with an annual energy contribution of 1 976 kWh.

Table 3. Thermal transmission coefficients, calculated and required to in the legislation.

Element	Thermal transmission coefficient (U [W m^{-2} K^{-1}])	
	House calculated	Required SCE [1]
Roof	0.31	0.50
Floor	0.30	0.50
Wall	0.31	0.40
Windows	2.73	2.80

Source: [1]Ordinance No. 138-I/2021, of July 1.

Table 4. Estimated monthly energy consumption (kWh) of the house during its use.

Electrical equipment	Electric power (kW)	Monthly use (hours)	Average monthly consumption (kWh)
Electric hob	1.35	30	40.50
Combined fridge	0.15	240	36.00
Television	0.12	155	18.60
Oven/Microwave	2	14	28
Lighting	0.06	186	11.16
Heat pump	2.0	120	240.0
		Total	*374.26*

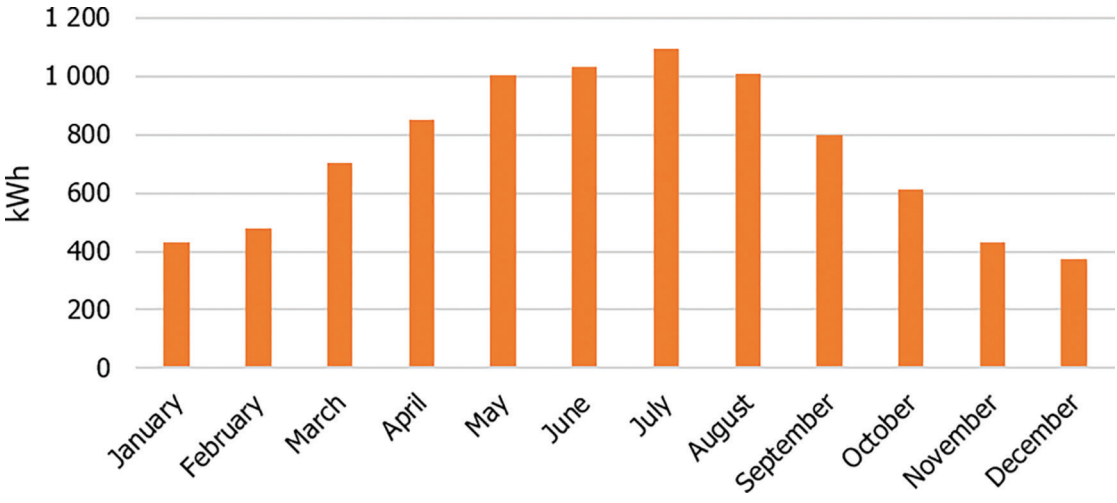


Figure 3. Estimate of the monthly energy production (kWh) of the photovoltaic system during the 1st year of operation.

4.3. Evaluation of the energy efficiency of housing

To carry out the calculation of the energy efficiency of the house, the software provided by Itecons was used, in accordance with Decree-Law No. 101-D/2020, of December 7th. This software, which is regularly updated based on user feedback, allows the automatic verification of minimum and energy requirements for buildings constructed after July 1, 2021. Thus, after calculations, it was concluded that the energy indicators heating, cooling and primary energy comply with the minimum requirements, with values lower than the reference ones (Table 5).

Despite the high energy efficiency of the construction, the energy demand for heating requirements amount to 83.73 kWh m^{-2} $year^{-1}$, cooling demands are 4.16 kWh m^{-2} $year^{-1}$, and domestic hot water preparation accounts for 45.6 kWh m^{-2} $year^{-1}$. The production of renewable energy stands at 121.7 kWh m^{-2} $year^{-1}$, out of which 45.2 kWh m^{-2} $year^{-1}$ is exported. The overall annual primary energy needs for the building (modular house) are merely 8% of the reference building and 16% of the reference NZEB construction (Table 5).

The energy rating (ER) for residential buildings with installed power systems below 25 kW is determined using Equation (Eq. 3): $ER = N_{tc} / N_t$, where N_{tc} represents the estimated annual global primary energy needs and N_t is the reference value of these. In this study, utilizing values from Table 5, an ER value of 0.08 was derived. Based on the Portuguese energy classification (Order No. 6476-A/2021, of July 1st; Order No. 9017/2021, of September 10th), the modular house is categorized as A+, indicating its high energy efficiency.

Therefore, taking into account the results obtained, it is considered that the energy indicators meet the minimum requirements for the house to be classified as NZEB, with an A+ energy efficiency.

Table 5. Energy indicators.

Indicator	Energy efficiency	
	Calculated value (kWh m^{-2} $year^{-1}$)	Reference value[1] (kWh m^{-2} $year^{-1}$)
Annual nominal needs of useful energy for heating	83.7	115.8
Annual nominal needs of useful energy for cooling	4.16	8.40
Useful energy for domestic hot water (DHW) preparation	45.6	50.7
Energy produced from renewable sources	121.7	–
Energy exported from renewable sources	45.2	–
Global annual nominal primary energy needs (Nt)	20.78	245.47

Source: [1]Values obtained from the software provided by Itecons.

4.4. Environmental impact

Analysing the impacts of housing is important to promote sustainability, mitigate climate change, optimize resource use, improve environmental quality and promote resilient communities. Thus, it is possible to make informed decisions and implement practices that mitigate negative impacts, while creating environmentally responsible housing that is beneficial to human well-being.

In this way, an assessment of the impacts of the implementation of housing was carried out. Impacts were identified in the implementation, operation and end of life (dismantling) phases of the housing, using environmental (flora, fauna, water, soil, air), social (employment, health) and economic (local economy) descriptors. These three descriptors constitute the pillars of sustainability.

After evaluating all the activities to be carried out in the three phases of housing, negative impacts on the environment descriptor and positive impacts on the social and economic descriptor were identified. Local flora and fauna will be disturbed and/or damaged due to noise and movement of machinery, as well as alteration of their habitat due to the removal of vegetation. In the housing operation phase, local fauna and flora will be impacted due to human occupation and to the introduction of artificial lighting sources, which can disturb nocturnal species and alter the balance of the local ecosystem. During implementation and end of life phases there is the possibility of soil erosion, and soil and groundwater contamination by chemical products used in the housing wood. There will also be emissions of greenhouse gases (GHG) and other atmospheric pollutants during transport, implementation and dismantling of the modular housing. In the housing operation phase, it is considered that GHG emissions, namely carbon dioxide (CO_2), due to the use of motor vehicles by tourists, will be offset by the use of the renewable energy systems.

The calculation of CO_2 emissions that would be avoided with the installation of renewable energy systems (photovoltaic + thermal) was done as follows (Eq. 4):

$$\text{Avoided } CO_2 \text{ emissions} = (\text{Annual production of the systems}) \times (CO_2 \text{ emission factor})$$

To calculate the reduction in CO_2 emissions due to the use of energy produced by photovoltaic and thermal solar systems, the amount of energy produced by these systems was considered (10 223 kWh $year^{-1}$; subchapter 4.2) and the CO_2 emission factor of the source of primary energy, which would be the local electrical grid. According to the Portuguese Environment Agency (APA), the global average of CO_2 emissions per unit of electricity produced is around 0.162 kg CO_2 kWh^{-1}, and therefore this is the value adopted as a CO_2 emission factor. Thus, after the calculation, the emission of

Table 6. Impact matrix for housing.

Descriptor		Housing phase			
		Implementation	**Operation**	**End of life (dismantling)**	***TOTAL***
Environmental	Flora and fauna	− 20	−10	−20	*−50*
	GEE emissions	−15	0	−15	*−30*
	Soil	−4	−6	−4	*−14*
	Water	−2	−1	−2	*−5*
Social	Health	0	5	0	*5*
	Job	5	25	5	*35*
Economic	Local economy	15	25	15	*55*
	TOTAL	*−21*	*38*	*−21*	

1 656 kg CO_{2eq} into the atmosphere would be avoided. This value is equivalent to the use of 1.38 cars during a year, considering an urban car that travels 500 km per month (AREA, 2023).

The positive impacts on the health of the occupants of the house, who are primarily tourists, extend beyond providing enjoyable vacations. They also play a crucial role in enhancing the well-being and quality of life for both visitors and local residents. By providing an escape from the urban hustle, facilitating cultural exchange, boosting local economies, and fostering community pride, rural tourism creates a harmonious relationship between people and their surroundings, enriching lives and creating lasting memories for all involved. Besides, a project of this nature will generate employment and the development of the local economy, thus positive impacts are expected.

In order to quantify the identified impacts, their magnitude (greatness in spatiotemporal scale of the interaction of actions) and importance (intensity of the effect in the project's area of influence or outside it, corresponding to the environmental factor) were analysed. For this purpose, a table adapted from the Leopold matrix (Leopold et al., 1971) was created (Table 6).

The table matrix was made considering that the impacts magnitude varies from -5 to 5, where the negative values represent negative impacts, and the impacts importance varies from 1 to 5, being 5 the most important. The values in Table 6 result from multiplying the magnitude by the importance.

Overall, the most negative impacts will be during implementation and dismantling (end of life) phases for flora and fauna (Table 6). By contrast, positive impacts are expected during the housing operation, mainly for local economy (Table 6).

To mitigate negative impacts, measures such as:

- phased implementation of housing and in less sensitive periods for flora and fauna;
- adoption of sustainable building practices;
- selection of wood from sustainable sources and treated with products that are the least harmful to the environment;
- planning the dismantling of the house and careful handling of materials;
- optimization of material transport logistics;
- use of low-impact outdoor lighting for nocturnal fauna.

Additionally, it is suggested to reuse or recycle housing components and increase green spaces by planting more trees.

5. Conclusions

The presented case study emphasized the sustainability aspects of a modular house, highlighting both the use of eco-friendly materials and the integration of renewable energy sources for its energy consumption. The study showcased the significant benefits of incorporating solar energy technologies in modular houses located in rural areas, enabling them to become self-sufficient in meeting their energy requirements. This demonstrated the substantial value of embracing renewable energy solutions for sustainable and independent energy supply in rural modular housing. By achieving such energy independence, rural tourism can be greatly enhanced and promoted.

The housing materials have been carefully chosen to meet the energy performance standards, ensuring compliance with Portuguese legislation. The selected renewable energy systems, specifically solar photovoltaic and solar thermal, effectively meet the energy requirements of the modular house, which amounts to an estimated annual consumption of 4 527.12 kWh. With an annual renewable energy production estimated at 10 223 kWh, the solar systems cover 100% of the energy demands for heating, cooling, and domestic hot water. Consequently, the energy indicators surpass the

minimum requirements, classifying the housing equipped with renewable systems as a Nearly Zero Energy Building (NZEB) with an A+ rating. Moreover, the installed renewable energy systems have the capacity to prevent the emission of approximately 1.65 tons of CO_2 into the atmosphere on an annual basis.

When examining the effects of such housing, the primary negative impacts occur during the implementation and dismantling (end of life) phases, particularly concerning the local flora and fauna. However, these environmental consequences can be mitigated by selecting dates that have minimal interference with the biology of local species and by implementing tree planting initiatives. On the other hand, positive impacts are anticipated during the operational phase of the housing, primarily through job creation and the stimulation of the local economy.

The choice to implement a modular house with a reticulated wooden structure reflects a commitment to minimizing CO_2 emissions during the implementation, operation and end of life phases of the house. Moreover, modular houses provide a flexible and sustainable solution that aligns with the needs and construction constraints in rural tourism. Specially in Portugal, where rural regions often have specific regulations and limitations on construction, aiming to preserve the natural landscape and cultural heritage.

One key advantage of modular houses is their adaptability. These prefabricated structures are designed to be easily assembled and disassembled. They can be transported to rural areas and assembled on-site, minimizing the impact on the environment and adhering to local construction restrictions. This flexibility allows tourism businesses to create accommodation options without compromising the unique character and aesthetics of the rural landscape.

Additionally, modular houses offer a time-efficient construction process. Since they are manufactured off-site, the construction period is significantly reduced compared to traditional construction methods. By minimizing construction time, modular houses enable tourism businesses to quickly adapt to changing demand and capitalize on seasonal peaks. Additionally, modular houses promote sustainability and resource efficiency. They can be equipped with eco-friendly materials and technologies, reducing the environmental footprint of rural tourism accommodations. Also, modular construction generates less waste compared to conventional construction, making it a more sustainable choice for rural areas that prioritize environmental conservation.

By harnessing the potential of renewable energy in rural tourism, namely in modular houses, Portugal can achieve a harmonious balance between economic growth, environmental preservation, and the preservation of rural heritage. The integration of sustainable practices not only benefits the environment but also enhances the country's reputation as a responsible tourism destination. Through collective efforts and support from various stakeholders, Portugal can lead the way in promoting renewable energy adoption in rural tourism, creating a model for sustainable tourism development.

Modular houses offer versatility as structures that can be effortlessly modified and expanded, enabling tourism businesses to respond to evolving market demands. In the dynamic landscape of rural tourism, where visitor preferences and demand may change over time, modular houses provide the flexibility to expand and reconfigure to accommodate more guests and create additional amenities. This scalability extends not only to accommodation but also to the generation of renewable energy. As tourism businesses strive to meet sustainability goals and increase energy self-sufficiency, modular houses can easily incorporate additional renewable energy systems. This adaptability makes modular houses a pragmatic and cost-effective solution for tourism businesses in rural areas, empowering them to adapt and thrive in a rapidly changing industry.

Acknowledgements

The authors would like to thank Doctor Jorge Costa, coordinator of the degree in Renewable Energies and Environment at ISEC Lisboa, for the support provided during the execution of this work. André Rodrigues's work forms part of his monograph's in the Renewable Energy and Environment degree. Authors thank ISEC Lisboa for providing the necessary infrastructures to carry out this work. Thanks, are also due to DGEG for making the SCE.ER software available.

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DOI: 10.34620/978-83-67405-28-7-002 • 2024 • 12-22

sciendo

Proceedings of the International Tourism Congress 23

Third wave/specialty coffee movement: a truly cultural experience

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Abstract

This paper aims to understand the Third Wave/Specialty Coffee movement as a cultural experience that has taken shape across the globe. As coffee shops become increasingly popular places for travellers, coffee becomes a tourist product of consumption and coffee shops a tourist attraction. Consequently, coffee shops and the various components that make up their existence, function, and production should be studied and considered as tourism activities.

From a methodological point of view, this study focuses firstly on an analysis of the existing literature regarding the conceptualisation of specialty coffee shops as a cultural/gastronomic tourism product. In a second step, a web search is conducted on the economic dynamics of specialty coffee shops in the specific context of Portugal.

The present study allowed to diagnose an almost inexistence of studies on this topic for the Portuguese scenario, contrasting with the growing implementation of businesses related to specialty coffee shops in Portugal, mainly in the metropolitan areas of Lisbon and Porto, and the importance they are acquiring for a certain segment of visitors.

Keywords

Specialty Coffee Shops • Cultural/Gastronomic Tourism • Third Wave Movement

1. Introduction

Despite becoming popular in the United States, the Third Wave/Specialty Coffee movement has taken shape across the globe, becoming equally prominent in countries such as Germany, France, Japan and beyond (Boston Magazine, 2012; Specialty Coffee Association, n.d.). Similar to how regional gastronomy or wine connoisseurs attract their own set of travellers, within the last 40 years, coffee, and more specifically, specialty coffee, has exponentially shaped its own fan club as tourist add coffee to their bucket list of desired cultural experiences (Brenes et al., 1997; Jolliffe, 2010; Smith et al., 2019b). This interest has manifested in more overt forms of tourism, such as coffee tourism (Boaventura et al., 2018, Jolliffe, 2010; Smith et al., 2019b) to more indirect tourist patterns, such as inter and intra-city coffee shop hunting and using coffee shops as a conduit through which to engage in leisure travel, “slowing down,” and feeling like a “local” (Hannonen, 2020; Jolliffe, 2010; Schreiber & Childers, 2014). Coffee shops have even become integral to daily work life (Woldoff et al., 2013) as is the case with a category of a longer-term tourist, the Digital Nomad (Putra & Agirachman, 2016; Rosenwald, 2009).

As coffee shops become increasingly popular places for travellers, coffee becomes a tourist product of consumption and coffee shops a tourist attraction. These concepts and the connections between them are well explored by Jolliffe’s (2010) interdisciplinary book, namely as far as coffee, coffee culture, and coffee destinations relate to the hospitality and tourism industry are concerned.

The present study attempts to analyse and explain the basics of specialty coffee and its development, specifically considering the Third Wave Coffee movement. It seeks to differentiate between levels of coffee quality and get a sense of the importance and uniqueness of the Third Wave. A critique of speciality coffee shops and their connections to new demand trends within Cultural & Gastronomic tourism is also reviewed.

The recent growth of speciality coffee shops around the world, the undeniable propensity of the Portuguese to coffee consumption and the country’s connection to this product, both through national consumers and through its position as a coffee importer, justifies the interest and analysis of the dynamics surrounding the creation and implementation of

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speciality coffee shops in the country. The scarcity of studies dedicated to this topic, its growing relevance as a tourist product, and the gap in the analysis of its importance in the context of Portugal are at the origin of this study. Although Portugal is not a coffee producing country, the reasons for this study include the fact that Portugal is an important international tourist destination, accumulating some world and European tourism awards[1] (it was considered Europe's Leading Destination, in 2022, for the 5th consecutive year). Its main cities - Lisbon (World's Leading Seaside Metropolitan Destination in 2022) and Porto (World's Leading City Destination) - and their respective metropolitan areas have taken centre stage among international preferences of tourists for combining history and cultural heritage with modern and cosmopolitan environments, where the excellence and diversity of the gastronomic heritage, as well as the food and beverage establishments, events and traditions, are distinctive and unavoidable elements of the tourist experience.

From a methodological point of view, this study was based on the online research of scientific studies that address specialty coffee and tourism and on the online research of websites that outline the reality of the specialty coffee shop business in Portugal. Regarding the structure, the study begins by explaining the Specialty/Third Wave Coffee Movement in the literature review, then framing it in Cultural & Gastronomic Tourism. This is followed by an approach to Specialty Coffee Shops, how they have been assumed as a Tourist Attraction in some destinations and a framework for tourism coffee in the face of New Markets and New Demand Trends. The paper continues with the methodological section, the presentation and discussion of the results and a concluding reflection that highlights the opportunities for research in the field of tourism and the culture (and business) of specialty coffee in Portugal.

2. Literature review

2.1. "Third Wave Coffee" Concept

"Third Wave Coffee" refers to the evolution of coffee consumption to a more careful consideration of the beverage's complexity and a desire to achieve and experience the drink at higher levels of quality. Grown at altitudes up to 2000 meters above sea level and undergoing arduous and unique harvesting processes, Third Wave coffee distinguishes itself from previous forms of coffee consumption via the First and Second Waves, a process of differentiation that "goes beyond a superior quality coffee bean, and includes limited availability ("microlotes"), specialty varieties, coffee origin and growers' historical methods of harvest and preparation, and environmental and social concerns" (Boaventura et al., 2018, p. 255).

Therefore, coffee shops within this market niche are businesses dedicated to serving a Third Wave version of coffee, or "specialty," high quality coffee (Boaventura et al., 2018; Fischer et al., 2021; Hartmann, 2011), that scores higher than 80 points on the Specialty Coffee Associations' 100-point scale (Stanley, 2022). Similar to those who deem artisanal food or wine rich, complex products that exist beyond the plate or glass, the Third Wave Coffee movement aims to highlight the sensory experiences behind this caffeinated beverage, from when the coffee plant is first cultivated to the last step in the value chain—in the cup of the consumer. As many products, coffee was highly commercialized at one point in its history. In the 1960s, it became widely accessible mostly in the form of instant coffee, and in the U.S., major brands such as Folgers or Maxwell, were commonly found on family dining tables (Fischer et al., 2021; Pittman, 2020). This period is considered coffee's "First Wave" (Boaventura et al., 2018; Pittman, 2020).

Coffee's second wave emerged with an increase in coffee quality, a focus on the origins of the coffee product, and making coffee of this quality accessible to the average consumer. Companies such as Starbucks began selling these higher quality products and, as a result, the drink "started to become a luxury product rather than a necessity" (Guevara, 2017).

What differentiates, then, the Third Wave coffee movement from the first two waves is the level of attention to quality and the approximation of the producer to the end consumer (Boaventura et al., 2018; Pittman, 2020). While the first two may have focused on accessibility and scaling, the third wave's appreciation of quality–from how the coffee is cultivated to how it's ultimately brewed–intentionally acknowledges the different actors in the supply chain.

2.2. Specialty Coffee as Part of Cultural & Gastronomic Tourism

Coffee is an international product. While grown in Africa, Central America, South America, and Asia, it is exported all over the world. Similar to the way that France might be known for its pastries or Italy for its pasta, large coffee growing countries like Colombia, Vietnam, and Ethiopia are known for their coffee. Accordingly, the rising popularity of specialty coffee and attention to quality has allowed coffee to start making a name for itself within the realm of Cultural and Gastronomic Tourism. Although scholars still debate on an official definition, Cultural Tourism is generally known as the process of traveling "to learn, discover, experience and consume the tangible and intangible cultural attractions/products in a tourism destination," (UNWTO, 2022, Paragraph 4).

[1] https://www.worldtravelawards.com/winners/2022/world

Through interactions with different cultural factors such as architecture, entertainment, and food, visitors become familiar with the way of life and history of a particular place (Mousavi et al., 2016). Accordingly, Gastronomic Tourism forms part of Cultural Tourism, as a location's food products can not only be representative of that country or city (Gheorghe et al., 2014) but also serve as conduits through which to understand a culture's traditions, people, history, and lifestyle.

Certainly, in more recent years, gastronomy has increasingly become one of the major reasons people travel; according to the 2013 Eurobarometer study, a series of public opinion surveys regularly conducted by the European Commission, culture, including arts and gastronomy, made up 25% of tourists' travel motivations (Gheorghe et al., 2014). Growth in gastronomic tourism can also be attributed to the fact that over a third of a tourist's budget is spent on food consumption (Global Report on Food Tourism, 2012). Consequently, there are many opportunities for a tourist to interact with a country's culture and for the country to reveal its identity through food. As Gheorghe et al. (2014, p.12) states "Tourists are looking after the origin of the gastronomic food, legends and stories about the food, history, making it an expression of cultural tourism". Therefore, as tourists continuously seek out new, unique and creative experiences, gastronomy is one of the ways that travellers set out to meet this objective. Gastronomy has come to be understood as an inseparable and integral part of getting to know a place's culture. Exploring a location's gastronomy mirrors various components that make up tourism, such as respect for culture and tradition and authenticity (Gheorghe et al., 2014). This has caused the sector to grow and breed distinct branches within food tourism, focusing on different high quality local products (Gheorghe et al., 2014).

Gastronomic Tourism can be divided into subsections like dishes or beverages, and within those categories, by cheese and meats or beer and wine (Gheorghe et al., 2014). Coffee, and more specifically, specialty coffee, also falls within a subcategory of gastronomic tourism (Novelli, 2005). According to Boaventura et al. (2018, p. 255), "In the third wave, coffee is considered an artisanal product as complex as wine". As such, coffee tourism's elements and objectives resemble those of enotourism, or wine tourism, where tourists interact intricately with the gastronomic product, and throughout the process, get to know a country's history, identity and culture. According to Jolliffe (2010), coffee tourism encompasses that which is related to the consumption of coffee, its history, and related traditions, products, and culture. A touristic coffee experience often includes a visit to farms where coffee crops are cultivated or to the headquarters of coffee cooperatives – an organized group of coffee producers – that highlight the coffee's regional history. These experiences may also include the opportunity to meet with farmers to discuss harvesting and production, as well as learn about the region's market value (Jolliffe 2010). Jolliffe (2010, p. 16) summarizes the coffee-tourism relationship as follows:

> "Coffee as part of food and beverage tourism is a cultural experience. Different coffee traditions lend themselves to culinary tourism, and locations with unique forms of coffee production and heritage may use this in destination branding. Coffee is experienced through travel and besides collecting coffee experiences, travellers may collect objects related to coffee as souvenirs or may purchase coffee beans as a souvenir".

These components of a coffee experience mirror those of a wine tour, where tourists visit a wine producing region, understand how grapes are harvested and turned into wine, learn about the grapes' regional uniqueness and the winery's special production practices, participate in a wine tasting, and purchase a wine bottle from the vineyard's gift shop. In fact, in the world of specialty coffee there is coffee "cupping", which involves smelling a coffee's aroma, tasting and analysing its flavour and body through slurping (Smith et al., 2019b), closely resembling the wine tasting process.

Where the wine vineyard is to enotourism what a coffee plantation is to coffee tourism, coffee tourism can be further divided into three more categories: "human-made tourists attractions built deliberately to attract coffee tourists…such as coffee museums that were founded to educate tourists on coffee in specific regions…[like] the Burg Coffee Museum in Hamburg, Germany and the Chiccod'oro Coffee Museum in Balerna, Switzerland"; coffee-related festivals and special events; and lastly, attractions like cafés that offer and prepare coffee as well as present its history and traditions (Smith et al., 2019b, p. 722).

In its nicheness, coffee tourism can also fall under alternative or special interest tourism, which steers away from mass or mainstream tourism by catering to the specific and individualized needs of travellers (Douglas et al., 2001). Smith et al. (2019a, p. 223) support the concept of special interest tourism by stating that "Special interest tourists, filled not only with curiosity but also eager for knowledge and hands-on experience, aim for opportunities to express aesthetic appreciation, to build up a collection of mementos, to express individuality, to gain social acceptance, as well as to be among the pioneers who can share their unique travel experiences with others". Smith et al. (2019a), who also conducted research on coffee tourism interest and satisfaction in the north Thailand argue that special interest tourists can achieve this aim through coffee tourism.

Regarding Europe, specialty coffee is undoubtedly a growing market, currently having around 46.2% share of the specialty

coffee market–the largest one globally–and an expected 9% market growth increase by 2026 (Stanley, 2022).

2.3. Specialty Coffee Shops as a Tourist Attraction

In the aforementioned study by Smith et al. (2019a), travellers' interest in coffee tourism was motivated by visiting the country of origin, the plantation where the coffee is grown, and finally, participating in a coffee tasting at the end of the tour. As argued previously, places where coffee is produced, brewed, and/or served are an essential component of coffee tourism. Therefore, coffee shops, the main place where customers can purchase and consume coffee, can be considered tourist attractions.

Coffee shops can be further identified as tourist attractions by the number of tourists that visit cafés on their travels. From mainstream and chain cafés like Starbucks, which tend to be in touristic areas like city centres and airports, to more "off-the -beaten path" cafés like specialty coffee shops, coffee shops undoubtedly make up part of the tourist experience. As Jolliffe (2010, 69) argues, cafés "may be a vital component of a distinctive urban ambiance…They have a growing presence in a number of cities around the world and may be seen as amenities that support the development of culture and the arts as a means to attract tourists". In countries like Portugal, for example, there is a long history of coffee culture as Portugal played a key role in bringing coffee to Europe (Christie, 2016). With the Portuguese consuming roughly 9.5 lbs/4.3kg per person per year (Bernard, 2020), coffee forms an integral part of Portuguese identity and culture.

Aside from visiting coffee shops to consume the beverage, some unique and historical coffee shops are considered cultural "must-dos" when visiting a tourist destination. The overall popularity of coffee shops has also been prevalent in more recent years among people who work remotely. This is especially true considering the Covid-19 pandemic where many companies transitioned to working virtually. To follow isolation measures without jeopardizing work, many jobs turned remote and later stayed that way, opening up the possibility for flexible job locations for employees (Woldoff et al., 2021). No longer needing to work from a fixed office, some of these remote workers have flocked to other laptop friendly workspaces such as coffee shops. Moreover, for those companies that not only started working from home but granted employees the flexibility to work from anywhere, traveling while working remotely also became popular, giving rise to a different type of tourist, the Digital Nomad (Rosenwald, 2009; Putra & Agirachman, 2016; Hannonen, 2020). Consequently, coffee shops have become equivalent to comfortable workspaces for these remote employees (Lee et al., 2019, 11; Jha et al., 2020; Woldoff, 2013) as, while they travel, they may not have a stable or official "home" office to work from.

According to Guimarães (2021, p.562), companies that sell goods and services to customers are moving towards "a consumption environment based on leisure, involving the adaptation of the public space into terraces, and on the thematization of stores, using elements seen as 'authentically' from the country, which bestows on theses spaces a sort of certification of quality and authenticity". If this shift allows retail experiences, such as visiting shopping centres and restaurants, to acquaint tourists with the host culture (Smith & Olsen, 2001), then coffee shops, too, can be tourist sites where travellers interact and engage with the country's gastronomy, history, and traditions. Through its food offering, cultural thematization, location within the tourist destination, and other variables, cafés can facilitate this connection through the level of cultural authenticity it offers.

The relationship between coffee shops, culture, and tourism, can be summarized by Frost et al. (2010, pp. 164-165) as this:

> "For a tourist, their accommodation may be analogous to 'home' and visiting attractions their 'work.' In both spaces, they may be trapped in a 'tourist bubble' with very limited human interactions, mainly with service workers and other tourists. However, cafés offer the third-place experience. Here they can relax and interact with other people and feel a sense of connection with the destination they are visiting. Instead of being outsiders, they can imagine themselves as insiders".

Evidently, there is much importance in exploring the relevant ambit that cafés occupy within the world of tourism. Whether it be for the purpose of experiencing a country's gastronomy, art, culture, or imaginatively forming part of the cityscape, travellers engage in a synergetic relationship with culture and cafés–sometimes even encountering them in the same space (Jolliffe, 2010). The following section explores the new markets and demand trends within tourism that help cultivate this symbiosis.

2.4. New Markets, New Demand Trends

This next section underlines the potential interest in and success of specialty coffee shops as a business venture within the tourism sector by exploring the following trends and market demands that specialty coffee shops lend themselves to: Niche Tourism and Gastronomic Tourism.

2.4.1. Niche Tourism - Seeking Novel Experiences

As our world becomes more globalized and travel becomes more accessible, travellers are no longer looking for a standard tourist itinerary. Increasingly, visitors not only want to discover new places or see new sights, but also experience, participate, and take direct part in day-to-day life at a tourist destination, seeking unique and authentic travel experiences

"worthy of being shared," (Novelli, 2005; Jolliffe, 2010, 81). The consumer demand for experiences in general reflects the transition into our current experience economy, where we have shifted from purchasing goods, to services, to experiences (Pine II & Gilmore, 1998). As Pine II & Gilmore (1998, Paragraph 2) write, "From now on, leading-edge companies—whether they sell to consumers or businesses—will find that the next competitive battleground lies in staging experiences." Following this logic, tourists, or clients consuming travel, desire more than travel goods and services, but immersive travel experiences.

As argued in the previous section, cafés are tourist sites where visitors can become acquainted with the host culture, its gastronomy, history, and traditions (Frost et al., 2010; Jolliffe, 2010; Smith et al., 2019b). In search of unique travel experiences, it is no wonder why tourists have sought out to find these distinct travel activities, goods, and products within the realm of niche tourism. Niche tourism refers to specific tourism products or services that are tailored to the needs of a particular audience or market segment (Ali-Knight, 2011). According to Robinson & Novelli (2005), niche tourism includes cultural and specialized segmentation that exhibit authentic experiences.

Cafés are such spaces where travellers can have these distinct, immersive experiences that they are searching for. Especially for the tourist who is most accustomed to commercial coffee, being introduced to specialty coffee via a third wave coffee shop can be thoroughly transformative as the focus and attention to coffee quality can change the way a consumer drinks, and thus, experiences the beverage. As Boaventura (2018, p. 256) mentions, "Products are no longer appreciated only because of their intrinsic properties but also because of the experiences they promote… Uniqueness and sensorial and emotional experiences that involve customers as active value co-creators are necessary" (p. 264). In comparison to their chain-store counterparts (ex. Starbucks), specialty coffee shops, often individually owned, offer their own niche environment where "there is no conformity of consistency of style, which is part of the charm" (Jolliffe, 2010, p. 163). Therefore, through factors like its unique theme or quality coffee offer, specialty coffee shops have the essential characteristics to provide emotional and sensorial experiences to tourists that leave a lasting impression.

2.4.2 Gastronomic Tourism – Seeking Identity

Gastronomic tourism is a type of tourism where visitors plan their travels either entirely or partially around tasting local products and cuisine or participate in activities related to the destination's gastronomy (Gheorghe et al., 2014). It is an increasingly popular market trend, and understandably so, considering that over one third of a traveller's spending is allocated to food (UNWTO, 2012). According to a Eurostat in 2014, 22% of Europeans chose "cultural experience" as their main purpose for travel, which includes gastronomy (Gheorghe et al., 2014). Likewise, American tourists placed gastronomy as their top priority when visiting other countries (Gheorghe et al., 2014).

However, beyond the act of consuming gastronomical products, in our current experience economy, tourists look for ways they can be transformed. According to Jolliffe (2010), "…food acts as a transportable system of place and identity," (p. 25). Therefore, the act of eating or drinking itself can also be a conduit for exploring a destination's cultural identity as traditional eating habits and customs can be recreated through gastronomic experiences. As a result, gastronomic tourism can further facilitate a tourist's connection to the identity of a place, especially if the gastronomic experience includes local products and resources. With coffee being part of gastronomy and a central part of many countries' cuisine, this logic also applies to coffee shops (Jolliffe, 2010, p. 23):

> "Since coffee experiences are a familiar part of everyday life, as with culinary experiences described by Long (1994, as cited in Jolliffe, 2010), these encounters are not usually perceived as being exotic or out of the ordinary. However, when we travel, out of habit seeking out a local café may be an introduction to the local culture and its coffee traditions. We thus come into contact with a beverage that is familiar, yet through its different cultural and hospitality context provides a distinctive experience. In these encounters, we are participants in culinary tourism, as the intersection between food and travel".

With its focus on high quality and production processes, the Third Wave Coffee movement also highlights the unique characteristics of different coffee regions that contribute to its coffee's individual flavor profile. This runs parallel to enotourism, where influences on wine are explored by their diverse attributes such as region and grape caste (Bibicioiu & Cretu, 2013). In this fashion, specialty coffee shops can facilitate the tourist's process of feeling closer to the "origin" of a coffee producing region, and thus, a version of its true or authentic identity.

As the modern-day tourist becomes more industrialized–many of whom live in cities–a tourist's diet is also affected. Eating habits in cities tend to include fewer structured meals, random snacking, an under-developed culinary history, and a larger distance between farmer and consumer, lacking tradition and identity (Bessière, 1998). Therefore, products that represent regional or "traditional" food and thus, proximity to a products' origin can feed a tourists' desire for gastronomic authenticity

and food that is less industrial and more natural than they are used to.

3. Methodology

From a methodological point of view, this is an exploratory, qualitative study (Mason et al, 2009), based exclusively on the collection and analysis of secondary data available online. The adoption of this methodology allowed, on the one hand, to gather the main scientific studies that address the themes of specialty coffee tourism and thus develop an in-depth literature review that reflects the current context; and, on the other hand, to understand the current situation of the specialty coffee shop business in Portugal, as well as other entities that are associated with this sector. Regarding the literature review, it was based on a collection of the main scientific studies that combine the two central themes of this study: tourism and specialty coffee.

Bibliometric databases are electronic repositories that contain information on scientific articles, conferences, books, patents and other scholarly publications (Sugimoto & Larivière, 2018). Analysis of these platforms as a tool for identifying authors, documents and journals allows assessing the state of the art, the evolution of trends, among others.

In this study, a bibliometrics analysis was therefore conducted in order to compile data in leading indexed journals and three different databases were explored, namely: Scopus (Scopus, 2023), Web of Science (WOS) (Web of Science, 23) and Google Scholar (Google Scholar, 2023). Categories such as Articles in journals; Book chapters and Conference papers were considered and the search was conducted in English and Portuguese, used the key words “specialty coffee” and “specialty coffee Portugal”. A first round of results was obtained and then refined, when possible, to Social Sciences and Tourism.

In relation to the Portuguese context, regarding the business of specialty coffee shops, the results show that there is no platform - or other type of organized tool - that specifically monitors this type of product - specialty coffee - and the associated businesses. In this sense, a Google search was operated using the expressions in Portuguese “café de especialidade em Portugal” (speciality coffee in Portugal) and “cafés de especialidade em Portugal” (speciality cafés - or speciality coffee shops – in Portugal). The screening of information considered the fact that many websites were related with coffee grinding and/or roasting plants, coffee bean distributors, suppliers of machinery and other coffee preparation equipment (beverage) and others directly associated with the raw material “coffee bean” or the product “coffee” and not with commercial establishments serving specialty coffee. The main websites used for this study (the ones that refer to the expression “specialty coffee shops”) are:

https://cafedeespecialidade.pt/ - Website entitled “Speciality coffee. Roteiro português” which identifies some of the speciality coffee shops in Portugal. It is not a website of a regulatory body of the sector, and as such only presents information about the shops that have self-registered on this site or others that have been identified and registered by the website managers.

https://europeancoffeetrip.com/ - “Media company dedicated to creating a highly engaging content about and for the European speciality coffee community”; The website contains an online magazine with opinion articles on speciality coffee, roasters, baristas´ life paths, European city guides of the best speciality coffee shops (including some Portuguese itineraries), videos on the subject, among other information for coffee lovers.

https://www.coffeeinsurrection.com - Private website developed by two coffee lovers that share the places, experiences, coffee shops, businesses, people related with Specialty Coffee.

All of them identify lists of “specialty coffee shops” in Portugal. In addition, we also included some websites (Table 1) that show the importance of coffee - including speciality coffee - in Portugal, considering the need for technical qualification to

Table 1. Websites related with the Coffee industry, in Portugal.

Website	Description
https://www.academiadocafe.pt	Coffee School
https://abcoffee.co	Coffee School
http://aicc.pt/	AICC - Coffee Industrial and Commercial Association is the association of coffee roasters in Portugal
https://apac-cafe-dos-acores.negocio.site/	Azorean Coffee Producers Association - The Azores archipelago is the only Portuguese territory with coffee production.
https://associacaobaristas.pt/	Baristas’ Association
https://www.centrocienciacafe.com	Coffee Science Centre - It is an interactive space that explores and shares the knowledge of coffee culture.
http://lisboncoffeefest.pt/	1st Coffee Festival in Portugal (Lisbon)
https://portocoffeeweek.pt/	An event that celebrates the coffee (Porto)

Source: Authors.

serve it, the existing associations and infrastructures that promote coffee culture, fostering a cultural tourist experience associated with coffee.

4. Results and discussion

Regarding the websites identified on Table 1 even though aren't specifically related with speciality coffee and speciality coffee shops revealed a dynamic that can strengthen the speciality coffee culture and respective businesses and initiatives from different perspectives, namely:

- The two coffee schools (https://www.academiadocafe.pt & https://abcoffee.co), both with SCA (Speciality Coffee Association) Certified Trainers and offering coffee courses, workshops and consulting services can contribute to the qualification of professionals in the field of speciality coffee and to the support, coach and advice of managers and future entrepreneurs in this business;
- The existence of associations linked to coffee producers (https://apac-cafe-dos-acores.negocio.site), baristas (https://associacaobaristas.pt) and suppliers, roasters and distributors (http://aicc.pt) also contributes to the valorisation of the different sub-sectors related to coffee (including, in some cases, speciality coffee), to their better and more efficient functioning. Regarding the Azores Coffee Producers Association (APAC), with the collaboration of the Regional Government of the Azores and the Delta Coffee Group it aims to streamline the process to allow the Azores region to be certified as the only coffee producing region in Europe (Imagens de marca, 2023);
- The two coffee events (coffee week in Porto and the coffee festival in Lisbon – whose 1st edition is supposed to happen in 2023) that celebrate coffee culture, including lectures, workshops, cuppings, dinners, championships, among other experiences;
- Finally, the Coffee Science Centre (https://www.centrocienciacafe.com) which includes the Coffee Museum, the Baristas Academy and Demonstration and Tasting of Beverages with Coffee, may be seen as a very important agent in educating and raising visitor awareness about the different dimensions of coffee, including specialty coffee, contributing to a broader notion of the coffee culture and industry, including its benefits but also its negative impacts. At national level it functions not only as a museum, but also as a structure that promotes (individually or in partnership with Universities and Research Institutions) research and scientific study of coffee, and as an interactive theme park that constitutes a real tourist attraction, unique in the country.

Regarding the obtained results in the search for specialty coffee shops in Portugal, the figures are naturally not consistent between the three websites (Table 2) because each one uses different approaches to identify specialty coffee shops. However, there is a greater proximity in the values presented on websites 1 and 2. Although the three sources of information in this table show some discrepancy in the figures by city/region, in all three cases there is a predominance of speciality coffee shops in the country's two main cities, Lisbon and Porto, with Lisbon standing out the most. It should be noted that these are listings that can be updated at any time (in the case of website 1 it can even be updated by external users) but that, even so, there are shops that are already closed.

On the other hand, the updating and accuracy of the data is conditioned by the fact that none of these websites is associated with a regulator or licensor of this type of shops or this sector. Regarding the results, and regardless of their completeness, it can be seen that specialty coffee shops are mainly concentrated in the two main (and largest) cities of the country - Lisbon and Porto - with emphasis on the former which is the capital. It should be noted that the Algarve (one of the most touristic regions of the country) also offers some of this type of shops and that the item "Others" is composed mainly of medium-sized cities also with some socio-economic dynamics and tourist attractiveness such as Funchal, Braga, Aveiro, Mafra, among others.

From the perspective of (specialty) coffee tourism, the existence of the Coffee Science Center can be a decisive element for the development of a more complete and diversified tourist experience if complemented with a visit to some of the specialty coffee shops. The two events

Table 2. Specialty Coffee Shops, in Portugal, by city/region.

Speciality Coffee Shops	https://cafedeespecialidade.pt/ (1)	https://europeancoffeetrip.com/ (2)	https://www.coffeeinsurrection.com (3)
Total (national)	74	72	45
By City/Regions			
Lisboa	49	38	23
Porto	15	15	14
Algarve	3	9	6
Others	7	10	2

Source: Authors.

Table 3. Database outputs.

	Databases	Articles in journals	Books	Conference papers	Total	Interval between publication dates
Specialty coffee	Scopus	482	42	69	593	1982-2023
	Web of science	365	1	34	400	1994-2023
	Google scholar	395	_____	_____	395 | 832[a]	1999-2023
Specialty coffee (limited to Social Sciences and Tourism)	Scopus	105	1	15	121	1996-2023
	Web of science	16	1	5	22	2001-2023
	Google scholar	Not applicable				
Specialty coffee Portugal	Scopus	1[b]	_____	_____	1	2020
	Web of science	1[b]	_____	_____	1	2020
	Google scholar	_____	_____	_____	_____	_____

[a]Results for research conducted in Portuguese.
[b]The same study was found on both platforms.
Source: Authors.

mentioned (in the cities of Porto and Lisbon) may occasionally (in the period in which they take place) stimulate a visit either by the curious, by coffee connoisseurs or by specialists). In the same way, but in a long-term scenario, an eventual certification of the Azores Region as a coffee producer could also allow the creation of coffee tourism experiences (such as those that occur, for example, with wine) through visits to coffee plantations, participation in the coffee picking and in the roasting process.

Following the previously defined methodological sequence, a bibliometric analysis was carried out which, on the one hand, allowed the analysis of the literature review in relation to the topics under study and, in a second moment, allowed to visualise the results schematised in a table of the data obtained in the different searches carried out on the 3 data platforms.

As shown in Table 3, the bibliometrics analysis considered 3 platforms which showed the possibility of carrying out the research in English. The same was not true in the case of the research conducted in Portuguese. Only the Google Scholar database presented results for studies produced in Portuguese. In relation to scientific areas, and categories of publications only Scopus and Web of Science allow to apply this research criterion. When we track the results for the categories of social sciences and tourism, their number decreases considerably, since many of the studies integrate the field of study of agricultural sciences, chemistry, health and nutrition, among others. As far as the categories are concerned, articles are the one with the highest number of publications, both in Scopus and in WOS, followed by conference papers. Moreover, both platforms register only one publication in the book category.

The time between the first and most recent publication on the 3 platforms as a whole is 41 years in a global analysis in terms of scientific areas and 27 years in terms of the Social Sciences and Tourism in particular. The fact that there have only been 27 years of publications on the subject under study here and the still scarce number of publications demonstrate the state of the art and the need to delve deeper into this subject and its innovative factor.

The results obtained also demonstrate the gap in the production of studies on the theme of specialty coffees in the specific context of Portugal. The only one found (Samoggia, A., Prete, M. & Argenti, C., 2020) is a study that analyses the behaviour of Italian and Portuguese consumers by identifying, through the application of face-to-face interviews, coffee consumption habits and the emotions they derive from them, the reasons for coffee consumption and non-consumption and the respective relevance of the perception of the impact on health. These 2 countries were selected by the authors as both have “a wide coffee consumption culture” (2020, p. 2).

The study addresses coffee consumption in general and does not address speciality coffee. In terms of results from Portuguese consumers (all from Lisbon - the capital), representing 48.9% of the sample (205 respondents, out of a total of 419), 49.2% are coffee drinkers and 51.4% usually consume it outside the home (bar/café/coffee house). According to the study, Portuguese consumers are the ones that have a more positive opinion regarding coffee health benefits (52,9% mentioned coffee is good for health against 31,6% mentioned by the Italian consumers) and the obtained results also point out that in “Portugal, consumers associate coffee with socialization and mood improvement” (Samoggia et al., 2020, p. 14).

5. Conclusions and further research

From the literature review carried out, we can admit that we are facing a new trend and not just a fashion. in the Portuguese panorama, the number of scientific studies on the subject is almost inexistent, not reflecting the importance that this trend has been gaining in the reality and dynamics of the Portuguese context.

Mostly concentrated in cosmopolitan areas, namely in central cities such as Lisbon and Porto, speciality cafés have been implemented in an urban context.

It seems that in Portugal, tourism experiences related to specialty coffee meet conditions to fit into forms of alternative tourism or special interest tourism, as mentioned by some authors (Douglas et al., 2001; Smith et al., 2019a), supported by a very restricted group of tourists who make their choices of destinations in the search for individualized experiences, marked by the quality of the coffee and by a stylized uniqueness, such as that which can be found in specialty coffee shops.

The urban ambience (Jolliffe, 2010) created, the digital resources available and the cultural experience that can be obtained in these "cafés" may justify for some tourists a trip and a visit. However, the existing reality of specialty coffee in Portugal is better placed to become a complement to the main reasons that led to the choice of our country for tourism (leisure, culture, sun & sea, cruises, among others). Portugal is not a coffee producer (the only region - the Azores Archipelago - where coffee is produced is still not very well known) and this makes it impossible to have a set of experiences associated with a coffee tourism destination, where coffee is (or can be) the main reason for choosing and travelling for some of the tourists.

As already mentioned, and for a very small group, specialty coffee and the associated experiences, namely taking part in a tourist route of specialty coffee shops through Portugal (integrated, or not, in a European route), may be the main reason for visiting our country. In this case, it would be a niche tourism, due to the specificity of the motivation and the limited offer of experiences.

Considering the concept of "Slow Tourism" and being this one grounded in the actual slowing down of tourism's pace, allowing for deeper, more immersive, and meaningful engagement between the tourist and the tourist destination (Fullagar et al., 2012), the third wave coffee, with its emphasis on high quality beans, diverse coffee origins, and distinct production methods, can be considered a slow food product (Fischer et al., 2021, 14), especially in comparison to the quick, immediate, and even instant nature of mass-made, commercial coffee that was made available in the first and second waves. Exploring this connection between specialty coffee third wave movement and the recent trend towards slow tourism can also be a recommendation for relevant future studies to be carried out in this context.

The issue of specialty coffee (and coffee in general), whether or not linked to its promotion from the point of view of tourism, should also be analysed from the perspective of sustainable development. As already mentioned, most of the main coffee producing countries are developing countries (in the top 10 are Vietnam, Ethiopia, Colombia, Indonesia, Honduras, Uganda (Bermudez et al., 2022) with globally recognised socio-economic problems and weaknesses. Considering that coffee consumption (including specialty coffee) in the most developed countries necessarily implies a substantial ecological footprint associated with its export, it would be important to understand how this product is produced, in which contexts producers and local communities live and work, whether there are concerns about making coffee production more efficient and organic, among other aspects. Considering that coffee consumption in developed countries is not expected to decrease, and that sustainability challenges also arise at the level of tourism and the businesses that interact with it, directly and indirectly, it would be important to understand how specialty coffee businesses can contribute to a more socially and environmentally responsible sector, namely with the communities linked to production. These are approaches that should be investigated in the future.

The results of the bibliometric analysis carried out are therefore not commensurate with the importance the topic has taken on. Added to the still insignificant number of publications on this topic, in this particular study, is what we can call a kind of vacuum that exists in the Portuguese national panorama in relation to the growing importance of speciality cafés and their relevance as a tourist by-product. On the other hand, a search of websites on speciality coffee shops in Portugal revealed that there is no official database associated with a licensing or regulatory body for this specific activity and business. This situation weakens the development of market studies that contribute to a consistent idea of the sector's performance (particularly by city/region) and that allow future entrepreneurs (interested in this type of business) to make decisions. From a scientific point of view, this situation also penalises future studies that need official and accurate data on the existing supply of speciality coffee shops, both nationally and regionally.

So, particularizing the Portuguese case, this study allowed us to understand the need and the importance of developing additional studies that allow us to have a complete notion of specialty coffee establishments in Portugal, namely: the type and size of the company, the main suppliers and origins of the coffee, the type of customer and where they come from, the percentage of domestic customers and tourists, prospects for the future of the business, among other aspects.

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DOI: 10.34620/978-83-67405-28-7-003 • 2024 • 23-28

sciendo

Proceedings of the International Tourism Congress 23

Literary tourism: authenticity and memory

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Abstract

The concern with the authenticity of the tourist experience and the role of literary tourism as a proposal for the interpretation and enjoyment of the cultural heritage of a destination are subjects increasingly debated in tourism literature. The goal of this article is to contribute to this debate through a literature review focused on the role that literary tourism may play in the development of more original and differentiating tourism proposals which contribute to the dissemination and affirmation of the authenticity of the local heritage, preserving the memory of the past and, consequently, the local identity. The aim was to develop a starting point for an exploratory research on the role that literary tourism plays in the enjoyment of authentic experiences between local communities, their history and tourists/visitors.

Keywords

Authenticity • Cultural heritage • Memory • Literary tourism • Identity

1. Introduction

The fast pace of modern times, anchored in increasingly massified and generalised behaviour, leads us to a growing awareness of the definitive loss of our past. Aware of this loss, tourists today are driven by a set of feelings of searching for traditions and that will allow them to go through remarkable and unique experiences, resulting from a relationship with the past. Thus, curiosity about places where memory remains crystallised has increased because the reunion with these places allows, in a way, to rebuild a time continuity of our existence.

This article aims to reflect on the role that literary tourism can play in the exaltation of the collective memory of a people, namely through the literary references of its authors, which will be decisive for the preservation of local culture and the development of different ways of promotion and enjoyment of the territory.

Reconnecting with the past, the opportunity to reconstruct memories and preserve a legacy for future generations is increasingly a current concern that the tourist industry must address. The tourist offer must respond to a demand for unique, authentic and memorable experiences.

Analysing the importance of local authenticity in tourism proposals based on literature could make a decisive contribution to offering unique and genuine tourism products that guarantee the preservation of local identity.

Therefore, we believe that this work presents a structured literature review that allowed us to contextualise and relate the concepts, in order to create a useful working tool for a reflection on the contribution of literary tourism to an offer of authentic tourist experiences. These ones foster the preservation of the memory of local communities and establish a good relationship between locals and visitors/tourists.

2. Methodology

Literary tourism proposals have been established as one of the pillars of the cultural structure of the experiences offered to visitors. These are increasingly eager to enjoy an authentic cultural experience based on local identity. The aim of this research is to analyse the role that literary tourism can play in offering authentic experiences to its audience. Therefore, this study is based on a qualitative and descriptive literature review, carried out from the survey of theoretical references about the authentic experiences provided in the context of literary tourism.

As this is a literature review article, the research methodology consists of a review of theoretical, historical, and case study literature, duly referenced.

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3. Literature review

3.1. Authenticity and memory

The phenomenon of globalisation, which we associate with democratisation, massification and mediatisation, has led to an irreversible change in the habits and customs of local communities, calling into question the transmission of values between the past and the future. This depreciation of local culture as a repository of collective memory leads to the loss of the identity of each place. In fact, memory as a process of storing information, materialises in the recollection of the past, rooted in current daily life. In other words, places of memory are, above all, evidence of the past, testimonies of a community identity that leads us to the concept of authenticity of places.

Authenticity is a concept that has existed for centuries (Erickson, 1995), however, its study only began to be done systematically in the Social Sciences from the second half of the 20th century (Starn, 2002). In the 1970s, this concept gained importance, especially in museums, which began to attach special significance to the preservation of their collections (Chhabra, 2008), in order to maintain the original authenticity. Subsequently, the concept came into wider use, raising more and more questions about its interpretation.

According to Odete Paiva, based on the International Cultural Tourism Charter, "authenticity describes the relative integrity of a place, an object or an activity, in relation to its original creation. In the context of living culture practices, authenticity responds to the evolution of traditional practice. In the context of a historical place or object, it can encompass the accuracy or breadth of its reconstruction to a known prior state" (Paiva, 2017, p. 96).

In this sense, we can affirm that authenticity and memory are closely linked because both are associated with the veracity of things. Authenticity refers to the fact that something is original, genuine, true, and memory is the ability to remember and retain information about the past. Therefore, it is important to note that authenticity is crucial to ensure that memories are not distorted or modified over time in order to have an accurate understanding of the past and, conversely, it is necessary to rely on memory to determine the authenticity of something. Memory is key to maintaining the authenticity of memories and authenticity is important to determine the veracity of something we wish to remember.

3.2. Authenticity in Tourism

Tourism is understood as a convergence of people, places and objects. People travel to and interact with places through an activity mediated by either an industry or a resident community. Due to this convergence, research on the links between authenticity and tourism reflects different aspects and interests.

Authenticity is a recurring concept in tourism literature at least since the early 1960s, when sociologists and anthropologists began to study the social, economic and cultural impacts of tourism, namely by trying to assess the authenticity of destinations, environments and tourist attractions from the "concept of commodification or commoditisation - the transformation of goods, services, objects and cultural manifestations hitherto considered outside the system of value and economic exchange into products bought and sold in the market" (Köler, 2009, p. 292).

From the late 1970s onwards, the "commercialisation of culture is viewed by UNESCO (1976) with serious reservations, given its propensity to destroy local culture by replacing it with products manufactured and staged specifically for the tourism market." (Köler, 2009, p. 293).

MacCannell was largely responsible for the prominence that authenticity came to have in tourism research stating that "the attraction of tourists to places of social, historical or cultural significance is comparable to the desire of pilgrims to visit sacred sites". (MacCannel, 1973; Paiva, 2017, p. 97) However, MacCannell (1999) also warns that the commercialisation of tourist attractions and the consequent loss of original meaning make these cultural elements inauthentic and "unreal," and compromise the quality of the daily and tourist experience. (Köler, 2009).

The author presents authenticity as a central motivation of tourism activity, and several authors even state that "the search for authenticity has become a central theme in tourism literature" (Belhassen, Caton and Stewart 2008; Paiva, 2017, p. 97), most of them being unanimous in stating that authenticity is now a primary concern of tourists, directly influencing their decisions, in the choice of destinations, leisure activities to be carried out, visits to be selected, among others.

Authenticity is seen as the pursuit of knowledge, but also as added value of the tourist experience, so Waller and Lea state that "the demand for authenticity is real and destinations should invest time and money in promoting it to tourists". (Waller and Lea, 1999: Paiva, 2017, p. 103). However, when we question the concept of authenticity in tourism, we are especially evaluating cultural authenticity because tourists are looking for authentic experiences that allow them a unique and genuine way to get in touch with the local culture, looking for the uniqueness and diversity that each destination has to offer and therefore escape from mass tourism.

In fact, considering that, according to UNWTO (2019, p. 31) cultural tourism "is a type of tourism activity in which the visitor's essential motivation is to learn, discover, experience and consume the tangible and intangible cultural attractions/products in a tourism destination", the authenticity of the tourist experience will be validated by the tourist, bearing in mind that "these attractions/products relate to a set of distinctive material, intellectual, spiritual and emotional features of a society that encompasses arts and architecture, historical and

cultural heritage, culinary heritage, literature, music, creative industries and the living cultures with their lifestyles, value systems, beliefs and traditions". (UNWTO,2019, p. 31)

As such, understanding the concept of authenticity becomes fundamental, both to understand tourists' demand for authentic experiences and to understand how tourism destinations can create authentic and genuine tourism products that reflect the local culture in a true and original way.

In practical terms, authenticity in tourism refers to an original experience that is true to reality, such as experiencing different ways of life; contacting manifestations of a people's identity, attending cultural events, discovering places that maintain traditional methods and ways of life, among others. This way, tourists understand as well the difference between the visited destination and their own origin, with the tourist experience emerging as a window to their culture, heritage, history and identity, in other words, "the journey must provide encounters, marvels, amazements, vertigo, which resonate in our hearts and blend us into the landscape" (Serres, 2001; Galvão Filho and Marandola, 2017, p. 33).

From this perspective, the demand reflects the need of tourists who try to find something different from their everyday life, who want to experience new realities and enjoy the feeling of being where things are real and original, associating the authenticity of these experiences with the change of scenery, a better understanding of the place visited and its development. This explains the search for the past, with the attempt to return to a "Golden Age" in which everything seems simpler and more authentic.

Regardless of the fact that it is demonstrated by numerous researchers that authenticity in tourism is a complex and multifaceted concept, understood in different ways according to the perception of the tourist (Cohen, 1988), it can be defined as the experience of immersion in a specific culture or environment that offers tourists a genuine and unadulterated view of local life. It is the feeling of being in a real place, where visitors can learn about the culture, customs, history, and daily life of the local inhabitants.

MacCannell 1999 argued that tourists seek authenticity through experiences that allow them to get in touch with the "real" local culture. Cohen (1988) considers that authenticity is a subjective concept that depends on the perception of the tourist and that cultural authenticity can be achieved through the active participation of tourists in local cultural activities. Dann (1981), when referring to the process of commercialisation of authenticity in tourism, states that cultural authenticity can be preserved in tourism if commercialisation is controlled and tourists are encouraged to interact with local culture in an authentic way. Richards (2007) considers that cultural authenticity in tourism can be achieved through the creation of authentic and creative tourism experiences that reflect local culture in an authentic and original way.

Shi et al. (2019) report that destination authenticity is an important factor for tourists, although their motivations are diverse according to age, gender and country of origin. This perspective is corroborated in the work of Farmaki and Pappas who, in 2020, investigated the perspective of tourism industry professionals on tourist destination authenticity and concluded that it is an important factor for tourist satisfaction and that the tourism industry must find ways to preserve and promote destination authenticity. The same was emphasised by Huang et al. (2019) showing that the results of their study indicate that authenticity is an important factor for destination image, motivation and satisfaction of Chinese tourists.

Interestingly, even though "the discussion has not led to a broad consensus, which would make authenticity the anchor of a general paradigm for the study of modern tourism" (Cohen and Cohen, 2012, p. 1295), authenticity has been widely invoked in practice to brand tourism products such as "authentic" food, places and experiences (Belhassen and Caton, 2006; Rickly-Boyd, 2012).

In conclusion, the concept of authenticity seems inevitable and important in practice, but despite the efforts devoted over decades, its theoretical status remains unclear, especially in tourism literature (Steiner & Reisinger, 2006), and there is no consensus about the concept of authenticity (Richards, 2007). Consequently, even though authenticity plays a vital role in understanding the touristic experience (Cohen, 2004), there are several authors who question its validity, as the concept cannot be explained in the conventional sense of the term.

3.3. Authenticity and literary tourism experience

Although it is not easy to find a definition of literary tourism that encompasses all its forms and dimensions, one can say that it is undoubtedly a form of cultural tourism whose main motivation is to visit certain places guided by literature.

Today, literary tourism, is becoming increasingly popular.

Basically, all forms of tourism offer experiences (Richards, 2011). However, each tourist seeks experiences based on their motivations. Many of them prefer to participate actively, making the moments authentic, which allows us to feel the spirit of a place and the specificities of cultural characteristics. An authentic experience aims at the active participation of tourists in learning about arts and traditions, thus maintaining the living culture of the receiving communities (UNESCO, 2006). The Association for Tourism and Leisure Education and Research (ATLAS) research indicates that, the experiences mostly enjoyed by cultural tourists tend to be those small-scale, less visited places that offer a taste of local or authentic culture. Tourists increasingly say that they want to experience local culture, to live like locals and to find out about the real identity of the places they visit (Richards, 2009).

In fact, literary tourism, as one of the newest forms of cultural tourism, is increasingly in demand. A literary place can be

considered as a place to which visitors attach meaning, that is its value. That meaning can result from reading a literary work as well as from the author's own life (Herbert, 1996, p. 78).

Driven by the desire to see the landscape that inspired the literary text, the tourist wanders around the places offered by the work. They want to see, live and in colour, the real places that they have visited through reading. Literature not only creates a desire in people's perception to visit places, it also inspires people to visit authors' homes - places where the book may have been written, or inspired by, and the graves of deceased authors. For these literary tourists, the writer is an inspiration (Yiannakis and Davies, 2012).

Based on this reasoning, literature is a signpost for the culture and customs of a place, or even the cultural or natural heritage of unique locations, so we can corroborate Magris' assertion that literature "transports" the memories and discoveries of the journey (Magris, 2010 [1986], p. 18) and, at the same time, allows for the recovery and (re)construction of a memory of the place in the literary text and, consequently, its transformation into a tourist site. And even more, if their originality is preserved because the crucial element that literary tourists seek is authenticity. An authenticity that the tourist often associates with the "idea of place" that he has created by reading the book. It is often this notion of place that gives meaning to the tourist experience itself because literature and the act of travelling require a reconstruction of the past since, as Magris said, literature is the "archaeology of life" (Magris, 2010 [1986], p. 329) and travel "orients towards the origin" (Magris, 2010 [1986], p. 364).

As such, books are often a source of motivation for tourists in search of their own individual and/or collective essence and, for this reason, literary places are increasingly used to promote tourist destinations.

The literary tourist has a pre-knowledge of the territory, constructing the trip as a way of getting closer to the original, of confirming authenticity, as Westover (2009) points out. In this process of confirming or affirming authenticity, tourists also build their own reality based on what they are given to observe, reflect on and give their opinion of the place. In this way, the concept of literary tourism has gradually established itself, expanding the opportunities for those who like to discover what exists in the places to which literary texts refer. In fact, considering, as Squire (1996) said, that literary tourism is "travelling to places famous for their association with books or authors" (Smith, 2012, p. 8), literary works make it possible to recover and (re)construct memories of spaces, thus producing tourist space, i.e. "a physical or sociologically demarcated area for tourist visits (Jafari, 2002, p. 59). (Jafari, 2002, p. 591), which will prove right Nicola Watson, who describes the "business of literary tourism" as "the interconnected practices of distinguishing and visiting places associated with writers and their work" (Smith, 2012, p. 8).

In fact, regardless of the individual attraction of each tourist to a given place, its presentation, the associated characters and events, the connections with the real or fictional life of the authors or the works are usually used in the promotion of these destinations. Therefore, literary tourism can and should be valued, which requires the creation of itineraries, cultural/literary routes or other events, such as festivals, which can add value to tangible and intangible heritage, given that literary sites, as we have seen, are "marketable" within the tourism sector. Associated with memory, this reconstruction of the past enhances and respects the written word, literature, as heritage, "both in its relationship with tourism (...) and in its role of national identity" (Robinson and Andersen, 2002; Henriques and Quinteiro, 2011, p. 601; Oliveira, 2017, p. 66). Literature conveys images of places - local landscapes, customs, dances, music, typical gastronomy - symbolic goods that provoke transnational imaginaries, which constitute references for readers from other cultures, other places. Without wishing to belittle all the reasons that drive visitors today, we would like to emphasise that the literary text, being a reflection of the cultural values of a community because it presents the image, albeit subjective, of the values that a particular community pursues and that support its identity, is one of the growing motivations for tourist activity.

In the process of growing, often excessively, cities have somewhat lost their identity. By becoming very large territorially, they have become undifferentiated, without their original collective values, which has led to a certain identity crisis among their inhabitants who are looking to tourism as a way of recovering their identity. In fact, by (re)valorising heritage, tourists find their origins. Thus, living in a society pressurised and worn down by the loss of its core values, and as a reaction to the complexity of the modern world in which social connections are failing or weakening, people dream of friendly, true relationships and genuine values - they want to find their roots. Tourist destinations should offer possibilities for socialising and/or meeting local communities.

In this regard, literary tourism proposals, by associating places with the lives of the authors and/or their characters in real spaces, will be considered more authentic (experiences of the authentic), provoking feelings of real, genuine and meaningful experiences (experiences of authenticity) and, at the same time, the words of the authors perpetuate the memory of the places, highlighting their identity references. The literary text allows to rediscover the place and to value it in the eyes of the tourist and the local community. In fact, as Robinson (2002) states, authors' houses are arguably the most powerful tourism resource. These places allow tourists to engage in varied emotional experiences or activities, and they are a source of intimacy, authenticity.

Therefore, literary routes can be a link between the place and the people, in order to create emotional bonds that connect

tourists to authors because, as Scarfuto (2013, p. 5) states, "routes have become historical representations for writers, readers, students and society in general", which allows us to affirm that literary tourism can present itself as a differentiator in the touristic offer, considered an alternative strategy for harmonising (external) globalisation and (internal) local development, which makes it possible to maintain local identity as a factor of attractiveness, to strengthen community participation and to encourage public and private investment for the conservation and recovery of the sociocultural and physical environment of the destination/site.

4. Conclusions

The goal was to analyse the concept of authenticity in the context of tourism and the tourist experience, associating authenticity and memory as interconnected concepts in tourism because both refer to the experience of connection with local culture and history.

If we consider as Nora (1993, p. 25) that "memory hangs on places, like history on events", then this is determinant to create a meaningful tourist experience because authenticity in tourism usually involves an experience that is perceived as genuine and authentic by tourists, which is more easily achieved by preserving the collective memory of a place, including its traditions and customs because it allows them to experience the culture and history of a place in a way that seems authentic and unique.

Literary tourism refers to memory since the work is the author's testimony to a particular era. This type of tourism, as a form of tourism that combines entertainment and education, increases tourists' knowledge and information, and helps them to get to know the society and culture of an era, but for this to happen it must be considered authentic.

Consequently, as Çevik (2022, p. 18) pointed out, "to ensure the authenticity of the place, it is necessary to investigate the connection of the place with the author, based on accurate data, and present the place in the closest way to the author's time period. Explaining this process to visitors and providing evidence of the authenticity of the place or objects is also an essential criterion in meeting the authenticity expectations of tourists".

In fact, although many of the objects and experiences in tourism today are manufactured to appear authentic in the eyes of the tourist, this work aims to contribute to show that literary tourism can have a positive and significant effect on the association of authenticity with the tourist destination offer, providing unique and differentiated experiences.

We live our lives today with the omnipresent concept of protecting the past to perpetuate the traces of knowledge and techniques that have disappeared. The search is centred on identity and the valorisation of places, where proximity, social recognition and participation are easily combined. It is therefore becoming increasingly important to be able to re-interpret the elements of a given group's past (their knowledge, skills and values) and consequently give them a new social value that generates identity and unity through emotion and memory.

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DOI: 10.34620/978-83-67405-28-7-004 • 2024 • 29-38

sciendo

Proceedings of the International Tourism Congress 23

The profile of corporate events clients from the organizers' perspective, regarding sustainability, diversity and inclusion trends

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Abstract

The present paper aims to understand the current profile of the buyers of corporate events in the Cascais Municipality, from the organizers' perspective, to ascertain the pattern of customer demand and attitude towards two current trends: sustainability, as well as diversity and inclusion. After analysing the results of the interviews, it is possible to verify that even though corporate clients have a growing awareness towards sustainability and diversity and inclusion practices, the interest is still expressed by a reduced percentage of clients.

Keywords

buyers' profile • corporate events • diversity and inclusion • organizers' perspective • sustainability

1. Introduction

There is a growing scholarly interest in events, indicative of their relevance in the present-day tourism and their broader implications. This field of research is not only expanding in scope, but also gaining a global perspective. There now exists literature focused on the impact of events in cultural, social, and environmental aspects. However, there is paucity of recent literature focused on the characterization and impacts of corporate events, particularly regarding the profile of the corporate client considering the various current trends. This study aims to develop this emerging field by identifying the profile of corporate events and meetings buyers in the Municipality of Cascais, analysing their preferences in the light of two current global trends in the industry, from the organisers' point of view. To achieve this objective, the following specific objectives have been defined: to evaluate the impact of the demand for sustainable practices in the organisation of corporate events and to understand the level of customer interest in practices that promote diversity and inclusion in the organisation of corporate events.

"Corporate events, also known as business events, have multiple aims. Not only do they focus on creating added value to the businesses and individuals that are involved in their delivery (both participants and event providers), but also, on a macroeconomic level, they serve to support the growth and development of business tourism, thus boosting the local and national income, as well as the international profile of a particular destination (Reic, 2012, p. 269)." This research is focused on the buyers, which in this case are conference organisers and meeting planners who buy, or more accurately, hire conferences venues and related services to stage their events, who work for corporate organizations. Corporate organizations are companies established primarily to generate profit and thus provide a financial return for their owners, whether these are proprietors of a family-run business or the shareholders of a large publicly quoted company (Rogers, 2008).

"In line with macro trends, meeting professionals said their organizations are increasingly considering sustainability and diversity, equity and inclusion (DE&I) as part of their foundational planning. There is global consensus that sustainability must be a key factor in meeting programs, and a growing understanding that choosing inclusivity and equity creates more opportunity (American Express Meetings and Events, 2021, p. 4)."

For these reasons, the main goal of this research is to understand the influence of the sustainability and diversity and inclusion trends on the behaviour of the corporate buyers.

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This research study is composed of five chapters. The first chapter consists of an introduction dedicated to the definition of the study theme and its relevance, the delimitation of the objectives and the structure of the study. The second chapter refers to the literature review, in which the main topics related to the research are presented, namely: corporate events and their objectives, the relationship between corporate events and business tourism and their benefits in a destination, and the study of two global trends (sustainability and diversity and inclusion). The third chapter is dedicated to methodology, in which the stages of the scientific research are mentioned, as well as the research method chosen (the interview) with the respective rationale, and the characterization of the sample used is given. The fourth chapter concerns the discussion and analysis of the results obtained through the interviews, thus constituting the basis for the conclusions presented in the following chapter. Finally, the fifth chapter is composed of the conclusions, practical implications, limitations of the study, and recommendations for future research.

2. Literature review

The present chapter concerns the literature review, which allowed the familiarisation with the subject under study, through the knowledge and understanding of already existent investigations. In this sense, the research about the profile of corporate customers was preceded by a review of the literature related to corporate events and their goals, as well as their relationship with business tourism, to create a framework for the study of this paper topic. Subsequently, the literature on two current global trends was reviewed: sustainability and diversity and inclusion, not only from a general perspective, but also regarding aspects directly linked to the corporate universe.

2.1. Corporate events

Almost always, the importance of the events goes beyond the group of participants, generating effects of the most diverse nature, whether in the general economy or in a delimited economic segment such as tourism, or in the community and the region where they are held, or in the business sector. Events have therefore a relevant impact on the places where they are held, considering that they add value, create a sense of place, community, and identity, reinforcing the collective memory (Vieira, 2015).

Corporate events play a pivotal role in the events sector, leaving a lasting impact on businesses, industries, and communities. These events, ranging from conferences and trade shows to product launches and incentive trips, hold immense importance and offer numerous benefits. As referred by Reic (2012, p. 268), “corporate events are significant revenue earners not just in the events sector, but also within the global economy. What started off as a spin-off from regular company needs for the training of their staff in specific business areas, has now grown into an industry of its own”.

Corporate events have emerged as indispensable platforms for organizations to connect with stakeholders, strengthen business relationships, and achieve multifaceted objectives. Companies carefully design their events to align with specific goals, ensuring that each event serves a purpose and contributes to the overall success of the organization. As Davidson (2019, p. 34) explains “the vast majority of meetings share one or more objectives of this kind, which may be summarised as (1) Learning / Communication, (2) Decision-making, (3) Networking, and (4) Motivation - inspiring the participants to have a positive attitude towards the company they work for and their role in making it successful. These general objectives frequently overlap with each other: for example, at a sales meeting, the sharing of information between participants contributes to their learning, while the coffee or lunch breaks provide opportunities for networking; and senior management may use the occasion to deliver a ‘pep talk’ exhorting the participants to achieve greater sales figures in the future or may invite a motivational speaker as a source of inspiration. The relative importance of each of these four objectives varies according to the type of corporate event in question.”

“This category of events is expansive as they are of many, varied types” (Bowdin *et al.*, 2011, as cited in Reic, 2012, p. 268). Some authors refer to them as business events, framing them within the wider tourism industry (Bowdin *et al.*, 2011; Tassiopoulos, 2010, as cited in Reic, 2012, p. 268).” Organizations hosting conferences and exhibitions in a particular destination attract attendees from various locations, stimulating travel and accommodation expenditures. The appeal of attending industry-specific events, networking opportunities, and accessing cutting-edge knowledge and expertise contribute to the growth of business tourism. As a result, host cities and regions benefit from increased tourism revenue and economic development.

According to Carvalho (2016), business tourism comprises: Meetings - which include various types of events such as conferences, training seminars, product launches and annual general meetings held by companies; Incentive trips - which comprise trips obtained by company employees in the form of a prize associated with their performance; Exhibitions - also known as trade shows for professionals and the general public; Corporate hospitality - which consists of the entertainment that many companies grant, for example, to their clients or potential clients, usually associated with sporting and cultural events.

However, the economic impact of corporate events extends beyond their immediate scope. As observed by Davidson and Hyde (2014, as cited in Davidson, 2019), those attending business events fill hotel bedrooms, seats on aircraft and other forms of transport, and places at restaurant tables; and their spending can extend further, into local shops as well as entertainment and leisure facilities. Also, attendees often extend their stay to explore the host destination, contributing to tourism expenditure and stimulating the local economy. Furthermore, there tends to be a high per-capita value associated with such visitors as they often represent the high-quality, high yield end of the tourism spectrum. The higher spending levels of participants coming to a destination to attend a business event, compared with the spending of leisure tourists in the same destination, is often highlighted in tourism surveys (Davidson, 2019).

Therefore, we can conclude that corporate events not only can enable organizations to harness their full potential as strategic tools in achieving their objectives, for a sustained growth and competitive advantage, but also serve as significant drivers of business tourism, generating economic growth, fostering knowledge exchange, and enhancing destination reputation.

2.2. Global trends in corporate events

In recent years, the landscape of corporate events has undergone significant transformations, driven by the ever-evolving global business environment. This subchapter serves as an introduction to the subsequent exploration of the trends of sustainability, and diversity and inclusion in corporate events. By examining the dynamic nature of these trends and their impact on the industry, we aim to provide a comprehensive understanding of the current corporate events landscape.

"The concepts of Sustainability and sustainable development have acquired greater importance over time, as society as a whole has become more aware of its impact on the environmental scenario. Globalization, climate change, effective and efficient management of available resources, as well as their depletion, or the aging of the population, among others, invite society to change the direction of quantitative economic growth towards a more qualitative and responsible dimension" (Meseguer-Sánchez, *et al.*, 2021).

Considering that since the turn of the millennium, the trend of sustainability has been high on the agenda for many businesses, is visible the increased importance of Corporate Social Responsibility (CSR) programs (Cavagnaro *et al.*, 2012). Many events' organizers attempt to incorporate an opportunity for the participants to participate in the CSR-related activities and give something back to the communities they visit (Cavagnaro *et al.*, 2012). By adopting eco-friendly strategies such as reducing waste, conserving energy, and incorporating social impact initiatives, corporate events can align with the values of attendees and stakeholders while leaving a lasting impression of environmental stewardship.

Finkel and Dashper (2020) mention that the MICE (meetings, incentives, conferences and exhibitions) industry, which covers conferences and business events, is also focused on issues related to inclusive participation. Rodríguez-Zulaica and Fernández-Villarán Ara's (2018) study revealed that more and more event organisers in Europe are receiving training regarding equality and diversity protocols with the aim of providing better assistance to their clients, as well as learning how to reconfigure event spaces so that facilities are more physically accessible.

For these reasons, in the following subchapters the themes sustainability and diversity and inclusion will be analysed, framed in the universe of corporate events, to analyse the profile of the corporate customer in relation to these dimensions.

2.2.1. Corporate sustainability

In the today's global context, where environmental concerns and social responsibility are at the forefront, sustainability has emerged as a key consideration in the planning and execution of corporate events, aligning with the global focus of not only minimize the ecological footprint but also contribute positively to the communities they engage with. Therefore, "corporate social responsibility is the voluntary dedication of companies to sustainable development, resulting in benefits to society (people), environment (planet) and economy (profit). At the consumer level, sustainability requires consideration not only of the price of a given good or service, but also of its impact on people and the natural environment" (UN, 1992; Jackson, 2005, as cited in Cavagnaro *et al.*, 2012).

Davidson (2019) attributes part of the growth in interest in the social legacy of business events to the younger generation of participants, who are 'uncomfortable with the type of ' conspicuous consumption' that can characterize such events when they feature bountiful, premier winning and dining and lavish entertainment - often against a background of the deprivation of disadvantaged communities or in developing countries'. According to the author, heightened social awareness, particularly among younger, 'Generation Y' participants, and their desire to somehow 'make a difference' and 'give something back' to the communities where their corporate meetings and incentive trips take place, has been a key factor in the growth of social legacy initiatives accompanying business events, and it is one of the key trends driving the design of such events today. The author links this phenomenon to the growing interest in volunteerism (or 'volun-tourism') as a form of community service that promotes goodwill and is also personally fulfilling, adding that, for many

participants, the social legacy element has also become an essential part of the 'experiential' dimension of participating in a meeting or incentive trip.

In this sense events can also aim to educate and influence their audience to adopt more environmentally conscious behaviour after the event, to promote long-term benefits for the community in question (Holmes and Mair, 2020). Moreover, sustainability in corporate events showcases an organization's commitment to long-term sustainability goals, enhances its reputation, and positions it as a leader in responsible business practices.

In the context of corporate events, there was an important development in 1997: the adoption of Elkington's concept of the Triple Bottom Line (TBL) within the events sector. This is a tool that aims to highlight the areas of impact that a particular event can have. The tool is useful not only in the planning stages of an event, but also at the event evaluation stage to identify what the impacts were. John Elkington's Triple Bottom Line proposal was embraced by several organizations that through this tool created corporate measures and reports on their economic, environmental, and social impact - or people, planet, and profit (Cavagnaro *et al.*, 2012).

Merrilees and Marles (2011, as cited in Davidson, 2019) point out that given the significant footprint that corporate events can leave on the natural environment, this industry has increasingly responded to pressure to demonstrate its sustainable credentials. Therefore, organizations already have social and environmental certifications that attract more buyers/clients, because of social positive perception in those organizations that develop CSR policies (Awan *et al.*, 2019). However, despite the magnitude of this issue, the amount of academic research that has focused specifically on sustainability in the corporate events industry has been minor, particularly when compared to the extensive discussions related to sustainability and tourism in academic publications. The explanation may be that commercial and financial aspects dominate in this area and, therefore, environmental considerations take a back seat (Merrilees and Marles, 2011, as cited in Davidson, 2019).

However, Davidson (2019) notes that there have been some notable contributions to the literature on this topic in the corporate event meetings sector: Park and Boo (2010) conducted a study on the green attitudes associated with two US conventions, primarily from the perspective of attendees, but also from the perspective of convention organizers and suppliers. Other valuable insights came from research by Draper *et al.* (2011), Mair and Jago (2010), and Mair (2011), who developed a model for greening the corporate sector. Their model is governed by organizational goals and values in an economic context, defining benefits and obligations through regulations, and ranking the organization with different levels of green practices.

Thus, it is concluded that sustainable events are those that fulfil important social, cultural, economic, and environmental roles, with a positive impact that extends to the community of the place where they take place (Getz, 2007, as cited in Cavagnaro *et al.*, 2012). Embracing sustainability in corporate events is not only a strategic decision but also a moral imperative, as it reflects a collective effort to create a more sustainable future for generations to come.

2.2.2. Diversity and inclusion

Diversity and inclusion have gained significant importance in recent years. Recognizing the value of diversity and creating an inclusive environment has become a priority for organizations across various industries. According to Finkel and Dashper (2020, p. 487), "events play a central role in our lives, so prioritising inclusionary planning and practices can invite the re-imagining of our social worlds to involve more fully multicultural and, indeed, multispecies viewpoints". "Events environments magnify cultural interactions and social entanglements and, as such, have the potential to facilitate inclusive engagement by creating spaces to bring diverse communities together and to address social, economic, cultural, and political issues (Finkel and Dashper, 2020, p. 487)." They serve as catalysts for dialogue, collaboration, and understanding among individuals from different backgrounds, promoting inclusivity and contributing to positive societal change.

Thus, events are thus often presented as a way to increase social inclusion, enhance community cohesion and improve levels of tolerance for diversity (Duffy and Mair, 2017, as cited in Holmes and Mair, 2020). Inclusion ensures equal opportunities by removing barriers or obstacles that might previously have prevented access (Tulloch, 2020).

However, as Tulloch (2020) mentions, unfortunately, conferences can also promote unequal power dynamics that privilege certain participants over others. For example, in areas with a high number of female experts, there are still a higher number of men in leadership positions, more male speakers at conferences, and men have room to argue more often than women. Codes of conduct are thus extremely important as they describe expected ethical behaviour to ensure safe, inclusive and equitable conference environments and discourage discrimination and harassment. However, the effectiveness of such policies in conferences still remains largely unexplored. Evaluating the effectiveness of policies is critical to ensure that they remain relevant and succeed in reducing inequalities and discrimination.

According to Finkel and Dashper (2020), the MICE (meetings, incentives, conferences, and exhibitions) industry, which includes corporate events, has also been criticised for a lack of diversity in terms of speakers. The standard 'expert' speaker is still a middle-class Caucasian male. A study made

in 2019 by software company Bizzabo found that the number of male speakers outnumbered women as two-to-one over the past five years. The analysis included 60,000 speakers at mostly private events in 23 countries, with 69% of speakers being male. Women are more often seen as speakers at fundraisers, galas and social gatherings, but far less likely to speak at conventions, meetings and conferences. The study also revealed that despite widespread discussion of inequality on social media, gender diversity in terms of event speakers is changing little, with only a 2% increase in the number of female speakers over the past two years (Fadel, 2018, as cited in Finkel and Dashper, 2020).

It is important to recognize the significance of role models in addressing these disparities. Role models are important on three levels: first, they act behavioural models, showing us how we can learn particular skills and practices needed to succeed in a given context; second they act as representations of what is possible, showing that if a person like them can achieve something, so can another person from that group or community; and third, they act as inspirations, helping to encourage others to stretch themselves and dream big (Morgenroth *et al.*, 2015).

Therefore, corporate events should strive for diverse representation across all aspects, including speakers, panellists, and participants. By ensuring representation from different genders, ethnicities, backgrounds, and perspectives, events can provide a platform for a wide range of voices to be heard. Additionally, making events accessible by considering factors such as venue accessibility, language options, and accommodating special needs demonstrates inclusivity. As per Finkel and Dashper (2020), being able to navigate an event space is the most conspicuous type of accessibility there is. Events spaces must be comfortable, safe, and non-threatening for attendees as a bare minimum and in most cases, this involves changes to the physical environment.

Regarding the priority level of diversity measures and their variety, a global study by American Express Meetings & Events (2021), clarifies that 80% of respondents' worldwide state that their organisations actively strive to incorporate diversity, equity and inclusion protocols into their meetings and events. However, a study conducted by Minnaert (2019) for Meeting Professionals International, comprised of a membership survey (1087 respondents) and a series of interviews with 20 D&I specialists in and outside of the event sector, focusing on the D&I attitudes and practices of US meeting and event professionals, shows that even though diversity and inclusion are a stronger focus for the industry now compared to 10 years ago, the lack of awareness have led to a stagnation in D&I initiatives and efforts.

In summary, citing Finkel and Dashper (2020, p. 487), "there are exciting possibilities for experiences that can be transformative and disruptive; but, to do so, they must first be accessible, diverse and inclusive. With thoughtful planning and transparent communication, event spaces can bring diverse groups of people together to share a commitment to improve lives and places."

3. Methodology

Considering the aim of the investigation, the methodological approach was divided into four main phases ending in the assessment of the corporate events customer profile towards the trends of sustainability and diversity and inclusion (Figure 1).

In this research the qualitative method was selected. The qualitative method focuses on interpretation rather than quantification. Therefore, the researcher is more interested in understanding the interviewees' interpretation of the topic. Consequently, it is a method that emphasizes the subjective over the objective (Cassell and Symon, 1994).

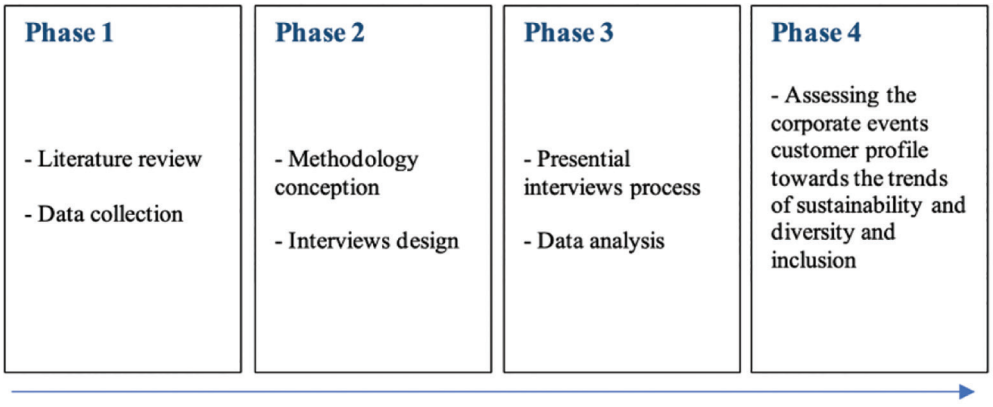


Figure 1. Methodological approach.

Additionally, qualitative research pays attention to context, in the sense that people's behaviour and the situation link closely in shaping experience (Dalfovo *et al.*, 2008).
The interview was structured according to two groups of questions about sustainability and diversity and inclusion, to develop these two perspectives of the study.
As detailed in the Figure 2 presented above, the two angles of this study (sustainability and diversity and inclusion' trends), and the corresponding content explored in the literature review phase, have a direct connection with the two specific objectives of this investigation.
Over a period of two months (from May until July 2022), eleven structured interviews were conducted with organizers or those responsible for the events department of various companies or entities.
Researchers must have contact with the context in which they intend to conduct their research (Duarte, 2004). For this reason, interviews were conducted with corporate event organizers in the Municipality of Cascais, with direct contact with customers in this segment of events.
The interviewees were selected for their broad view of the process of organization and preparation of the event, to provide the necessary data for the study of the established objectives. Being from different types of companies, involved in the organization of corporate events (from event spaces, such as hotels, and event companies) they can thus provide different viewpoints on this research.
The sample for this study instrument consists of eleven interviewees, as shown in the Figure 3:

- Five interviewees are from hotel units, located in the Municipality of Cascais, which host and organize corporate events in their spaces.
- Two respondents are associated with venues, in the Municipality of Cascais, which host and organize corporate events there (one of whom is an employee of a hotel unit that provides the service of organizing events there).
- Four interviewees are from events companies that organize corporate events in various venues in the Municipality of Cascais (one of whom works in an events company that is also a DMC and another interviewee is an employee in an events company specializing in corporate retreats).

According to Vergara (2010), the sample is a part of the universe chosen according to some criterion of representativeness. Thus, the sample refers to a subset of the population that is representative of the main areas of interest of the study (Roesch *et al.*, 1999). Thus, the creation of this methodological tool was intended to acquire the indispensable information for the preparation of this research, given the reality of the market and its players.

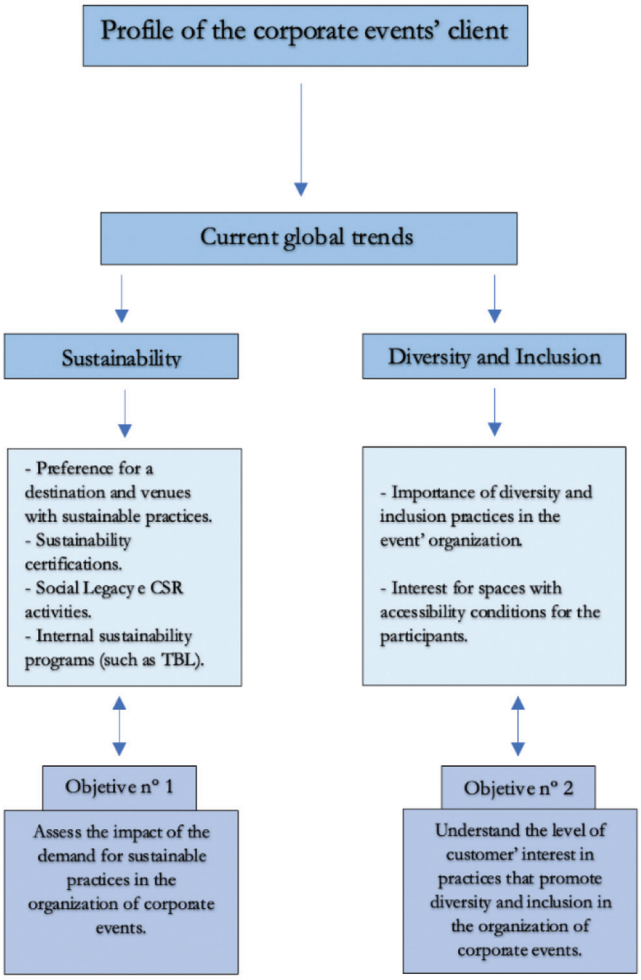


Figure 2. Analysis Framework.

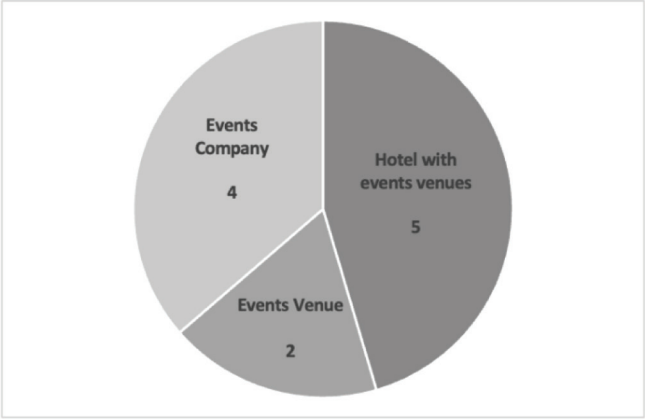


Figure 3. Origin of the interviewees.

3.1. Study area: Municipality of Cascais

The municipality of Cascais is inserted in the Lisbon tourism region, located on the Estoril Coast. The Municipality of Cascais was chosen as the analysis area for this study, as it is a very expressive area in terms of tourism supply and demand, considering that already in 2007, Estoril was the fourth national tourist destination, distinguished by the high number of four- and five-star units (Casimiro *et al.*, 2015).

According to Casimiro *et al.* (2015), the promotion of the Estoril brand focuses on its main products (Leisure, MICE and Golf). Being the corporate events industry, included in the MICE segment.

In a recent interview with the president of Cascais Tourism, it is mentioned that business travel represents only 21% of global travel, this refers to 2019. But it is important to point out that it is also one of the types of travel that spends the most in many of the destinations. Therefore, it is essential for the whole tourism industry (Barros, 2022).

Barros (2022) also adds that business tourism it is naturally a great asset and has the advantage of not being seasonal. The president also refers that Cascais has all the conditions to be a reference destination in terms of business tourism. For the venues that receive corporate events it is foreseen an investment in the infrastructures, which will lead to the attraction of more and better events and, consequently, more business visitors to Cascais. It is important to always bear in mind that the business visitors may be the leisure tourists of tomorrow.

According to a Visit Cascais (2019) survey, carried out during the high season from April to September 2019, the motivation of travel by business represents around 14% of respondents, thus occupying second place.

Considering the data presented and the fact that business tourism is one of the main products of the Municipality of Cascais, it should be noted that this study aims to add knowledge regarding this segment, which not only has a significant current expression, but is also expanding, in the geographical area in question.

4. Results and discussion

This chapter will analyse the results obtained from the eleven interviews conducted with event organizers who will give their point of view on demand, regarding the profile of the corporate events customer in the Municipality of Cascais.

The interview was essentially divided into two topics, regarding the profile of the corporate events clients: their behaviour and interest profile in the face two current global trends of sustainability and diversity and inclusion (D&I).

4.1. Sustainability

As per the Table 1 shown below, from the interviewees' perspective it was possible to understand that a reduced percentage of customers (until 25%) shows preference for a destination and venue with sustainable practices

Table 1. Closed-ended questions about sustainability.

	Questions*	Questions with Percentages					
		0%	**1% to 25%**	26% - 50%	51% - 75%	76% - 100%	Do not know or Not applicable
Quantity	a	1	**7**	0	2	0	1
	b	1	**6**	0	3	0	1
	c	0	**6**	2	1	0	2

	Questions**	Yes or No Questions		
		Yes	**No**	Do not know or Not applicable
Quantity	d	4	**6**	1
	e	2	**9**	0
	f	4	**7**	0

The highest values found are in **bold**.

Questions:

*a) What is the approximate percentage of customers who show a preference for a destination with sustainable practices?

*b) What is the approximate percentage of clients who show preference in hiring a venue (hotel, congress centre, etc.) with a sustainable practices certificate?

*c) Regarding customers with an interest in sustainable practices, which percentage is interested in "Social Legacy" and "Corporate Social Responsibility" actions and activities?

**d) In the chosen space, do customers show a willingness to pay more for 'sustainable' services?

**e) Regarding clients with an interest in sustainable practices, do they show any knowledge regarding sustainability certifications in the events industry?

**f) Do they make it known if the company itself has sustainability policies?

Table 2. Closed-ended questions about diversity and inclusion.

Questions*		Questions with Percentages					
		0%	1% to 25%	26% - 50%	51% - 75%	76% - 100%	Do not know
Quantity	a	0	**8**	1	1	0	1
	b	0	**5**	**4**	0	2	0

The highest values found are in **bold**.

Questions:
*a) What is the approximate percentage of clients who demonstrate that they consider important to have diversity and inclusion practices in their event?
*b) What is the approximate percentage of clients looking for spaces with accessibility conditions for the participants?

(questions A and B). The same reduced percentage of 25% is applicable for the percentage of customers with an interest in social legacy and corporate social responsibility activities (question C).
Concerning the yes or no questions, it was possible to identify that most of the customers do not show willingness to pay more for sustainable services, even though four of the interviewees mentioned the opposite (question D).
Was also possible to ascertain that most of the corporate clients do not show considerable knowledge about sustainability certifications (question E), neither make it known if the company has sustainable policies (question F).

4.2. Diversity and inclusion

As per the Table 2 shown below, from the interviewees' perspective it was possible to verify that a reduced percentage of customers (until 25%) shows interest for diversity and inclusion practices in their event (question A). Furthermore, two of the interviewees have referred their difficulty in understanding the customers' interest in diversity and inclusion practices, since they are usually internal policies and might not be shared with the organizers.
It was also possible to ascertain that also a reduced percentage of clients (until 50%) is looking for spaces with accessibility conditions for the event' participants (question B). Additionally, some of the interviewees have mentioned that the request for accessible spaces is more common if the clients know in advance that a participant has a mobility restriction.

5. Conclusions

After analysing the results obtained through the interviews carried out with corporate event organizers, we could identify that the preference for a destination and spaces with sustainable practices is not yet demonstrated in a relevant way by the corporate buyers, despite being a growing concern and trend, and most corporate clients do not have in-depth knowledge about sustainability certifications. Therefore, we can conclude that, even though the corporate industry has increasingly responded to pressure to demonstrate its sustainable credentials (Davidson, 2019), the absence of sustainable practices and credentials do not assume a deal breaker meaning for the corporate event buyers, even though there is a growing awareness and preference for sustainable procedures.
It was also possible to verify that there is interest in "Social Legacy" and "Corporate Social Responsibility" actions and activities by corporate clients, but with a still little relevance. One of the interviewees mentioned that the corporate buyers usually have preference for social legacy activities when they are suggested to them, however if not presented many customers do not ask about this type of activities. Which proves their desire to somehow 'make a difference' and 'give something back' to the communities where their corporate meetings and incentive trips take place (Davidson, 2019), but still not in a very relevant way.
In this line of thought, it was also demonstrated that only a reduced percentage of corporate clients is willing to pay more for sustainable services, as well as the fact of several companies that have their own sustainability programs do not usually inform the event organizers about them.
In this context, some of the interviewees mentioned that sometimes they contemplate the possibility of corporate sustainability concerns being more closely associated with the image companies wish to portray to their target audience, rather than a genuine concern for the environment.
Concerning the level of corporate customers' interest in diversity and inclusion practices, based on the analysis of the interviews' findings from the perspective of corporate events organizers, it became evident that the corporate buyers'

inclination towards diversity and inclusion practices is not adequately reflected despite being an emerging concern and trend in the industry. Which proves that even though diversity and inclusion are a stronger focus for the industry nowadays, the lack of awareness might have led to a stagnation in D&I initiatives and efforts (American Express Meetings & Events, 2021).

It was also possible to ascertain that a reduced percentage of clients (even though higher than the general interest for D&I practices) has interest for the accessibility conditions of the event' venues. This information elucidates that, in spite the fact that event organizers are learning how to reconfigure event spaces so that facilities are more physically accessible (Rodríguez-Zulaica and Fernández-Villarán Ara's, 2018), the interest is only applicable to a limited universe of customers.

It can therefore be concluded that the corporate customer profile in the Municipality of Cascais is defined by an increased interest in sustainability and D&I practices, although still with a reduced and limited expression.

As for the practical implications, it is important to highlight that a greater perception and awareness of the importance and application of diversity and inclusion measures by the organizers would represent an important improvement in the sector. It would also be relevant to make known the various existing sustainability programs, as well as the respective progress in this area.

In this research some limitations were found in the literature review phase, considering the lack of studies and scientific articles that address the profile of the corporate events customer in relation to sustainability trends, and diversity and inclusion. Most of the information that could be obtained was framed within a general context of the events industry or the corporate universe, but in some cases without a direct link to events.

In order to complete this research, we suggest that future researches study the profile of the corporate client in larger geographical areas, such as Lisbon or even at a national level. It would also be pertinent to make a more in-depth study of sustainability trends, and diversity and inclusion in the universe of corporate events, in order to obtain more detailed data and thus provide a greater academic contribution.

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DOI: 10.34620/978-83-67405-28-7-005 • 2024 • 39-46

sciendo

Proceedings of the International Tourism Congress 23

Identifying perceived safety of hiking on mountain trails: a study on ponta de são lourenço

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Abstract

Hiking is roughly defined as the activity of going for long walks in the countryside. Currently, there are several million hikers active worldwide. Madeira Island is a tourist destination famous for its mountainous trails and pathways. Hiking practice can lead to falls or accidents, with their cause being frequently unknown. Similarly, there is limited knowledge of how the hiking experience relates to accidents and on how hikers perceive the safety of Madeira Island mountain trails. This study aimed to assess the safety perception regarding people's hiking experience and to propose a set of questions to perceive this information. A questionnaire was proposed and administered as a pre-test on a highly frequented trail on Madeira. A total of 34 valid responses were collected. Results revealed that 23.55% of participants do not check the trail's requirements before hiking, and 32.4% have fallen on a trail. No correlation was established between the perceived safety on mountain trails and people's hiking experience, suggesting that further studies and some adjustments to the questionnaire are necessary.

Keywords

safety perception • hiking • mountain trail • tourism • Madeira Island

1. Introduction

Physical activity has a recognized impact on people's physical and mental health. The World Health Organization 2022 report on physical activity warned of the urgency of increasing such activity among the population, with the Director-General stating that "supporting people to be more active through walking (…) has huge benefits not only for the physical and mental health of individuals, but also for societies, environments, and economies" (World Health Organization, 2022). When physical activity is outdoors, it has even more significant positive effects (Frühauf et al., 2020). Mountain hiking, defined as walking in mountainous environments on official trails (Gatterer et al., 2019), is highly recommended for health promotion, even for older people (Faulhaber et al., 2017). Engaging in this activity allows people to enjoy beautiful sights while benefiting their physical and mental health. There is scientific evidence that natural spaces have a major impact on disease prevention and health promotion (Mitten et al., 2018; Pichler et al., 2022). However, practicing physical activities in the mountains also poses risks such as injuries or, in more severe cases, death. The risk of injury and death is related to the type of sport practiced (Gatterer et al., 2019; Niedermeier et al., 2020). Injuries can arise from accidents where people hit something or expose their bodies to more extreme conditions causing internal complications to the muscles or organs (Bailly et al., 2018; Birat et al., 2020; Pradas et al., 2021). Knowing the nature and severity of injuries in physical activity is essential to implement preventive measures and to reduce risks associated with practicing different physical activities (Palmer et al., 2021). Madeira is a small Portuguese oceanic Island (741 km^2 and 247,484 inhabitants) (Direção Regional de Estatística da Madeira, 2021) awarded several times as 'Europe's Leading Island Destination' by World Travel Awards. Tourism is the region's main driver and source of income, with 28.8% of the Gross Domestic Product relying on it. This touristic destination has high rates of guest movements (855.8 thousand overnight stays in tourist accommodations in March 2023), with many tourists looking to discover and explore the region's mountain trails (Direção Regional de Estatística da Madeira, 2023). Many of the island mountain trails are known as 'levadas'. 'Levadas' of Madeira Island are a system of water channels of many kilometers in length, bordering mountains and going through them, constructed to transport water from different sources since the first

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quarter of the 15th century. These *ex libris* of the region are widely explored by tourists and were recently candidates to become a Humanity Cultural Heritage by UNESCO (UNESCO World Heritage, 2017). The 'top stunning hiking and walking trails', 'its unique levada walk', 'otherworldly hikes', and 'discover incredible nature with stunning landscapes', among others, are the most common reasons pointed out on the Internet when looking for motivations to visit Madeira Island (Hammer & Guillaume, 2023; Mediagrin, 2022; Nast, 2021). Considering these trails' relevant role in promoting the destination, it is necessary to evaluate their safety and understand how to improve it. Yet, studies regarding hiking security and the perception of safety on Madeira Island trails are not available in the literature. As there is limited data on accidents in casual hikes on the mountains in Madeira Islands, it is not easy to understand their incidence. What is more, predicting accidents or the factors that lead to them is impossible. Considering such limitations and that the safety of mountain hikers is an up-to-date topic with gaps in the literature, the present study aimed to propose a questionnaire to evaluate the safety perception of hikers and how the hiking experience influences that perception. The main objectives were thus to perceive how the hiking experience affects individuals' safety along mountain trails and correlate it with participants' propensity to approach cliffs during mountain trails, perception of safety while hiking with a guide (a person who knows the path very well and is there to ensure the safety and to improve the hiking technique of their clients), compliance with the recommendation of the trails, and a general evaluation of safety on Madeira Island trails. The hypothesis to be validated is that people with more experience in hiking are safer on mountain trails. Moreover, in this exploratory study, Madeira can be seen as a living lab model. The insights will allow the proposal of management approaches that can be adapted to regions with similar orographic profiles, improving hiking practice safety.

2. Material and methods

To assess the perception of safety, a questionnaire was prepared and administered as a pre-test on one trail so hikers entering or leaving the trail could participate. After collecting the data from the questionnaire, data analysis was carried out to understand the perception of safety by hikers and validate the proposed questionnaire.

2.1. Procedure

A questionnaire was proposed based on Faulhaber et al., 2020, where the authors analyzed multiple areas such as socio-demographic details, the extension of the exercise, regular medication, level of fatigue, etc. Some adaptations were made so that the questionnaire in this study was more relevant to the research area of verifying people's perception of safety when hiking on mountain trails. The questions were designed based on four categories: 'characterization'; hikers'; 'injuries and accidents'; and 'trails and mountain trails'. Each category aimed to gather different insights. The questionnaire consisted of a total of 22 questions. The 'characterization' section intended to classify the participants in a socio-demographic way and the remaining sections intended to classify the participants' experience in the defined category. The first question in the questionnaire was an open question, where participants were asked to write their country of residence. The following questions were closed-answers of single choice or multiple choice or Likert scale with five points, ranging from never to always. The questions covered different points to assess hikers' behaviors, hiking practice experience, and safety perceptions.

2.2. Study site, participants, and sampling

In this work, a questionnaire was prepared to evaluate the hikers' perceptions about mountain trails safety. Paper questionnaires were distributed on the 13th of November 2022 on one of the Madeira Island's recommended trails. The convenience sampling method was used (Saunders et al., 2009). The questionnaires were distributed with an informed consent to the people that were entering or leaving the trail. People had to read and accept the informed consent. Furthermore, they had to comply with the following requirements: be over the legal age and have a good comprehension of English or Portuguese to avoid biased answers due to a lack of understanding of the questions.

Ponta de São Lourenço trail was selected for the distribution of the questionnaires. It is a recommended trail, with a distance of 6 km in total. This trail was chosen as it was expected that people would not be too tired at the end, allowing participation in the study. A total of 34 valid questionnaires were obtained from different participants. These were kept separate from informed consent to maintain people's anonymity. People who wanted to ask for more information about the study could do it on-site and later through the provided email contact.

2.3. Statistical analysis

The data collected through the questionnaires were statistically analyzed using the SPSS software (version 28.0.0.0). Each statistical test was performed considering a significance of .05 (alpha). All single-choice and multiple-choice questions were graded on a nominal scale. Single-choice questions were coded from 0 to the number of existing options. The mode and variation ratio (VR) were used to report the data in descriptive statistics. In this view, if VR=0 the data has no variation and all the cases fall into one category. In the multiple-choice

questions, the existing options were separated and coded from 0 to 1, where zero meant that the option was not chosen and one that the option was selected.

All Likert scales were considered on an ordinal scale, and responses were coded from 1 to 5. To report data collected in descriptive statistics on Likert scales, the median and Interquartile Range (IQR) were used, which provide a more accurate measure of central tendency. If the IQR=0, then many participants gave the same answer.

The chi-square $\chi 2$ test was used for single-choice questions to test whether the difference between categorical variables was statistically significant. It is important to note that the Chi-Square test assumes that the samples are independent and requires the frequencies to be at least 5 in each cell and not less than 80% of the cells in the contingency table. Tests where the condition was not met were ignored.

The Mann-Whitney *U* test was used to verify differences between categories in questions with a Likert scale. The Mann-Whitney *U* test was used to check whether differences in distributions in the two groups were statistically significant. The effect size was calculated using the difference between the two means (non-parametric tests).

3. Results

From the collected questionnaires, a total of 34 valid responses were collected. During the analysis of the results, three sections were created. The first two sections created followed the questionnaire categorization, and the last section referred to the trail and the accidents.

3.1. Participants' characterization

Table 1 illustrates the socio-demographic data of the participants in the questionnaire. Most participants were aged between 29 and 39 years, were female, and the country of residence was Portugal. The largest number of respondents reported practicing sports three to five times a week. For most participants, the main reason for going to trails was to practice walking/hiking.

3.2. Hiking experience

Most participants in the study have been hiking for more than five years (52.9%) with an average distance on trails between 6 and 11 km (46.9%), as shown in Table 1. The highest periodicity of hiking on mountain trails was reported to be 'few times a year' (47.1%). Due to the small sample size, in the 'hiking time' group, two sub-groups were created: low to medium experience (1 month-5 years of hiking), denoted from now on as 'low experience', and 'high experience' (5+ years of hiking practice). The regrouping of the time of experience in the hiking was necessary and important for the remaining

Table 1. Characterization and hiking experience of the participants.

Item	Variable	No.	%
Gender	Female	18	52.9
	Male	16	47.1
Age Groups	18-28	6	17.6
	29-39	14	41.2
	40-50	4	11.8
	51-61	5	14.7
	62-72	5	14.7
	72+	0	0.0
Residence Country	Belgium	1	2.9
	Canada	3	8.8
	Finland	2	5.9
	France	2	5.9
	Germany	7	20.6
	Netherlands	1	2.9
	Poland	3	8.8
	Portugal	12	35.3
	Spain	1	2.9
	United Kingdom	2	5.9
Sport practice	Daily	4	11.8
	3-5 times a week	10	29.4
	1-2 times a week	7	20.6
	Once a week	4	11.8
	Never	9	26.5
Primary trail activity	Walking/Hiking	28	52.8
	Jogging/Running	5	9.4
	Biking	1	30.2
	Relax/connect with nature	16	30.2
	Other	3	5.7
Hiking time	1-5 months	3	9.1
	6-11 months	0	0.0
	1-2 years	5	15.2
	3-5 years	7	21.2
	5+ years	18	54.5
The average distance of practice trail	I do not know	0	0.0
	0-5 km	6	18.8
	6-11 km	15	46.9
	12-17 km	10	31.3
	18+ km	1	3.1
Frequency of hiking on mountain trails	Daily	1	3.2
	3-5 times a week	1	3.2
	1–2 times a week	1	3.2
	A couple of times a month	0	0.0
	Once a month	4	12.9
	A few times a year	15	48.4
	Once a year	5	16.1
	Never	2	6.5

(*Continued*)

Table 1. Continued.

Item	Variable	No.	%
Number of mountain trails hiking	I don't know	5	16.1
	1-4	5	16.1
	5-9	11	35.5
	10-14	2	6.5
	15-19	1	2.9
	20+	7	20.6
Approached cliff take pictures or get a better view	No	16	51.6
	Yes	15	48.4

analysis because most answers were between three and five years and over five years.

When asked about safety behaviors, most people admitted that they do not approach cliffs to take pictures or get a better view (51.6%). People who have been hiking for more than five years were the ones who responded that they had already approached a cliff to take pictures or to have a better view (50.0%).

An analysis was done to statistically evaluate the previous assumption that hikers with high experience (5+ years) approached cliffs more often than people with less experience, and it was verified that the difference between these groups is not significant, $\chi 2$ (1) = 0.133, p = 0.715.

When the participants were questioned about whether they felt safer hiking with a guide, most said they had never had one, as indicated in Table 2. Combining these data with the group with experience in hiking, it can be inferred that people with more experience never had a guide (33.3%), followed by people with less experience (23.0%). People with more experience, when accompanied by a guide, always felt safe (13.3%) or very safe (6.7%), while people with less experience also felt safe (20.0%) or very safe (3.3%). This corresponds to a slight difference in the perception of safety while hiking with a guide, between safe (6.7%) and very safe (3.4%) among the two groups of hikers based on experience. A statistical analysis of these variables indicated that the correlation of the perception of the safety of participants with little experience in hiking on the trail with a guide (Mdn=1.50) does not have a significant difference compared to participants with more experience in hiking (Mdn=0) concerning the perception of safety when walking with a guide, U = 102.0, p = 0.697, r = -0.09.

3.3. Mountain trails, injuries, and accidents

Considering the question of whether the participants checked the requirements (e.g., shoes or clothes suitable for the specificities of the route, lights for trails with tunnels, etc.) before walking on a mountain trail, it was verified that 23.55% of the participants answered that they had not checked the

Table 2. People's perception of safety and compliance with recommendations during mountain trails.

Item	Mdn*	IQR**
Felt safe walking with a guide (1 - Never had a guide, 2 - Very unsafe, 5 – Very safe)	1.0	3.0
Comply with the recommendations on mountain trails (1 – Never, 5 - Always)	4.0	1.0
Feel safe on Madeira Island trails	4.0	1.0

*Mdn = median; **IQR = interquartilerange.

requirements of the trail before starting it. When relating these data to people who have already taken guided hikes, it can be seen that: 32.3% of people checked the requirements of the trail when they did the guided hike, and 41.9% checked the requirements of the trail when hiking without a guide.

Considering the propensity to comply with suggestions, we can observe that 48.0% of participants comply most of the time with the recommendations made. Associating the experience of the hikers with compliance with the recommendations, we observe there is a difference of 16.0% between people with more experience (32.0%) and those with less experience (16.0%) in compliance most of the time with the recommendations made. Observing the option "always" on the Likert scale with the compliance with the recommendations made, it can also be observed that there is a difference (8.0%) between people with more experience in hiking (24.0%) and those with less experience in hiking (16.0%). Compliance with recommendations on the trails by people with less hiking experience (Mdn=4.0) does not have a significant difference compared to compliance with recommendations by participants with more hiking experience (Mdn=4.0), U = 80.0, p = 0.807, r = 0.06.

When participants were asked about falls (i.e., losing balance and collapsing to the ground) on mountain trails, it was found that most people never fell (67.6%), even though the falls were what worried people the most when hiking on mountain trails (46.9%), as illustrated in Figure 1. Analyzing the percentage of people that fell, it was verified that they fell once (11.8%), two times (11.8%), or three times (5.9%). Comparing falls with injuries suffered (hurt or damage in this context, without making it impossible for the person to continue his action), it was verified that only a few falls caused injuries (12.1%). Among the people who have already fallen on mountain trails, only 3.0% have had an accident (an incident that happens unexpectedly, resulting in damage that requires help from a third party to leave the trail).

When questioned if they felt safe on the trails on Madeira Island, most participants answered that they felt safe most of the time (Table 2). To verify whether the hiking experience influences people's perception, we grouped the perception of feeling safe on trails on Madeira Island with the hiking experience. It was found that people with more experience

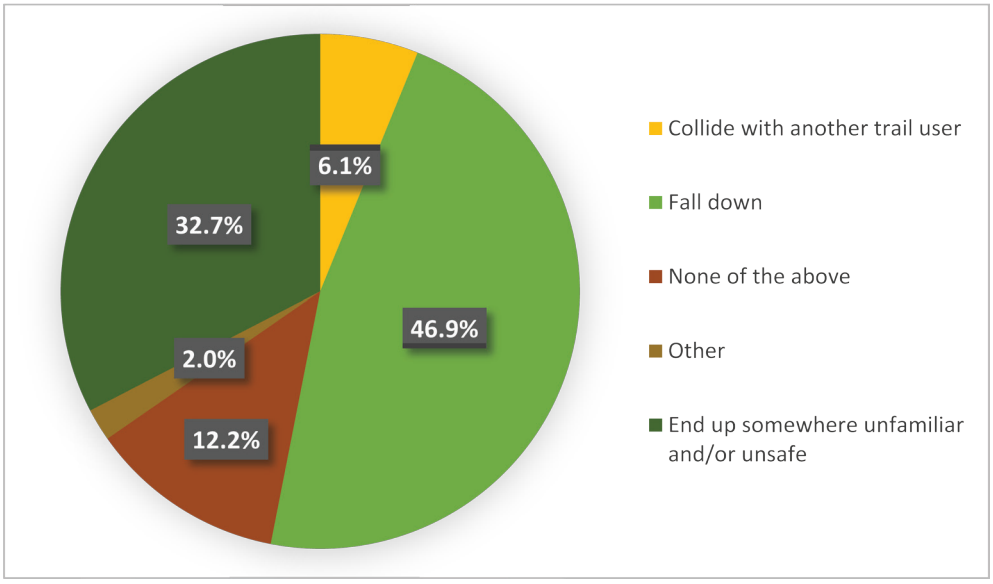


Figure 1. Distribution of people's biggest concerns when hiking on a mountain trail.

in hiking felt safe most of the time on Madeira Island trails (36.4%) when compared to people with less experience in hiking (27.3%). The perception of safety on the Madeira Island trails for participants with less experience in hiking (Mdn=4.0) does not differ significantly from participants with more experience in hiking (Mdn=4.0), $U = 171.0$, $p = 0.202$, $r = 0.27$.

4. Discussion

This study examined whether people with more hiking experience had a greater perception of safety hiking on mountain trails. In the first instance, the intention was to collect accident data through institutions that assist people suffering from accidents or injuries, similar to Faulhaber et al. (2020) and Gasser et al. (2022). However, this method of data collection was set aside for several reasons: all data obtained would be based on injuries and/or accidents; there would not be data on the perception of safety on mountain trails; it would be difficult to access data; and it would be hard to define what data the institutions should provide since there are no available protocols. Considering the aforementioned, data was collected directly on a mountain trail using a questionnaire. The survey was applied at the entry/exit of the mountain trail on Madeira Island. The questionnaire was used to identify whether people with more hiking experience had a greater perception of safety on mountain trails and whether they suffered fewer injuries and/or accidents on these trails due to their hiking experience.

In this study, the most common age of participants was between 29 and 39. In Faulhaber et al. study, the large percentage of participants were older people, with the average age being 56 years old (Faulhaber et al., 2020). It should be noted that in the questionnaires collected in this study, the data of participants who have accidents could be obfuscated due to the participants' age. If there had been a better sample distribution by the different age groups, there could have been a better perception of accidents by age.

Participants' hiking experience was considered high as most people have been hiking for over five years. Notably, those with more hiking experience were the ones who came closest to cliffs to take pictures or to get a better view. The question about coming close to cliffs could have been formulated differently. The question formulation did not allowed to conclude whether people have different attitudes on approaching cliffs with the increasing of years of experience in hiking. Approaching cliffs to take pictures or get a better view can be explained by people not minding taking some risks and enjoying life. Such explanation goes in line with Kortenkamp et al. (2021) observations, where most surveyed people agreed that when faced with a cliff, they tend to take some risks to enjoy life, believing they will not suffer injuries.

When analyzing whether participants check the trail requirements for mountain trails, it was found that most of them did it before initiating the trail. When accompanied by guides, people can be considered a little careless because they do not verify the requirements so much, potentially due to the assumption that the guide's presence ensures the necessary preparations for the trail. During an informal conversation with a certified guide, it was perceived that people who want to integrate a mountain trail accompanied by a guide are obliged to fulfill a certain number of requirements

(e.g., proper clothes and shoes, do a full stop to take pictures, do not leave the official trail), otherwise are left at their own risk. This also contributes to support the findings that guided hikers tend to check the requirements less often. Women in recent years are the ones who seek hiking guided tours the most (Klocker et al., 2022). However, when checking the obtained data, the majority of participants were women and it was not possible to verify the increase in use of guides, either by women or by men.

Regarding the question "Do you always comply with the recommendations made available on mountain trails?" which aimed to assess whether hikers fulfill the requirements to make the mountain trail more secure, it was observed that most participants met the requirements of the mountain trails. In Faulhaber et al. (2020). most people that went hiking and had an accident were hiking with sticks and backpacks with adequate equipment. An important detail in the previous reference was that people who brought all the necessary materials for hiking suffered accidents because of an imbalance in their backpacks as the materials were not well-packed. It is crucial to have the suitable material, but it is also essential to be well-packed and not to create imbalance. In this questionnaire, analyzing the collected data, similar results were obtained: people that had accidents on mountain trails brought the recommended material for the trails, possibly indicating that the accidents were not caused by missing the trail's requirements but due to other unknown factors. Verifying a difference in the relation between equipment recommendations compliance and the hiking experience was impossible. People with more or less experience in hiking answered that they complied with the equipment's requirements similarly.

During the questionnaires' application, it was observed a person who had blood on his arms and legs. After a brief dialogue it was possible to infer that the person probably fell down. Understanding the causes of these accidents and their impact on individuals' experiences is essential. In other studies, there is mainly verification of accidents through falls suffered by people who practice hiking. However, there is no way to quantify how many people have and do not have accidents in the same mountain trail. Existing studies use data that come from official sources reporting mountain emergencies (Faulhaber et al., 2017, 2020; Gasser, 2022). The current study detected that most participants never fell on a mountain trail, so they had no accidents caused by falls. Another aspect that cannot be detected in a study that only gets its data from official sources of emergencies is the number of injuries or minor injuries, as official emergency sources report accident numbers. People can suffer minor injuries and not need rescue, thus ending their journey on the mountain trail on their own. Among the participants who responded to had fallen in the present study, only 3.0% had an accident. These accidents occurred while hiking mountain trails without guides. Participants, when guided, did not have accidents, which is in line with Faulhaber et al. (2017) since only 4.1% of the accidents occurred when hiking with mountain guides. Considering the hiking experience, it was impossible to detect differences in the number of accidents between hikers with less experience and hikers with more experience. This goes against what Zürcher et al., (2020) presented: in most accidents, hikers had much experience in hiking. The present study has a fundamental role in the perception of how accidents may occur (e.g., approaching cliffs, not accomplishing trail recommendations); in the other small number of existing studies, there is no information about how accidents in hiking occurred. Looking at other physical activities practiced in the mountains, it can quickly be seen that there are known causes of accidents (Klocker et al., 2022; Roi, 2021), which is a piece of vital information to adopt measures so that accidents are avoided.

Regarding the participants' perception of safety on the trails on Madeira Island, it was found that the participants felt safe on Madeira Island trails despite of their hiking experience. It was impossible to find other studies that consider this type of perception.

When applying the survey on the mountain trails it was perceived that there were too many questions, and people were not available to fill them all. From authors' perspective, in future application of the survey, it is recommended to focus on fundamental data. From the data analysis, the questionnaire should identify: people's characteristics only by gender and age; hiking experience by asking the number of trails made and the average distance, being both of the answers an exact number of a Likert Scale; hikers' safety by keeping the questions about falls, accidents, injuries changing the scale for an exact number; hikers' safety perception by keeping the question about perception of the trail made and the question about approaching cliffs, that, as referred before, should infer a limit of time in years to verify when people are changing their behavior through time.

Some limitations of this study can be pointed out. The study sample was statistically significant for the analysis however, the sample size was small to have a better perception of the real facts; the questionnaire was applied only on one mountain trail, the ideal would be to apply it on several trails so that biased answers concerning aspects of the mountain trails could be avoided; and the questionnaire was lengthy (the average time for filling in the questionnaire was 5-10 minutes) so some of the approached people did not want to participate. Finally, it would be interesting to combine existing data from emergency services with the data collected in the present survey to check people's perceptions of whether

the current state of the trail reflects or not in the accident numbers.

5. Conclusions

Hiking practice has been increasing worldwide, due to the benefits for its practitioners. However, the safety of mountain trails remains an underexplored issue and needs to be better addressed in the literature. This concern is particularly exacerbated in regions frequented by a high volume of tourists who engage in mountain activities. A questionnaire was conducted on one trail on Madeira Island to assess hikers' perceptions and experience on mountain trails to surpass the lack of data.

In the statistical analysis, no correlation was established in safety on mountain trails between people with less or more experience in hiking. People's safety on mountain trails could not be defined based on hiking experience or other variables. The use of adequate equipment when hiking on mountain trails contributes to preventing accidents. People with less hiking experience did not have more accidents than people with more hiking experience; the analyzed values were similar, and it was observed that hiking experience was not an impacting factor on safety. To ensure the safety of hikers on mountain trails, it is essential to inform them about potential risks and maintain their environmental awareness. This can be observed by looking at the low numbers of accidents when hikers are guided since there is a previous preparation and rules for people to hike on mountain trails.

The process for gathering people's perceptions was made through a questionnaire. The questionnaire proved to be an effective tool for measuring and evaluating people's safety perceptions when hiking on trails. The obtained results from the questionnaire provide valuable insights into how individuals perceive and interpret hiking safety. The questionnaire intended to classify people in different groups of hiking experience to assess differences between them. From the data collected, it was possible to determine that people with different hiking experiences had different perceptions for the same situation. To classify people's safety perceptions Likert scales were employed, accompanied by concise descriptions to facilitate participants' selections and ensure consistency. By incorporating questions about people's emotions and behaviors, we were able to identify people's safety perceptions of the trails. These questions allowed to perceive that people may be apprehensive over dangerous situations on trails although they feel safe during their hiking on the trail.

Altogether, the collected data offer a baseline comprehension of mountain trails safety and hikers' behaviors contributing to improving Madeira Island mountain trails safety and to the definition of mitigating measures to reduce the number of accidents (e.g., identification of mandatory equipment when hiking on specific mountain trails, prohibition of approaching some cliffs on trails, recommendation of guide accompaniment in more challenging trails or for hikers with less experience, suggestions of trails for hikers according to their hiking experience).

In future work, it is intended to redesign the proposed questionnaire to make it shorter allowing a faster response by the participants. It was found that people were tired after hiking and did not want to fill out the questionnaire. Another goal in future work is to distribute the questionnaire across different trails with specific time intervals to obtain a valuable understanding of the influence of trail characteristics on people's perceptions and identify the trail conditions. With the data received from these questionnaires, it is aimed to create a database of trail status allowing hikers to check whether the conditions are suitable for their experience and hiking practice.

Funding and acknowledgements

Funded by national funds through FCT – Portuguese Science and Technology Foundation, within the project reference UIDB/04470/2020.

We would like to express our deepest gratitude to all the voluntary participants who generously dedicated their time and effort to complete the questionnaire. Their contributions were valuable and have played an indispensable role in the study and have greatly enhanced the quality of the findings. We extend our heartfelt thanks to each participant for sharing insights, opinions, and experiences through the questionnaire. The responses have provided us with a wealth of information, allowing to gain a comprehensive understanding of the subject matter.

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DOI: 10.34620/978-83-67405-28-7-006 • 2024 • 47-54

sciendo

Proceedings of the International Tourism Congress 23

Medieval fair of torre de moncorvo – visitor's perspective

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Abstract

The Medieval Fair of Torre de Moncorvo, located in the north of Portugal, has several editions since 2011, and its historical context is associated with D. Dinis and iron. This event stands out from other medieval fairs for the involvement of the local population. Thus, the present study aimed to analyze the profile of the Medieval Fair visitor, considering the following objectives: identify the visitor profile; determine visitor motivations; assess the level of visitor satisfaction; analyze visitor behavioral intentions. A quantitative methodology was adopted with the application of a questionnaire survey to visitors of the fair. The questionnaire was applied in two formats, on paper and online, obtaining 300 responses. A factor analysis was also performed, where three motivational factors and one attraction factor were found. Based on the factors identified, it can be concluded that visitors to the Medieval Fair of Torre de Moncorvo are attracted to this event for cultural reasons, seeking to relax and socialize, and are willing to recommend the municipality and the event, and return at the next opportunity. The results of the study can help the organization of the event to adjust the next editions of the fair to the profile of the visitor.

Keywords

medieval fair • visitor profile • visitor motivations • visitor satisfaction • visitor behavioral intentions

1. Introduction

Visitors to a territory actively seek experiences by combining various factors such as nature, cultural elements, local traditions, among others (Charters, 2006; Kim et al., 2016). Events as space-time phenomena, due to their authenticity and unique character, provide visitors with the opportunity to participate for a full enjoyment of experiences (Getz, 2008). Medieval fairs as historical re-enactment events allow destinations to promote their cultural heritage (Fu et al., 2018) and building relationships between the visited community and the visiting community. The purpose of medieval fairs is to establish a link between the past and the present and to portray everyday life (Brædder et al., 2017). For destination management, understanding the reasons that attract visitors to this type of events and knowing their profile, in order to segment the market, becomes strategic for future decision-making.

The Medieval Fair of Torre de Moncorvo is held in the municipality of Torre de Moncorvo, in the north of Portugal, and is the anchor event of the municipality attracts in every edition thousands of local and national visitors. Thus, considering the lack of studies, the present research has as main objective to analyze the profile of the visitor of the Medieval Fair of Torre de Moncorvo. A quantitative methodology was chosen, with the application of a questionnaire survey to visitors to the 9th edition of the fair, which took place on April 8th, 9th, and 10th, 2023. The questionnaire was made available in two formats, in paper format and in digital format in the Official Store of the Medieval Fair. Identifying visitors considering their sociodemographic profile, visit indicators, motivations, degree of satisfaction and behavioral intention is something innovative for the event organization. For the municipality of Torre de Moncorvo this study is a cornerstone for strategic decision-making for future editions of the fair. The paper is structured, in addition to this introduction, in the literature review and the framework of the medieval fair. This is followed by the methodology, the presentation of the results and some conclusions.

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2. Literature review

2.1. Cultural tourism and cultural events

The World Tourism Organization adopted the definition of Cultural Tourism like

> A type of tourism activity in which the visitor's essential motivation is to learn, discover, experience and consume the tangible and intangible cultural attractions/products in a tourism destination. These attractions/products relate to a set of distinctive material, intellectual, spiritual and emotional features of a society that encompasses arts and architecture, historical and cultural heritage, culinary heritage, literature, music, creative industries and the living cultures with their lifestyles, value systems, beliefs and traditions. *(UNWTO, 2017, p.18)*.

Recent decades have seen an increase in the use of culture and creativity to market tourist destinations, as culture has come to be seen as a resource that enables the creation of differentiated content and in turn offers new opportunities for cultural institutions and products (Quinteiro et al., 2020). According to Dominguez (2012), tourists perform a cultural activity that can be understood as the interest in objects and ways of life of other people and other cultures. Cultural tourism, therefore, can be understood as a way of personal enrichment and of expanding knowledge about other cultures. The *UNWTO* Report on Tourism and Culture Sinergies (2018) presented the different approaches to culture: i) culture 1.0/cultural tourism 1.0 (Grand Tour and consumption by a small elite); ii) culture 2.0/cultural tourism 2.0 (culture as industry and mass cultural tourism); iii) culture 3.0/cultural tourism 3.0 (culture as a platform for tourism and vice versa, as well as a means of creating identity). These changes stimulating social cohesion and supporting creativity (UNWTO, 2018). The culture associated with traditions must maintain its originality and authenticity, the latter being considered a key factor in cultural and heritage tourism (Barreto, 2007; Domínguez-Quintero et al., 2019). In this line of thought, cultural events allow the recreation and recovery of culture and traditions, strengthening the territorial identity and giving an authentic experience to visitors (Boucher et al., 2018; Getz & Page, 2016; Gomes & Devile, 2017). To Richards and Palmer (2010), territories are increasingly developing cultural events to celebrate local history and culture, such as medieval fair. Rashid et al. (2017, p.11) state that "the main purpose of cultural events is the celebration or confirmation of culture".

2.2. Cultural tourist

For Figini and Vici (2012) the cultural tourist visits sites and participates in cultural events that contribute to their personal enhancement. According to these authors, this type of tourist shows a concern with the preservation of cultural heritage and the local community they visit, seeking more authentic experiences with low environmental impact, and therefore sustainability has become one of the main concerns of the cultural tourist who increasingly seeks to minimize the negative impacts of tourism. Visitors who seek the authenticity of the territories experience the local culture (Ferreira, 2018). These experiences provide knowledge and contact with ancestral ways of life, valuing the local culture (Amaral, 2019). According to Gregori et al. (2019), cultural tourists seek to learn about and engage with new cultures, history, art, architecture, local traditions, and have a high level of education and income. They are demanding in terms of the quality of the cultural services and products they consume, and travel alone or in small groups. They spend more time in each destination they visit than other types of tourists. This type of tourist is concerned with preserving the cultural heritage and the local community they visit, looking for more authentic experiences with a low impact on the environment and society. Sustainability has therefore become one of the main concerns of cultural tourists, who are increasingly seeking to minimize the negative impacts of tourism. The cultural tourist travels out of season and is likely to spend more money compared to other types of tourists (Vergori & Arima, 2020). From the World Tourism Organization (UNWTO, 2019, p. 30) in the cultural tourism "…the visitor´essential motivation is to learn, discover, experience and consume the tangible and intangible cultural attractions/products in a tourism destination".

3. Methodology

The aim of the present study is to provide struturated information on the characterization of the profile of visitors to Medieval fair of Torre de Moncorvo. The following specific objectives have also been defined: i) Identify the visitor profile; ii) Determine visitor motivations; iii) Assess the level of visitor satisfaction; iv) Analyze visitor behavioral intentions.

Torre de Moncorvo is a municipality in the north of Portugal, with medieval roots dating back to the 13th century. The municipality was originally known as Santa Cruz da Vilariça and was granted a charter by King Dinis in 1285. The king also endowed the town with a castle and walls. Later, in 1319, he issued the Charter of Feira, which facilitated the economic development and settlement of the region.

In order to recreate what a medieval market would be like, the Medieval Fair was organized and promoted by the Torre de Moncorvo School Group in 2011, with the support of the Municipality. That year the fair only ran for one day and in 2014 it was taken over by the municipality and became an annual event lasting three days. Since then, all editions are

associated with a theme that always has as its pillar D. Dinis and iron because Torre de Moncorvo has the largest open-air iron deposit in Europe, explored since Roman times. In 2015 it established itself in the panorama of medieval fairs in the country. In 2022, the 9th edition of the Medieval Fair was held with the theme "Trovas de D'El Rei D. Dinis na Terra do Ferro". In this edition there were 10 partner entities, 23 entertainment groups and about 90 exhibitors among them artisans, merchants, mystics and taverns that during the three days sell the products of the season and also the endogenous products of the municipality (CMTM, 2022). The great involvement and active participation of traders and the resident population during the course of this event became a differentiating factor compared to the others (CMTM, 2023). This fair is held in April to comme morate the charter granted to the county by King Dinis in April 1285.

Following the work by Barbeitos et al. (2014), one of the objectives is to analyze how three exogenous latent variables (Novelty and Cultural Exploration, Socialization, and relaxation) affect the endogenous latent variable (overall satisfaction with the event). We have retained the a partial set of hypotheses from Barbeitos et al. (2014), which are now applied to the Feira Medieval de Torre de Moncorvo, as follows:

H1: Visitor motivation positively influences overall satisfaction with the event experience.
H1a: Novelty and cultural exploration positively influence overall satisfaction with the event experience.
H1b: Socialization positively influences overall satisfaction with the event experience.
H1c: Relaxation positively influences overall satisfaction with the event experience.

This study utilized a survey methodology, employing a self-administered questionnaire. The target population consisted of visitors attending the Torre de Moncorvo Medieval Fair. The sample comprised 300 valid responses, collected through convenience sampling. To ensure the validity of the instrument, a pre-test was conducted with a sample of 12 individuals. The questionnaire was made available at the Official Shop of the Medieval Fair of Torre de Moncorvo during the 2022 edition, which took place on April 8th, 9th, and 10th. It was provided in paper format and accessible through QR codes, a link, and with the participant's informed consent at the Medieval Fair, where they provided their email contact to later receive access to the questionnaire link.

The questionnaire consisted of five sections aimed at measuring various aspects, including socio-demographic characteristics, visitation characteristics, a general analysis of the Medieval Fair experience, evaluation of the respondents' satisfaction with the Medieval Fair, and their intention to recommend and revisit Torre de Moncorvo municipality and the Medieval Fair. To assess visitor motivation, we utilized a Likert scale of importance that was used for medieval fairs by Barbeitos et al. (2014).

In the initial stage of the analysis, the data underwent careful examination to identify missing values and outliers. Jamovi version 19 was employed to construct visitor profiles for the Torre de Moncorvo Medieval Fair. Two methods of data analysis were utilized: univariate and multivariate. Univariate analysis was used to describe and summarize the data using measures of central tendency. Multivariate analysis was employed to identify patterns and relationships among variables, including factor analysis.

4. Results and discussion

4.1 Sociodemographic profile

Regarding the sociodemographic profile of the Medieval Fair visitors, 59.7% are female and 74.7% are between 18 and 44 years old. More than 60% of the respondents have a high school degree, and 32.7% have a college education. More than 64% are employees and have a household monthly net income between 1001€ and 2000€. Almost half of the respondents (47.3%) live in the municipality of Torre de Moncorvo and of the non-residents (52.7%), 17% live in Bragança district, 10.3% in Porto district and 6% in Viseu district. Of the visitors living abroad (3.2%), 60% live in France and Spain.

4.2 Visitor Characteristics and Satisfaction at the Torre de Moncorvo Medieval Fair

As for the characterization of the visit, 73.3% of the respondents have the habit of participating in events of the same nature and approximately 91% claim to have already visited previous editions of the Torre de Moncorvo Medieval Fair. Most respondents who do not live in the municipality where the event takes place (58.2%) stay in the municipality of Torre de Moncorvo and choose the house of relatives and friends as their accommodation (55.4%), and 21.7% of respondents decide to stay in lodging units (local accommodation and rural tourism). The respondents were accompanied by friends (65%), partner (46%), other family members and children (39.7 and 33%, respectively).

Of the non-residents in Torre de Moncorvo, more than half of the respondents (65.2%) stated that the main reason for visiting the municipality was the Medieval Fair. Of those who answered negatively to the previous question, 73.3% point to visiting friends and/or family as the main reason.

As far as the number of times the respondent has already participated in the Torre de Moncorvo fair, most of them are revisitants. Of the respondents, 30.6%, corresponding to 83

people, participated in all editions of the Medieval Fair. Of the people who visited the medieval fair more than five times, 84% are residents of Torre de Moncorvo municipality. It is worth mentioning that of the residents from other municipalities in Portugal and abroad, 74% have visited the Medieval Fair at least twice.

Analyzing the main sources of information consulted, we highlight the social networks, the municipality's website, and the recommendation of relatives and/or friends (word of mouth). It can be concluded that the organization of the event should continue to invest in the dissemination and promotion of this event through digital media and also in the quality of the event so that the satisfaction of the participants is high and thus be able to recommend the visit to other people.

An analysis was made of the degree of importance attributed to the motivations, for visitors to the Medieval Fair. The question was designed according to a five-point Likert-type importance scale (1. not at all important, 2. not very important, 3. indifferent, 4. important and 5. very important) and composed of a set of 10 items. It was defined that less than three is at most "not very important", equal to three "indifferent", and greater than three is at least "important". It can be concluded that "enjoying this type of events", "enjoying new experiences and cultures", "finding new things", "a valuable experience" and "relax" are the main motivations that lead visitors to participate in the Medieval Fair (Table 1).

The most purchased products at the Medieval Fair were handicrafts (44.3%), Torre de Moncorvo's covered almonds (40%) and wine (35%). Of the 9% of "other products" purchased are caramelized sunflower seeds, bread, crepes, handmade chocolate, among others. When asked about the purchase of products outside the Medieval Fair site, 88.6% answered that they didn´t purchase products outside the site, and 11.4% said they did purchase, namely food products (43.8%) and wine (20.6%).

Table 1. Motivations

Motivations	N	Less than three (%)	Equal to three (%)	Greater than three (%)	Mean	Standard Deviation ±
Enjoying this type of events	300	1,7	11,3	**87**	4,45	0,797
Enjoying new experiences and cultures	300	3	9,7	**87,3**	4,42	0,836
Finding new things	300	4,3	14,7	**81**	4,25	0,908
A valuable experience for me	300	3,7	16,7	**79,7**	4,23	0,89
These types of events contribute to my relaxation	300	4,3	14,3	**81,3**	4,23	0,921
These types of events changes my routine	300	6	19,7	74,4	4,13	1
Increase my knowledge about history region	299	5,7	21,4	72,9	4,09	0,979
Slow down my life	299	12,4	21,7	65,9	3,86	1,16
Make new frends during the event	300	14,3	25	60,7	3,75	1,19
Meet people with similar interests	300	16	23,3	60,7	3,7	1,19

Source: Authors construction.

Table 2. Attractions

N=280	Less than three (%)	Equal to three (%)	Greater than three (%)	Mean	Standard Deviation ±
Gastronomy	1,5	7,5	**91,1**	4,52	0,713
Event organization	1,4	8,6	**90**	4,48	0,743
Handicraft	1,8	6,1	**92,2**	4,47	0,708
Supply and diversity of activities	1,8	10,4	87,9	4,43	0,777
Security	3,2	8,9	87,8	4,43	0,927
Event program	2,5	9,3	88,2	4,42	0,791
Event infrastructure	1,8	12,9	85,3	4,39	0,805
Available information	2,8	15,4	81,8	4,26	0,846
Event signage	7,2	13,9	78,9	4,16	0,955
Prices	7,5	17,9	74,6	4,04	0,988
Parking	27,9	26,4	45,7	3,31	1,31

Source: Authors construction.

Regarding the degree of satisfaction of the experience during the Medieval Fair, 11 attractions were evaluated by applying a Likert-type satisfaction scale on a five-point scale (1. not at all satisfied, 2. not very satisfied, 3. satisfied, 4. quite satisfied, and 5. very satisfied). It was considered, less than three is at most "not very satisfied", equal to three "satisfied" and greater than three is at least "quite satisfied".

In general, respondents showed great satisfaction with their experience during the event, however, the least satisfactory aspect was the parking lot. This may be due to the fact that there are few parking spaces relatively close to the site where the Medieval Fair takes place for the affluence that has been registered throughout the editions. Gastronomy, event organization and handicraft, deserve to be highlighted because they are the ones that present a higher degree of satisfaction from the respondents (Table 2).

4.3 Evaluation of the visit and behavioral intent

It appears that the respondents are generally satisfied with their visit, since the average response is 4.71 with a standard deviation of 0.540. As for visitors' behavioral intention, it was assessed using a Likert-type scale from 1 to 5 (1. strongly disagree, 2. disagree, 3. indifferent, 4. agree, and 5. strongly agree). Relatively to the municipality of Torre de Moncorvo and the Medieval Fair, the respondents show a high degree of agreement, more than 4.5. Visitors recommend Torre de Moncorvo to others and would like to return in the near future. Revisiting is an important aspect because it demonstrates loyalty of the respondents.

Analyzing the behavioral intention towards the Medieval Fair the average of answers responses in all items presented is higher than 4.8. With a similar analysis to the previous question, most respondents recommend a visit to the Medieval Fair and show a revisit behavior towards the event, which justifies the high response rate of participants in previous editions of the Medieval Fair of Torre de Moncorvo.

The respondents were asked to describe the Medieval Fair and the municipality of Torre de Moncorvo in three words. The words most associated with this event were fun, culture, joyful, history, animation, unique. The words that stand out most in the description of the municipality are: welcoming; beautiful; landscape; gastronomy; nature; culture, among others. It should be noted that the words associated with the event and the region are positive.

4.4 Factorial Analysis

The principal component analysis was performed and rotated using the varimax procedure (Table 3). As previously reported by Barbeitos et al. (2014) in their study, three factors were identified and named as "Novelty and cultural exploration," "Relaxation," and "Socialization."

The first factor, "Novelty and cultural exploration," carries the most significant weight, explaining 34.2% of the data structure. It encompasses five motivations associated with cultural exploration, such as enjoying new experiences and cultures, discovering new things, and increasing knowledge about the region's history.

The third and final factor groups two motivations related to socialization, namely making new friends during the event and meeting people with similar interests. This factor explains 21.1% of the data.

The Kaiser-Meyer-Olkin (KMO) test, used to assess the sampling adequacy, obtained a score of 0.869. The Bartlett's test of sphericity was found to be significant (p - value < 0,1%). The three factors together explain 77.8% of the total variance, and the Cronbach's Alpha for each factor indicates an acceptable level of internal consistency.

Table 3. Factorial Analysis – Motivational Factors

Indicators and Motivational Factors	Communalities	Explained Variance (%)	Cronbach's Alpha
Factor 1: Novelty and cultural exploration		**34,2**	**0,899**
Enjoying new experiences and cultures	0,876		
Finding new things	0,822		
A valuable experience for me	0,790		
Enjoying this type of events	0,777		
Increase my knowledge about history region	0,657		
Factor 2: Relaxation		**22,4**	**0,817**
Slow down my life	0,856		
These types of events changes my routine	0,844		
These types of events contribute to my relaxation	0,671		
Factor 3: Socialization		**21,1**	**0,912**
Meet people with similar interests	0,892		
Make new frends during the event	0,886		

Based on the identified factors, it can be concluded that visitors to the Medieval Fair of Torre de Moncorvo are attracted to this event for cultural reasons, seeking relaxation and socialization.

Regarding the satisfaction attribute, the results of the principal component analysis after varimax rotation on the indicators associated with satisfaction of the attraction factors at the Medieval Fair are presented in Table 4. The KMO test, which evaluates the adequacy of the sample, yielded a score of 0.938, surpassing the recommended value of 0.60 for a valid analysis. The Bartlett's test of sphericity indicated significance (*p* - value < 0,1%).

From this analysis, only one component, or factor, emerged. This factor accounts for 66.3% of the total variance, and the Cronbach's Alpha is 0.937, signifying a high level of internal consistency.

In the evaluation of "Event Satisfaction," key factors with high communalities values significantly impact visitor contentment:

- Event Organization (Communalities: 0.892) - Efficient event management strongly influences visitor satisfaction, emphasizing the importance of well-organized logistics.
- Supply and Diversity of Activities (Communalities: 0.884) - Providing a wide range of engaging activities is essential, as visitors highly value diverse entertainment options.
- Event Program (Communalities: 0.881) - A well-structured and appealing program contributes positively to overall satisfaction.

Conversely, factors with lower communalities values, such as Parking (Communalities: 0.583), have a weaker influence on visitor contentment, indicating areas for potential improvement. These insights guide event organizers in enhancing visitor experiences.

Pearson's correlation coefficient was computed to validate the study hypotheses by examining the relationship between the dimensions and event satisfaction. Analyzing Table 5, it becomes evident that all obtained correlations are positive and significant at the 1% level, providing confirmation for all research hypotheses. Consequently, it can be concluded that all components exert a positive influence on the event satisfaction score, with particular emphasis on the "Novelty and cultural exploration" component.

Table 4. Factorial Analysis – Attraction Factor

Indicators and Attraction Factor	Communalities	Explained Variance (%)	Cronbach's Alpha
Factor 1: Event Satisfaction		**66,3**	**0,937**
Event organization	0,892		
Supply and diversity of activities	0,884		
Event program	0,881		
Event infrastructure	0,855		
Available information	0,851		
Security	0,843		
Gastronomy	0,819		
Handicraft	0,818		
Event signage	0,778		
Prices	0,700		
Parking	0,583		

5. Conclusions

The Torre de Moncorvo medieval fair stands out from others due to the strong involvement of the local community. Events can significantly contribute to the development of a tourist destination by increasing visitor flow and addressing seasonality, leading to a positive economic impact on the local community. Additionally, they can serve as a complement to a destination's existing offerings, reflecting the tradition and history of the area and creating new opportunities for visitors to experience different aspects of the local culture. Well-executed events can foster a sense of pride and cultural identity in the local population, particularly when they actively participate in organizing and carrying out the events.

In response to the specific research objectives, the first objective - identify the visitor profile, shows the following results about sociodemographic profile: 59.7% are female and 74.7% are between 18 and 44 years old; high school degree (more than 60%); employees and household monthly net income between 1001€ and 2000€; 47.3% live in the

Table 5. Dimensions and Event satisfaction

	Novelty and cultural exploration	Relaxation	Socialization	Satisfaction with the event
Novelty and cultural exploration	-			
Relaxation	0,555*	-		
Socialization	0,542*	0,513*	-	
Satisfaction with the event	0,659*	0,476*	0,406*	-

*value of *p* < 1%.

municipality of Torre de Moncorvo; 60% of the foreign visitors live in France and Spain. The visitor who has already visited the fair in other editions (approximately 91%), 58.2% didn′″t live in the municipality and choose as accommodation the house of relatives and friends (55.4%). Friends and partner are your travel group (65% and 46%, respectively). The Medieval Fair is the main reason for visiting the municipality (65.2%). The social networks, the municipalty´s website and the recommendation of relatives and/or friends are the main sources of information consulted.

Regarding the second objective - determine visitor motivations, "enjoying this type of events", "enjoying new experiences and cultures", "finding new things", "a valuable experience" and "relax" are the main motivations for visitors participated in the Medieval Fair. The principal component analysis reveals three groups of factors, as previously reported by Barbeitos et al. (2014), that motivate visitor travel and participation in the Feira Medieval de Torre de Moncorvo: Novelty and Cultural Exploration, Relaxation, and Socialization. Among these, Novelty and Cultural Exploration emerge as the most relevant factors for visitors seeking new experiences related to local traditions and culture. The second most significant factor is Relaxation, catering to visitors looking to unwind and escape from their daily routines.

For the third objective - assess the level of visitor satisfaction, it was concluded that Novelty and Cultural Exploration, Relaxation, and Socialization have a positive impact on event satisfaction. The most important component for event satisfaction is Novelty and Cultural Exploration. The respondents were very satisfied with the event, however, the least satisfactory aspect was parking.

In response to the fourth specific objective - analyze visitor behavioral intentions, the vast majority of respondents recommend a visit to the Medieval Fair and show a revisit behavior towards the event. The positive emotional association with this event were fun, culture, joyful, history, animation, unique.

All the hypotheses applied to this study were validated, that is motivations such as novelty and cultural exploration, socialization and relaxation, positively influence overall satisfaction with the event experience.

Based on the information obtained in this study, event organizers can adjust the program, as well as the services offered during the course of the event, to meet the specific expectations of visitors. In this way, the organization can ensure that visitors have an experience more in line with their expectations, increasing overall satisfaction and the success of the event.

One of the main limitations is associated with the data collection method, that is, the questionnaire survey, as there was little receptivity from some visitors to respond to the questionnaire, even though it was made available in various formats (paper, QR code, link). In view of this limitation, future researchers are advised to use another strategy to increase the response rate, which could involve offering incentives such as a discount on products and/or a gift.

For future lines of research, it would be valuable to assess the resident population's perception of this event in order to identify its social, economic and cultural impact on the community. This information can help the event organizers deal with the impacts of the event more effectively for the benefit of both the sending and receiving communities.

Acknowledgements

The authors acknowledge the financial support of CiTUR, R&D unit funded by the FCT—Portuguese Foundation for the Development of Science and Technology, Ministry of Science, Technology and Higher Education.

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DOI: 10.34620/978-83-67405-28-7-007 • 2024 • 55-63

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Proceedings of the International Tourism Congress 23

The impact of hotel activity on its companies' capital expenditure

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Abstract

Based on the fact that tourism industry is one of the most important industries for the Portuguese economy in recent years, capital expenditure in assets to support the operational activity of hotels will tend to be significant. Because financial theory states that investments are fundamental to companies' performance on long term this study allows to understand how the investments in real assets are important for hotel companies. So, the goal of this study is related with the determinants of investments in the hotel sector. The results of data collected from Portuguese companies in this sector show that investment by Portuguese hotels companies are negatively related with variety of services (facilities), property, economic crises, cash flows, age, size, and positively associated with debt, business risk and sales growth.

Keywords

Investment • capital expenditure • Hotels • Debt • Profitability

1. Introduction

Companies on hotel industry have an additional challenge, comparing with others, related with the decision related with the buildings and facilities that are the base for their operational activity. In general, the activity of companies in this sector need to use many buildings and facilities, which means that they are potentially real estate intensive to leverage the operations with positive impact on performance. Thus, companies potentially follow an active policy of investments, that are higher at the beginning. Alternatively, companies can choose to lease or rent the real estate buildings and facilities to minimize their investments and risks. It cannot be ignored that several factors can influence the decision and investment amounts. So, what are the main topics that can impact on capital expenditure (i.e., investments on real estate buildings and facilities)?

This study analyse the main determinants that can impact investment by companies in the hotel sector. Based on the Portuguese hotel market, this work analyses the capital expenditures, like the building and operational facilities. This topic is relevant for companies and its shareholders since investments are potential creators of company's performance, and are one of the main drivers of value creation.

The empirical study use data from Portuguese companies between 2010 to 2020. Based on multivariate regression methodology, the results show that service variety, propriety and economic crises, followed by cash flow, age, size, debt, business risk, sales growth are the factors that most impact investments.

This work has important contributions. First, it adds information about capital expenditure literature since it also show the factors that impact the companies' investment decisions. Second, the study has a different approach based on the importance of operational activity and strategy of companies. Finally, it was not possible to find additional works that study this issue on hotel companies.

This study is organised as follows. In the next section presents the main literature review about investment. Then, the methodology is shown. Section 4 show the empirical analysis. Finally, the conclusions are at the end.

2. Literature review

Financial theory states that companies investments are relevant to create value in companies and

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Peric and Radic (2011) states that investments are fundamental for the country's economic growth. In this sense, investments are important for the economic growth and a way of improving the living standards of nations (Batu, 2016).
Habibi et al. (2018) states that tourism is very relevant for the economic development of a country with positive impact on inhabitants, which turns the investments by the companies in hotel sector very important to the economy, and a way of promoting their performance and the region development. For example, a hotel that receives tourists help to increase the sales in other industries in that region. So, the implementation of a hotel in a region brings additional customers to other sectors than tourism (Işik, 2015).
The hotel sector is one the most important on tourism industry (Pop, 2009), which is related with the fact that provide accommodations and other facilities for all kind of tourists, like occasionally or often travel for work, pleasure, meetings or conferences. Băneș et al. (2018) states that tourists in general requires better accommodation and entertainment. This also have impact on companies decision that have the desire to satisfy the customers, since companies must provide hotels with conditions that suit their clients' interests.
Since investments on tourism are so important for the economic growth and development, if should be done an in depth analysis to understand which are the main company factors that impact companies decision about investment in the hotel sector. Before the analysis of the main important factors it is relevant to know the main and distinct characteristics of this industry.

2.1. Hotel sector characteristics

The companies in hotel industry have great amount of real assets, which intrinsically related with their operations and are the basic support to generate income. In general, there are essential behaviours that are unique since this kind of companies also have specialized real estate investments (Marriott, 2016). There are a lot of characteristics in this business that can have important effects on the decision to have higher capital expenditures. For example, the hotel brand - independent or franchise - rating associated to the number of stars, the hotel capacity – number of beds – and the facilities available like restaurants, meeting rooms, outdoor and indoor pools, spas, tennis courts and gym rooms, golf fields, etc..

2.1.1. Brand

A brand (e.g. Altis, Ibis and Pestana) is used by marketing to support costumers or potential costumers to recognize an organization and helps the companies to affect how potential costumers understand the company and their products or services. Therefore, brands employ distinct characteristics to create and show their identities in the market, which help to enhance the business value, providing an advantage over their competitors. Because a brand can significantly increase the asset's value, the selection of the appropriate brand name is very important (Marriott, 2016). In this sense, branded hotels are increasing around the world and they have higher value comparing to new and non-brand hotel (Marriott, 2016). Note that franchises are a strategy for fast growth and potentially increase the owners' performance. When compared with independent and unrecognized brand, Marriott (2016) also states that franchises are a great opportunity to get better and more favourable financial terms when seeking capital for investment.
In this regard, the differences between independent and franchised brands seems to differently influence the companies' decisions about the capital expenditure. Since brand hotels have higher requirements to fulfil, the companies with a brand franchise hotel are expected to have higher investments than companies with independent hotels.

2.1.2. Antiquity of trademark registry

The trademark registry assists the costumers to recognize and differentiate a company from another and help to create a business's identify to the public. In this sense, the age of the hotel's (or the chain of hotels) trademark or brand can be an important factor in the hotel's environment. Note that trademark registry helps to protect the mark or one that is confusingly similar for same or related products and services. Since companies with older trademark registry or brand spend greater amounts of money in investments to maintain their quality, the age of trademark registry may have a positive effect on company's investments.

2.1.3. Categorization

Mao and Yang (2016) evidence that capital expenditure of hotel companies is positively influenced by their star ratings in China. The categories of stars rating is very important everywhere in this industry. The star rating requires different levels of quality and quantity of facilities a hotel provides, but in general the biggest, more diverse and luxurious need a much higher amount of investments. So, companies hotels with higher star categorization are expected to be positively associated with investment.

2.1.4. Capacity

The size of the hotel measured by its capacity is also relevant, since the number of available beds by a hotel have direct impact on the investments done. Considering that beds are a basic service provided by hotels, the companies that have hotels with more rooms requires higher capital expenditure.

2.1.5. Service variety

In addition to bed capacity, the variety of services may also have a great importance for the decision of investments since more services provided higher amounts of capital expenditures. The facilities that each hotel can offer to their clients are important not only improve the company's performance, but it also requires more investments. Note that each category of hotel has different kind of construction related with the facilities that are available (Marriott, 2016). The decision to build or invest in would be a careful process, since different hotels offer diverse number of services with distinct level of quality, which turn each one of them unique. Note for example that more luxurious hotels have full service and amenities, like restaurant operations, sporting areas and perhaps even full-service spa, and, consequently, have to hire more qualified management to operate them, which leads to greater capital expenditure. It seems that companies with hotels with more facilities are positively associated with capital expenditure.

2.2. Factors that affect capital expenditure

Dogru and Sirakaya-Turk (2017) states that companies can finance real estate investments through their own internal capital, debt, equity, or a combination of these.

Nguyen and Dong (2016) states that the size and cash flow are positively associated with investment decisions and Ajide (2017) refers that leverage, cash flow (retained earnings), sales, and stock of liquid assets are also important for companies' investment. Based on econometric estimations, Ruiz-Porras and Lopez-Mateo (2011) also find that the company's size, cash flow and investment opportunities are positively related with company's investments.

In addition to the above operational issues in hotels, it is also important to analyse some other factors that can influence the decision of investments. That factors are analysed bellow.

2.2.1. Cash Flow

The cash flow available on the company for investment is fundamental for the investment decisions, and it acts as a possible measure of the company's performance and turnover, which is positively associated with the capital expenditure (Phan & Nguyen, 2020). Cash flow is a very important factor for companies' investment decisions which can boost their investment (Nguyen & Dong, 2016). Therefore, cash flow is expected to be positively associated with capital expenditure.

2.2.2. Age

The age of the company may also have importance for capital expenditure, since older companies may have greater recognition because they prove to have the ability to continue their operational activity over time, for example the creation of a customer base, reputation, development of products and services specially customized for the sector and clientele, and experience and knowledge in the industry.

Although Serrasqueiro (2016) explain that young firms may have more obstacles on borrowing, older companies will be more able to get credit, suggesting that older companies offer indicators of life and trustworthiness to the market, which has impact on better financing conditions. So, older firms experience less challenges when borrowing and new companies that need to expand should have more investments and need more to borrow. The start-up companies do not have enough credibility to borrow because they don´t have a story to prove their actions, but the older companies have experience and credibility to borrow for capital expenditure. Therefore, older companies are expected to have higher capital expenditures.

2.2.3. Size

The size of the companies can also be related with investments, since large hotels are highly capital-intensive (Puciato et al., 2017). Muhammad and Shehzad (2017) evidence that small and medium-sized companies are more likely to have financial concerns and have additional challenges to decide about capital expenditure. However, their significance varies depending on the company's size and age. Smaller companies are more sensitive to changes in the financial environment (Mills et al., 1995) and creditors finance these companies more expensively because they don't know them so well, neither their creditworthiness.

In a study for the Portuguese companies Serrasqueiro (2016) find that size is negatively associated with investment done by low small and medium sized companies. In this line, it is expected that size negatively impact investment.

2.2.4. Debt

For the capital expenditure is important to understand if companies can leverage their investments with debt from creditors. Debt is a very important source of capital to encourage investments by companies (Serrasqueiro, 2016). There is a positive relation between debt and capital expenditure (Nguyen & Dong, 2016).

Debt can leverage the company's investments, since it is expected that higher amounts of debt are associated with higher capital expenditure.

2.2.5. Risk

The development of projects has a lot of uncertainty and is subject to risk because there are a possibility that an investment won't provide the desired return and leads to a potential loss of the investment. The risk is related with

the possibility of company or an investment do not meet its financial objectives, which is an important features on companies' investment. Because risk has a potential positive impact on capital expenditure (Phan & Nguyen, 2020), it is expected a positive relation between risk and investment.

2.2.6. Sales growth

Nguyen and Dong (2016) also find that sales growth has positive impact on companies' investment. In addition, Phan and Nguyen (2020) evidence that sales growth favourably affects the companies investment choices. Both studies show that sales growth is an important factor in capital expenditures decisions and that it can boost investment.

Brenner and Rushton (2016) also stated that companies with higher sales growth had preceding investments above average and companies with below-average sales growth tend to have below-average earlier investments. Since sales growth are important for capital expenditure and might encourage investment, it seems that sales growth is positively associated with capital expenditure.

2.2.7. Investment opportunities

The companies investment opportunities are also relevant for the investment decisions with impact on investment rate. For example, investment opportunities are negatively related with investment decisions in Vietnam (Phan & Nguyen, 2020).

Nguyen and Dong (2016) states that companies that try to increase their value through positive net present value projects seems to have more investment opportunities and are also more available to follow with more investment. Also, Ruiz-Porras and Lopez-Mateo (2011) find that investment opportunities are positively associated to investment decisions. It seems that investment opportunities have positive impact on investment.

2.3. Financial and economic crisis

On last 15 years the world face a lot of challenges with international crises that impacted everywhere and the tourism sector suffered negative consequences. In 2008 the world had the harshest global financial crisis since the second world war. In 2020 there was the pandemic COVID-19 that hurts the economy and negatively affected travelling's and close people at their homes. In 2022 arises the war between Ukraine and Russia. All these crises had negative impacts on economies and on companies, like in tourism sector companies, like major declines in business output, employment, trade and inflation. Therefore, the effects of economic and financial crises on capital expenditure must be studied.

Regarding the impact of 2008 financial crisis on investment, Serrasqueiro (2016) evidence that companies decrease their investment rate because of the financial crisis. In general, the crisis should have a negative impact on capital expenditure.

3. Methodology

3.1. Capital expenditure in hotel companies

Based on the importance of the investment made by companies to their performance and to increase wealth for shareholders, this work analyse the determinants of investment by Portuguese companies in hotel sector.

There is theory that shows a positive impact of a hotel brand and its recognition on the company performance. However, in a way to get the brand and recognition companies need to spent money to get the required level. Therefore, it is important to understand the relation of the independent / franchised hotel brands on investment, and the impact of the antiquity of trademark registry.

Regarding the hotel characteristics, the star rating level can have impact on investment since higher star level requires higher capital expenditure, which is related with the fact that higher star's hotels have more diverse, luxurious and more complex. Additionally, each hotel provides different and distinct facilities to their customers, which can also require different amount of investment. Another important topic for capital expenditure is the hotel capacity of rooms/beds, with impact on the hotel size.

On the last 15 years the world face to main international crisis. The 2008 financial crisis and 2020 economic pandemic crises impacted tourism activities done by people in general that can have impact on company's decisions about investments. The idea is that maybe tourism decrease and hotel companies are not so available to spent money on capital expenditure because they expect lower returns and performance in these periods.

This study analyses two additional topics that can impact company's investments. On the one hand, the nationality of the hotel owner. The idea is to understand if the foreign owner vs national owner has impact on capital expenditures. On the other hand, hotel management have to decide an operational model of management based on the fact that they can be the owners of the hotel building or if their company lease the buildings.

3.2. Data

The empirical analysis is based on data collected from two main databases. SABI database allows to collect financial data from companies in hotel sector and RNT database provide data about hotels' characteristics.

This study uses a period of 11 years, between 2010 until 2020, which allows to collect data from 77 287 companies, which

correspond to 168 740 (companies/years) observations. However, due to the lack of some information, the work uses 9073 observations.

3.3. Analysis model and variables

This work uses an Ordinary Least Squares model (OLS) based on the main characteristics that can impact company's investments. The main topics analysed are related with the hotel's operational activities and financial situation of companies in this sector. The dependent variable is the investment (or capital expenditure) done by hotels companies from a year to the following year, and in this work "investment" and "capital expenditure" have the same meaning. The model has the following specification:

$$INV,t = \beta 0i,t + \beta 1.CASi,t + \beta 2.AGEi,t + \beta 3.SIZi,t + \beta 4.DEBi,t + \beta 5.RISi,t + \beta 6.SLGi,t + \beta 7.ROAi,t + \beta 8.NHTi,t + \beta 9.BRAi,t + \beta 10.ANTi,t + \beta 11.CATi,t + \beta 12.VARi,t + \beta 13.CAPi,t + \beta 14.NACi,t + \beta 15.PROi,t + \beta 16.CRIi,t + \mu i,t$$

The variables are defined on Table 1.

4. Empirical analysis

4.1. Descriptive statistics

The descriptive statistics on Table 2 helps to understand the main topics from the collected database.

The companies on average operates 1.22 hotels, but it can reach 26 hotels operated by a firm on maximum. An important note is that 75% of the hotel constructions are possessed by the hotel companies. The companies in this database have on the average about 6.4 years-old, with a 2-year mean, which seems that companies are young. The size variable has a very low standard deviation, meaning that companies tend to be in the same size range. The standard deviation shows a high disparity in the cash flow variable between sampled companies. In general, the average and the standard deviation of the company's debt is high, representing high debt among companies, and risk variable is very low. Then, sales growth variable have a negative average and a high standard deviation, which seems to have disparity across the industry and the investment opportunities seem to be very low. About the brands the data allow to understand that 33% of the companies have a franchise brand hotel and there is a rather low variety of services. Regarding the economic or financial crisis periods, the database has near 46% of the observations from that periods.

4.2. Capital expenditure analysis

In an unreported table it was found that the correlation between the variables is not very strong. So, based on a sample of 9073 observations, the OLS multivariate regression is estimated for the dependent variable of companies investment by year. (See Table 3).

Diverse groups of factors were estimated through multivariate regression (See Table 3). This analysis starts with the main

Table 1. Variable Definition

Variable	Description	Source
INV	Fixed assets yearly change divided by total assets of the company$_i$ in period$_t$.	SABI
NHT	Number of hotels by company.	RNT
CAS	Hotel companies cash-flow divided by fixed assets of company.	SABI
AGE	Age of company$_i$ in period$_t$.	SABI
SIZ	Natural logarithm of total assets of company$_i$ in period$_t$.	SABI
DEB	Ratio of total liabilities by total assets of company.	SABI
RIS	Ratio of standard deviation of revenue and previous revenue year by average revenue of company.	SABI
SLG	Sales yearly variation of company.	SABI
ROA	Ratio of operating income by total assets of company.	SABI
BRA	Dummy variable that assumes value 1 when the company has a brand hotel, and 0 otherwise.	RNT
ANT	Logarithm of the number of years since the corporate trademark was registered.	SABI
CAT	Star ranking category of the hotels of a company.	RNT
VAR	Average of the variety of services (facilities) offered by the hotels.	RNT
CAP	Logarithm of the average number of fixed beds available in hotels.	SABI
NAC	Dummy variable that assumes the value 1 when the shareholder nationality is Portuguese, and 0 otherwise.	RNT
PRO	Dummy variable that assumes the value 1 when the hotel building is owned by the company, and 0 otherwise.	RNT
CRI	Dummy variable that takes the value 1 in the years related to the financial crisis (years 2011 to 2014) and to the economic crisis (year 2020), and 0 otherwise.	Authors' calculation

Table 2. Descriptive statistics

Variable	Average	Mean	Standard Deviation	Min.	Max.
CON	25,50	0,16	127,00	−91,70	1040,00
NHT	1,22	1,00	1,24	1,00	26,00
CAS	6,76	1,64	350,00	−1990,00	1890,00
AGE	6,45	2,00	13,70	1,00	124,00
SIZ	12,10	12,30	2,48	−4,61	20,50
DEB	112,00	75,20	205,00	0,00	1610,00
RIS	0,61	0,18	1,75	0,00	16,10
SLG	−16,30	10,10	175,00	−1210,00	100,00
ROA	0,01	0,01	0,39	−10,60	26,50
ANT	29,20	25,00	20,20	2,00	142,00
CAT	3,30	3,00	1,00	0,00	5,00
VAR	2,68	2,00	2,10	0,00	9,00
CAP	143,00	94,00	140,00	0,00	1150,00
Variable	**Frequency**				
BRA	33%	0%	47%	0%	100%
NAC	99%	100%	8%	0%	100%
PRO	75%	100%	43%	0%	100%
CRI	46%	0%	50%	0%	100%

variables and the follow with the analysis about control variables. Model (3) study BRA and ANT variables, that are statistically insignificant to explain capital expenditure. In this way, the hotel brand and the company antiquity of trademark registry seems not to be important to determine the company's capital expenditure by management.

The following model analysis hotel operational characteristics and allows to evidence that hotel stars and the number of rooms are not important for the companies yearly capital expenditure. However, VAR variable is negatively associated with investment, which is in line with theory and can be explained with the bias of data analysis, because companies do not have high amounts of investments every years but the services and facilities are available after the initial investment.

The companies owner's nationality is examined on the following model that allows to evidence that capital expenditure is not related with the shareholders nationality. Then, the PRO variable is analysed on model (6), and it was found to be statistically negative significant, which means that companies that already have hotel buildings seems to have lower capital expenditure year by year. The following model analyse all variables together and it allows to conclude that VAR and PRO are negatively associated with investments.

Next, model (8) examines the impact of between Economic Crisis variable together with control variables. The results on this model shows a negative impact of economic crises variable on capital expenditure, which is related with the literature, specifically Serrasqueiro (2016) that also showed a negative relation between investment and financial crisis. In the last model, all variables were estimated together and is possible to conclude that VAR, PROP and CRISIS are negatively related with capital expenditure.

About control variables, Table 3 show that all variables are statistically significant, with the exception of ROA and NHT variables. The CAS variable is negatively related across all regressions, which was not expected. Note that Nguyen and Dong (2016) and Phan and Nguyen (2020) states that cash flow has a statistically positive association with investment. Though, this results go in line with Jensen (1987)'s theory that an excess of free cash flow leads to conflicts of interest between managers and shareholders, because when investors consider managers inefficient on free cash flow management leads to the situation where the money that should be used to fund firm's projects is instead used to payout dividends for the investors. Moreover, the descriptive analysis showed a high debt ratio for the companies and the unreported Correlation Matrix evidence a significant negative correlation between cash flow and debt. These ideas are in accordance to Jensen (1987), that debt helps to minimize the agency costs related with free cash flow since debt lower the cash available for management spend at their discretion.

The AGE variable is mostly negatively associated with investment which means that younger companies have higher capital expenditure. Also Serrasqueiro (2016) concludes that younger firms have extra difficulties in capital expenditure because of their lack of experience. Also SIZ variable is also negatively associated, which allows to know that the greater companies have lower capital expenditures. Note that Serrasqueiro (2016) find that companies' size has a negative effect on capital expenditure in low small and medium sized companies. Therefore, since the companies in Portugal are mostly of small and medium sized companies, these results are in line with expectations.

The RIS variable have positive impact on investments, which means that risky companies have higher capital expenditures. Also, Phan and Nguyen (2020) verify that risk has a positive impact on investment. Because DEB variable has positive impact in companies' investment, companies with a higher amount of investment are greater debt. Companies with higher amounts of external finance tend to invest more on capital expenditure. This is in line with the Nguyen and Dong (2016) study that show a positive relation between debt and investment decision. The results go in line with expectations.

The SLG variable is positively related to investment. Nguyen and Dong (2016) find that capital expenditure and sales growth are positively correlated across regressions.

Table 3. Capital expenditure determinants

	1	2	3	4	5	6	7	8	9	Exp.
CON	13,659***	13,842***	13,029***	6,212*	14,563***	13,858***	4,701	17,171***	9,335*	
	(3,002)	(3,069)	(−3,340)	(3,639)	(4,472)	(3,328)	(5,145)	3,111	(5,284)	
BRA			−0,348				−0,502		−0,564	+
			(0,915)				(0,924)		(0,937)	
ANT			0,012				0,020		0,029	+
			(0,022)				(0,0241)		(0,025)	
CAT				−0,842			−0,604		−0,212	−
				(0,608)			(0,630)		(0,642)	
VAR				−0,667**			−0,570**		−0,553**	−
				(0,263)			(0,275)		(0,279)	
CAP				0,622			0,535		0,894	
				(0,729)			(0,782)		(0,790)	
NAC					−0,710		1,700		1,189	
					(2,922)		(3,096)		(3,174)	
PRO						−2,952*	−2,994*		−2,604*	
						(1,543)	(1,552)		(1,582)	
CRI								−3,375***	−2,794***	−
								(0,818)	(0,843)	
NHT		0,078	0,090	−0,125	0,083	0,030	−0,087	0,106	−0,012	
		(0,215)	(0,232)	(0,212)	(0,215)	(0,213)	(0,212)	(0,223)	(0,227)	
CAS	−0,006***	−0,006***	−0,006***	−0,006***	−0,006***	−0,007***	−0,006***	−0,006***	−0,006***	+
	(0,001)	(0,001)	(−0,001)	(0,001)	(0,001)	(0,001)	(0,001)	(0,001)	(0,001)	
AGE	−0,039*	−0,040*	−0,048*	−0,079***	−0,041*	−0,011	−0,058**	−0,047**	−0,075**	+
	(0,023)	(0,023)	(0,028)	(0,024)	(0,023)	(0,024)	(0,030)	(0,023)	(0,030)	
SIZ	−0,333*	−0,350*	−0,308	0,387	−0,350*	−0,228	0,431	−0,459**	0,030	−
	(0,196)	(0,207)	(0,230)	(0,360)	(0,209)	(0,215)	(0,390)	(0,206)	(0,396)	
DEB	0,018**	0,018**	0,019***	0,0163**	0,0184**	0,015**	0,012*	0,020***	0,011	+
	(0,007)	(0,007)	(0,007)	(0,007)	(0,007)	(0,007)	(0,007)	(0,007)	(0,009)	
RIS	2,154**	2,326***	2,502***	1,506**	2,343***	1,782**	2,173***	2,173**	1,914**	+
	(0,847)	(0,846)	(0,842)	(0,763)	(0,848)	(0,822)	(0,781)	(0,844)	(0,770)	
SLG	0,005*	0,006*	0,007**	0,000	0,006*	0,004	0,007**	0,005	0,007*	+
	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	(0,003)	
ROA	2,186	2,219	2,274	2,089	2,289	2,235	1,752	0,331	0,372	+
	(1,908)	(1,866)	(1,846)	(1,727)	(1,935)	(1,888)	(1,666)	(0,642)	(0,5670)	
N	9073	9073	9073	9039	9073	9073	9039	9073	9039	
R^2	0,009	0,009	0,010	0,010	0,009	0,007	0,008	0,010	0,008	
R^2 Adj.	0,008	0,009	0,009	0,009	0,008	0,006	0,007	0,009	0,007	
F(n,k)	12,106	10,771	9,078	8,270	9,428	6,825	5,003	10,063	4,747	
P Val. (P)	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	

Note: The table above show the results of OLS estimation corrected by heteroskedasticity. Variables definitions are in Table 1. The estimation coefficient for each variable and the standard error for each coefficient (in brackets) are shown. ***, ** and * means that the variable is statistically significant at 1%, 5% e 10%, respectively.

4.3. Discussion of results

The results from data analysis are important to understand the main topics about companies' investment, particularly the impact of operational activity. Surprisingly, contrary to the ideas of Marriott (2016), hotel brand does not have significant impact on investment. Not only does the hotel brand and its recognition have no significant impact on capital expenditure, but also the antiquity of trademark registry is not relevant either to the companies' investment.

Regarding the hotel operational characteristics, like in Marriot (2016), we only find that hotel companies with more service variety or facilities have a negative impact on investment. The hotel star ratings and room capacity are not relevant to investments, which do not confirm the Mao and Yang (2016) conclusions.

Additionally, the nationality of the hotel owner is not important for investment decisions and companies that already are owners of the hotel building have lower year investments, which seems that this companies after the initial capital expenditure at the construction or acquisition do not have higher investments.

About the impact of financial and economic crises on investment, the results show that companies avoid greater investments in these periods. This results in in line with Serrasqueiro (2016) that have the same conclusion related with 2008 financial crisis.

5. Conclusions

Tourism sector is important for the economies around the world and the hotel industry, particularly, is an important base for tourism national strategies. Focus on the importance of hotel for tourism sector, this study analyses the factors that influence the capital expenditure of companies in hotel sector. Based on Portuguese hotel companies it was collected data that allows to have a sample of 9073 observations.

The data collected from hotel companies have four important characteristics. A third of the hotel companies are inside of franchise brand, 75% of the hotel buildings are owned by the companies, there is a rather low variety of service, and 46% of the observations are from the pandemic COVID-19 crisis period. Based on multivariate regression analysis the study evidence that brand and antiquity do not statically influence investment. The results show that the service variety (facilities) is negatively associated with investments, but the capacity and the start category are not important for capital expenditures. The results about the impact of financial and economic crises show that in crisis period companies are less available do have higher capital expenditures. This study provides additional information about the importance of hotel owner's nationality, that seems not to be important for investment decision, but the propriety of the hotel building seems to negatively impact the capital expenditure. The results also evidence that cash flow, age and size are negatively related with investments and debt, business risk and sales growth are positively related.

This work has some limitations related with the data was gathered for 11 years, but not all companies had data available for all years which do not allow to use the panel data methodology. For future research, increasing the data available would allow a more comprehensive insight into these factors, and, for example, comparing every 5 years.

Funding and acknowledgements

This work was supported by Applied Management Research Unit (UNIAG), R&D unit funded by the FCT – Portuguese Foundation for the Development of Science and Technology, Ministry of Science, Technology and Higher Education. "Project Code Reference: UIDB/04752/2020 and UIDP/04752/2020".

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DOI: 10.34620/978-83-67405-28-7-008 • 2024 • 64-70

sciendo

Proceedings of the International Tourism Congress 23

Smart destination branding: review and research agenda

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Abstract

In the last two years, researchers have tried to bring together concepts, such as destination branding, smart city, and e-tourism, giving rise to a new emerging topic: smart destination branding. The objective is to analyze the smart destination branding literature published in the Scopus database from 2018 to 2022. The value of the study is an investigation of an emerging topic that emerged in 2018, smart destination branding, so it is a recent topic. The study uses a systematic literature review and content analysis on Scopus publications. The main results lead us to the indiscriminate use of terms, such as "smart," pushed by globalization and the smartness era. The study concludes that the inter and multidisciplinary of knowledge areas allows the fusion of concepts and the emergence of new terms in science, especially emerging topics.

Keywords

Territorial Brand • Destination Branding • Smart Destination

1. Introduction

The area of branding is broad and involves concepts that are often used as synonyms. This is the case, for example, of terms such as city branding, nation branding, place branding, destination branding, and others that are often associated with tourism. One notices that in the last two years there have been efforts by researchers to unite concepts, such as destination branding, smart city, and e-tourism; giving rise to a new topic, "smart destination branding" (Balakrishnan, 2009; Basbeth et al., 2018; Gretzel & Mendonça, 2019; Trinchini et al., 2019).

The study deals, therefore, with this emerging topic originated from concepts coming from interdisciplinary areas, such as tourism (e-tourism), communication and administration (branding) and the area of urban management and planning (smart city). However, it is still not clear what smart destination branding is about and what the concept is, since in the exploratory phase of the state-of-the-art other similar terms were found: smart tourism, e-tourism, destination tourism, smart destination, used as synonyms. The impression is that the term "smart" was added to "destination branding" in a random way, generating something that other concepts already do, such as e-tourism and smart city. It is noteworthy that in the literature published in the world's largest database, Scopus, there are only four published articles directly related to the theme, and seven transversal articles related to the theme. Therefore, it is an opportunity to undertake research that investigates the emergence of emerging topics already at an embryonic stage, as is the case of the investigated topic.

The question-problem that erects this research is divided into one inquiry: in what ways does the smartness era apply to destination branding?

The aim is to analyze the smart destination branding literature published in the Scopus and Web of Science databases in the deepening of this emerging topic between 2018 and 2022 to understand the emergence of emerging topics in tourism literature. According to Small, Boyack, and Klavans (2014), research on emerging topics is relevant for its ability to identify new research areas, synthesize scattered information, identify research gaps and opportunities, promote scientific dialogue, and guide policy and practice. These elements are crucial for advancing scientific knowledge and developing solutions to current and future problems, thus making the research original.

The choice of the theme of this research is justified by the importance of the embryonic phase of emerging scientific topics and sub-themes emerging in the areas of knowledge (Balakrishnan, 2009; Basbeth et al., 2018; Gretzel & Mendonça, 2019; Trinchini et al., 2019). The intention is not limited to summarizing a set of published articles, but in

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analyzing the emergence of new themes in tourism science. These are topics that may influence society, future research, set a research agenda, change the professional and academic dynamics of a given field (Nassi-Calò, 2021).

The paper is organized in five sections. It begins by presenting the topic (Introduction) following to the discussion of the issues in the literature (Literature Review). Then, the study presents the methodology (Methodology), followed by the results (Results and Discussion). Finally, we present the final considerations (Conclusion).

2. Literature Review

2.1. Tourism and Smart tourism

One of the most globalized concepts, tourism, has been developed in such a way that the twentieth century was recognized as the century of tourism (Panosso Netto, 2013). The term refers to multiple social practices arising from an individual or group experience or being a practice arising from social representations related to social pressure to travel to certain destinations more than others. This is in line with the study of Panosso Netto (2013) who says that tourism is a social, economic, and cultural fact, which defines the existence of the homo viator ("the one who travels").

Smart tourism, as a destination management approach, requires the involvement and cooperation of various stakeholders. Given its diverse target audiences and complex nature, it is crucial to develop impactful brands that can successfully position and communicate smart tourism initiatives (Gretzel & Collier de Mendonça, 2019).

2.2. Branding

Branding works with the strategic construction, management, and stewardship of brands (products, companies, people), uniting tangible and intangible attributes and creating value to people (Aaker, 1996, Guimarães, 2003; Pike, Bianchi, Kerr, 2019; Balakrishnan & Jayakrishnan, 2020; Ekinci & Hosany, 2021). The management of this set of perceptual factors is called branding (Nyagadza et al., 2022; Parris & Guszmán, 2023). Therefore, branding is not an advertising or marketing campaign, because branding is a cyclical process of a management directed specifically at brands (Almeida, 2015; Almeida, 2018).

2.3. Smart city

The concept of smart city is multifaceted, not universal (Komninos, 2008; Alizadeh, 2018). For Przysucha (2020), the smart city uses varied technologies, expanding interactivity between management and citizens, as well as increasing the efficiency and effectiveness of urban infrastructure. McKeever (2003) points out that the smart city has nine different types of intelligences: smart business, smart human capital, smart management, smart environment, smart transportation, smart IT, smart everyday life and communication, smart care, and smart future. The intelligences defined by McKeever (2003) refer to the complexity of the globalized context of cities, and are defined, as argued by Xu & Geng (2019) by human-machine interaction and interface.

2.4. Destination Branding

Destination branding is a valuable tool for building the positioning of tourism destinations (Hannah et al., 2021; Ruiz-Real et al., 2020). It is a tourism strategy that not only identifies a place, but also generates attachment to a destination, making tourists loyal (Almeida, 2011; Rather et al., 2020).

In addition, destination branding involves the identity and experience of the destination (Ford et al., 2023; Lin et al., 2023). Destination identity needs to be focused on a destination's distinctive personality and character, differentiating it from other destinations, and helping it shape the brand (Konecnik Ruzzier & Chernatony, 2021). However, destination branding experience focuses on the sum total of impressions, feelings, perceptions and experiences that visitors have of a destination over time, and which shape their perception and loyalty to the brand (Balakrishnan & Jayawardena, 2021). All product brands have their own architecture and destination brands are no different. Regarding destination brand architecture, it is dedicated to the organizational and hierarchical structure of the destination brand, including its visual identity elements, names, slogans, secondary brands, etc. (Liu, et al. 2021).

2.5. Smart Tourism Destination

Smart Tourism Destination (DTI) is a model created by the Sociedad Mercantil Estatal para la Gestión de la Innovación y las Tecnologías Turísticas (SEGITUR) for smart tourism management. The concept refers to destinations that are innovative and present intelligent tourism infrastructure focused on the sustainable development of the tourism space. In addition, DTI needs to be accessible to all, interactive to integrate the visitor with the environment. This interaction aims to improve or enhance the quality of experience at the destination.

To be considered a smart destination, a series of criteria must be considered, such as: implementation of smart technologies for management and monitoring of tourism services; development of diversified tourism offer; promotion of sustainability and social responsibility; participation and engagement of tourists; improvement of accessibility and mobility and the enhancement of the cultural and natural heritage of the destination (SEGITUR, 2018).

3. Methodology

3.1 Method and Techniques

The method used is literature review (Gagné, 2018; Snyder, 2019; Paul & Criado, 2020). The research techniques were qualitative in data collection and analysis (Haggarty, 2022). From the point of view of the study objectives, the research is exploratory and descriptive based on Scopus literature survey (Ohnesorge, 2022).

3.2 Data Collection

Two searches in the Scopus database were made on 01/16/2023. The first search was with the term "destination branding" AND "tourism", and only 7 documents were found (without exclusion criteria). All the abstracts found were read, and a new term "smart destination branding" was used. A new search was undertaken, looking specifically for this term (smart destination branding) which resulted in 4 results. Two of the results are from International onference on ICT for smart society held in 2018 (ICISS, 2018; Basbeth et al. 2018); and the other two documents are papers from 2019 (Chan et al. 2019); Trinchini et al., 2019).

Due to the limited number of articles found for analysis, the researchers expanded their search to the Web of Science database. The searched term, "smart destination branding," yielded only 3 results. Consequently, only 7 documents were located across two different databases. However, the studies in both investigated databases are identical, resulting in the analysis of only 4 documents (Table 1). No further search was conducted in other databases, as Scopus and Web of Science are the largest scientific databases globally.

Table 1 highlights that both Scopus and Web of Science contain the same documents; consequently, the researchers analyzed only 4 documents. According to Paul et al. (2021), a specific topic is suitable for investigation when there is a limited volume of published articles, and no systematic literature review is available. Therefore, this study on the topic of 'Smart Destination Branding' meets the mentioned criteria.

Despite the analysis of only 4 documents, it is important to highlight that only 2 of them directly address the investigated theme in their titles (Basbeth et al., 2018; Trinchini et al., 2019). As argued by Whittaker (1989), a title should reflect the uniqueness of the research, and it is evident that the two terms, 'Smart Destination Branding' and 'Smartness Destination Branding,' stand out as integral parts of the investigated theme, as can be observed in Table 1. This underscores the limited number of publications on the topic. Based on the guidelines of Paul et al. (2021), one can conclude that 'Smart Destination Branding' is an emerging topic that first appeared in 2018, making it a recent research area.

Due to the similar origins of the words "smart" and "smartness," it is understandable to infer that their concepts also share similarities. However, the second word, "smartness," involves the integration of cutting-edge technology into a specific tourist destination. Therefore, concerning "smart destination branding," the emphasis lies in creating a smart brand strategy focused on the destination in question. On the other hand, "smartness destination branding" suggests the integration of advanced technology to enhance the tourist experience or improve the efficiency of operations in the tourism sector.

Table 1. Data collection in Scopus and Web of Science

Database	N.	Autor	Título	Ano	Fonte	Citações
Scopus	1	Chan, C.S.; Peters, M.; Pikkemaat, B.	Investigating visitors' perception of smart city dimensions for city branding in Hong Kong	2019	International Journal of Tourism Cities	26
	2	Trinchini, L.; Kolodii, N.A.; (...); Baggio, R.	Creativity, innovation, and **smartness in destination branding**	2019	International Journal of Tourism Cities	14
	3	Basbeth, F; Abd Ghani, N.H.; Sedyowidodo, U.	**Smart Destination Branding**: The Need for New Capability and Opportunities for Entrepreneurship	2018	International Conference on ICT For Smart Society (ICISS)	3
	4	ICISS 2018	Proceeding - 2018 International Conference on ICT for Smart Society: Innovation Toward Smart Society and Society 5.0, ICISS 2018	2018	Conference on ICT for Smart Society: Innovation Toward Smart Society and Society 5.0, ICISS 2018	0
Web of Science	5	Basbeth, F.; Abd Ghani, N.H.; Sedyowidodo, U.	**Smart Destination Branding**: The Need for New Capability and Opportunities for Entrepreneurship	2018	International Conference on ICT For Smart Society (ICISS)	3
	6	Trinchini, L.; Kolodii, N.A.; (...); Baggio, R.	Creativity, innovation, and **smartness in destination branding**	2019	International Journal of Tourism Cities	11
	7	Chan, C.S.; Peters, M.; Pikkemaat, B.	Investigating visitors' perception of smart city dimensions for city branding in Hong Kong	2019	International Journal of Tourism Cities	18

Source: Authors.

3.3 Data Analysis

Deductive content analysis was applied to the study (Cardoso et al. 2019; Kyngäs & Kaakinen, 2020) from the findings in the data collection. Only the four studies specifically dealing with the topic of smart destination branding were analyzed, disregarding the other studies found in Scopus. The same procedure was applied to the Web of Science database. Descriptive research was used to record and describe the objectives, methodology, results, and conclusion of the data collected. Exploratory research was used to obtain more information about the emerging topic analyzed, enabling an interdisciplinary discussion from various angles and aspects.

3.4 Research Period

The research was developed in the period December 2022 to April 2023, being part of a larger research on destination branding and destination image since 2020.

4. Results and Discussion

Tourism destinations have gained some complexity over time, requiring the creation of destination branding guided by smart tourism, meeting the work of Gretzel and Mendonça (2019). It is understood that technology is part of contemporary life, and it is not possible to separate its use from tourist destinations. In this sense, the use of branding strategies to create competitive advantages becomes an opportunity and a necessity, confirming the perspectives of Balakrishnan (2009), Basbeth et al. (2018) and Trinchini et al. (2019). The smart destination comes along with technological changes to explore other ways to create and deliver values that transform the city into a more livable place through sustainable tourism. Sustainability and technology therefore become the basis of contemporary tourism, extending to the tourist destination and its brands (destination branding).

The use of smart branding strategies is applied to destinations, often to drive smart urban development. The above scenario also makes it evident that the creation of a tourist destination goes beyond the act of visiting a place. A tourist destination needs infrastructure, management, strategies, and an adequate brand, in addition to the flow of tourists. For Balakrishnan (2009) the success used in destination branding depends on a set of interrelated components, including technology. This means that a destination does not come out of nowhere, just because social actors want to put it on a global map of places. This requires a set of factors that can create a tourist destination, just as it requires another set of factors that can turn it into a smart destination. Thus, smart destination branding will also require a specific set of factors to be created and implemented. Among the reviewed studies, only Trinchini et al. (2019) brought a more structured concept about smart destination branding.

> Conceptual support for the notion of smart destination branding is provided by discussing the relationship between creativity, innovation, and technology as determinants for the concept of smartness applied to destination branding and marketing (Trinchini et al., 2019, n.p.).

Thus, one can see that the concept of smart destination branding is based on three pillars: creativity, innovation, and technology. The basis of this concept is the same as that of the smart city concept; therefore, it can be said that they are practically identical. This leads us to question what differentiates one concept from the other. The impression is that the notion of “smartness” has been applied to different concepts and realities indistinctly, as a 21st century fad.

The limited number of articles analyzed reveals five situations in which research on “Smart Destination Branding” currently stands:

1) Emerging nature of the topic: The fact that only four relevant articles were found on the topic “Smart Destination Branding” in two of the world’s largest databases, Scopus, and Web of Science, indicates that the topic is relatively new and emerging in the field of tourism. This is an important discovery as it suggests that research is exploring a field that has not been extensively investigated.
2) Originality and gap in tourism literature: The scarcity of existing studies indicates a significant gap in the literature regarding this theme. This is crucial because the research fills this gap by providing a deeper analysis and valuable insights into a topic that has not been fully explored.
3) Relevance of investigated theme updates: The world of tourism is constantly evolving due to technological, behavioral, and social changes. Therefore, an emerging topic like “Smart Destination Branding” can be highly relevant as it adapts to the demands and current trends in the tourism industry. This makes the research even more timely and valuable.
4) Potential for impact: The fact that the research found only a limited number of results does not necessarily diminish the reliability or importance of the conclusions. Instead, it highlights the opportunity to make a significant and impactful contribution to the field, as the research can be considered pioneering in the exploration of this emerging topic.
5) Need for initial studies: Often, initial studies are essential to lay the groundwork for future research. Thus, this research can serve as a solid starting

point for future researchers looking to further explore the field of “Smart Destination Branding. Based on these results, the researchers suggest a research agenda for the theme based on the situations outlined.

5. Conclusions

The inter and multidisciplinary of knowledge areas allows the fusion of concepts and the emergence of new terms in science, especially emerging topics. However, the creation of a concept by itself does not justify it, on the contrary, it will serve to bring confusion and misunderstanding between the areas. “Smart destination branding” is a recent concept, only two years old, however, the use of the term “smart” in destination branding does not make it an innovative concept, it only highlights the use of technology in tourism destinations. These characteristics, the concept of e-tourism and smart city already do, so a new concept that is practically a replica of others is not supported, confirming a certain “fad” in the use of the term “smart”.

The goal was achieved in that one can analyze the smart destination branding literature published in the Scopus database from 2018 to 2022. Although there are few studies published in Scopus, one can get a sense that the use of the term “smart” has gained fad in scientific concepts as well, with this fad coming from the professional market. Moreover, the discussion in the field of tourism involves distinct interdisciplinary perspectives, such as the use of technologies in tourism, information systems in tourism and hospitality, big data, e-tourism, tourism 2.0, smart city, and other similar areas.

5.1 Main Results

The indiscriminate use of terms, such as “smart”, coming from the professional market, has expanded in science, pressured by globalization and the smartness era. Furthermore, the specialized literature reveals the interdisciplinary nature of the investigated areas linked to tourism, which shows that tourism is a multifaceted and dynamic area.

Furthermore, even though a limited number of articles were found that were analyzed, the study is important for the field of tourism as an emerging topic and pioneering research.

5.2 Theoretical Implications

This study arises from the importance of literature reviews focused on emerging topics. This can also be an opportunity to follow this topic in real time and create a more dynamic timeline than if the topic was explored more than ten years ago, for example. In this way, one can also track publications and how the market will deal with the topic, correlating both empirical and scientific knowledge.

5.3 Practical Implications

This study serves as a basis for professionals in interdisciplinary fields, students of tourism and similar areas, and for researchers because it presents an emerging topic that is still being formed by science and the market. However, even though it is in its infancy, it presents potential insights that can be exploited in practice by tourist destinations.

5.4 Limitations / Suggestions

One limitation was the sparse publications on the topic found in Scopus and Web of Science. At the same time, this is an opportunity to track the emergence of a recent emerging topic through action research.

5.5 Final Remarks

Thus, one realizes that the smartness era applies to various realities and concepts if it includes the technology factor. Cities are smart cities because they use technology as a basis to generate interaction between management and citizens. Tourism becomes smart tourism because technology is added to the concept. Technology associated with destinations leads to the smart destination and, when this destination uses a brand, the most recent concept in tourism literature arises, which is smart destination branding. In this way, innovations and trends form the basis of tourism in the 21st century, one of these trends being the smartness era. However, the study also leads us to reflect on the consequences of this in people’s lives and in tourist destinations, as well as in society.

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DOI: 10.34620/978-83-67405-28-7-009 • 2024 • 71-82

sciendo

Proceedings of the International Tourism Congress 23

Madeira's recommended hiking routes – residents' perception of risk and maintenance

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Abstract

Active and nature tourism has become a relevant cluster for islands and mature tourist destinations. Additionally, the growth of nature tourism and sports activities in a mountain context implies issues of overuse and the conservation of natural parks as tourist destinations. This paper has two purposes: to identify Madeira's residents' perception of the risk associated with hiking routes; and to gather their perception of the state of maintenance regarding each route. Using an online questionnaire, data was gathered from 336 residents with an average age of 40.2 years. The residents' perceptions identify which routes are associated with higher or lower exposures to danger and which routes are in greater need of maintenance. Despite Madeira's walks being associated with high risk, the average perception of the recommended routes is below 2.42 while their state of maintenance is slightly above 3.29. Statistical analysis reveals a negative correlation ($r = -0.769$, $p < 0.001$) between both perceptions (risk and maintenance). Finally, recommendations are presented for differentiating hiking routes according to risk, safety and degree of physical demand for residents who are passionate about walking in the Madeira mountains and for the offer of nature tourism products.

Keywords

Hiking • Madeira Island • Nature tourism • Preservation • Sustainability

1. Introduction

Since 2015, Madeira has been awarded the World's Leading Island Destination by the World Travel Awards, winning for the last eight years in a row (World's Leading Island Destination, 2022). Recent regional studies identified "contact with nature" as the main interest of tourists, emphasising the influence nature has in the travel/tourism economy (ECAM, 2010; DREM, 2022).

Due to the recent post-Covid-19 recovery, the tourism economy broke a new record for the highest number of tourist sleepovers (DREM, 2022), leading to an overflow of tourists. Despite this being a great sign, action must also be taken to accommodate the resulting higher amounts of tourism activity to protect and preserve the sustainability of the region.

Currently, the region of Madeira has 33 routes recommended by the IFCN (the official Institute of Forests and Nature Conservation), with 30 of the routes on the island of Madeira and three on the island of Porto Santo. These routes consist of three types of paths: *levadas* (routes accompanied by a waterway with a slight inclination resulting in an efficient water transportation system (WalkMeGuide, 2023)); regular and royal pathways (*caminhos*); and narrow pathways (*veredas*). Walking these routes is one of the main tourist activities in the region, as it provides a substantial amount of "contact with nature". These routes are currently being exposed to record-breaking numbers of tourists, resulting in higher levels of degradation. These endogenous paths (and their surrounding fauna and flora) now require higher levels of maintenance to remain sustainable. Activities carried out by tourists in a variable nature context involve high risks and dangers. Therefore, it is necessary to adopt responsible measures and good practice behaviours that reduce the risk of accidents. Thus, risk management involves a structured process of identifying the context and its variables, as well as the ability of organizations to analyze and act preventively (Almeida, 2017).

The present paper emerges from the need to assess the current condition of conservation and maintenance of Madeira's recommended hiking routes, as well as the need to acquire different information from what is currently available, such as the perception of risk, which will allow a better understanding of the risk inherent to each route. The current information is limited to the distance, duration,

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difficulty, and altitude profiles of the routes, which does not provide a perception of the risk associated with each one, nor the current/recent state of maintenance/conservation which could lead to a misperception of the difficulty by pedestrians and expose them to danger.

The present paper has two main objectives: (1) to identify Madeira residents' perception of the risk associated with each of Madeira's recommended hiking routes; and (2) to gather their perception of the state of maintenance/conservation of each route. The measurement of the perceptions of risk and maintenance allows a characterization of the current state of the routes, which could be used to track and measure the impact which the record-breaking numbers of tourists cause on these endemic paths. A comparison between the three types of routes and their perceptions is also a sub-objective, as well as a statistical test for correlation between residents' perceptions of both risk and maintenance.

The information gathered could be of use in estimating the degradation of these routes, allowing for increased efficiency in maintenance by directing it to routes with greater needs or in higher demand, which is why it must be gathered and examined. In addition, the perception of the risk associated with certain hiking routes can contribute to the adoption of preventive measures and the enhancement of risk management associated with tourism products.

2. Literature review

The growth of active and experiential tourism in the context of landscape and nature has increased exponentially, but care must be taken to conserve the strong points of nature tourist destinations. Thus, for the sustainable development of a tourist destination that depends on the preservation of nature and its strongest points, such as the typical forest and mountains, it is strategically crucial to consider and evaluate the social and environmental impacts of the events and activities that are carried out in a natural park (Hover et al., 2016; Melo, Rheenenm & Sobry, 2021). Overuse of walking trails, paths and *levadas* can cause irreparable damage to the forest and the activity of residents (Majdak, Mosz, & Almeida, 2022).

Active tourism and nature planning can work together towards improved preservation of nature, leading to higher positive impacts on the environment. This research also demonstrates the management of features of nature in the fields of forestry and health to promote physical activity and human well-being (Jenkins et al., 2022; Wolsko, Lindberg, & Reese, 2019). Wild, natural places and landscapes hold specific sensory and visual attributes that are key for individuals to successfully engage in nature-adventure activities and facilitate well-being (Milligan et al., 2021). However, it is important to plan and be prepared when tourists and visitors play a role involving adventure in high mountains. Most hikers have a limited comprehension of nature, leading to inadequate preparation for the hike which may result in problems. Generally, visitors pay little attention to advice from guides and ignore signs and warnings from local authorities (Mykletun, Oma, & Aas, 2021). Different publications by the Regional Secretariat of Madeira to find the typical profile of a Madeira tourist and identify their major interests and spending found that the main interest of these tourists is "contact with nature" (ECAM, 2010; DREM, 2022). Walking on paths, trails and *levadas* is part of the main activity these tourists look for, providing this deep connection with nature that many seek, which resulted in studies focused on reducing the risks inherent to practising such routes (ACIF, 2015) (Neves, 2011). Articles have also been written advising and describing the recommended and necessary equipment inherent to completing these routes, as well as a thorough description of existing fauna and flora (Ornelas, 2013). Dissertations have provided an educational virtual game where routes can be completed virtually and useful information given about recommendations and dangers along each path (Luís, 2016). Moreover, in the mountains and agricultural lands, the residents' routines and needs are important elements to consider, as many use these routes to supply agricultural fields deep inland with water and supplies. Raimundo Quintal, a local professor and geographer with decades of experience, is also a fundamental reference when referring to these routes and waterways (Quintal, 2011), and is also responsible for a graphic characterization of the existing routes. Already in the last century (1994), he acknowledged the important need for a "new and urgent method of relation with nature" on these routes, arguing for the necessity of preserving this natural and cultural patrimony for future generations (Quintal, 1994). A recent study complemented this graphic characterization with a historic component of the existing waterways (*levadas*), showing their creation, legislation, and the typology of built annexing structures such as water tanks, water houses, and hydroelectric plants (Teixeira, 2019). Nature tourism and the use of traditional activities that characterize the use of water, wind and water in a mountain context can be combined to offer successful tourist services (Almeida, Soares & Alves, 2013).

These hiking routes are currently recommended by the local government and are regulated by the Institute of Forests and Nature Conservation (IFCN, 2023). The 33 current recommended hiking routes consist of a combination of routes and royal routes, pathways (narrower routes) and waterways (*levadas)*. Quintal (2011) defines these steep stairs and waterways as the most beautiful pieces of natural heritage of the island of Madeira, where it can be observed how human intervention was possible with no significant ruptures to the equilibrium of the present ecosystems.

One study also obtained descriptive information on the pedestrians of five routes (four of which are recommended routes) surveying: nationality; information gathered before realizing the route; opinion on the human presence on the route (too much/fine/could be more); type of companion (friend/family/group/alone); and cost of completing the route. When questioned about the reasons for visiting Madeira, the main answers were "natural beauty" (85%, n = 215) and "landscape" (67%, n = 212) (Roque, 2020).

For a tourist destination connected to mountain nature and recreational activities in the surrounding areas, a dynamic model can be developed to improve residents' well-being by means of a strategic choice of quality tourism and taxation on tourist arrivals. The strategy is to invest in quality tourism that ensures a minimum amount of income, resulting in positive impacts on the quality of life of residents and increased sustainability of the local destination (Schubert & Schamel, 2021). The local decision-makers should act on the characteristics of the forest stand to increase recreational attractiveness and consequent economic benefits (Paletto et al., 2022).

3. Methodology

The island of Madeira presents a variety of winding mountains and valleys, characterized by dense and endemic forest called *Laurisilva,* classified by UNESCO as World Natural Heritage north of Madeira. The diversity and uniqueness of the valleys and mountains, associated with their flora and fauna and surrounded by a crystalline sea rich in marine life provides a natural environment that is highly sought after for tourist purposes.

As shown in Figure 1, Madeira's *levadas* are irrigation channels built since the island's settlement (1425). They serve to conduct and transport water for domestic consumption and agricultural irrigation, supplying watermills and hydroelectric plants (since the 20th century) (Santos & Correia, 2017). The *levadas* are accompanied by land routes that allow and encourage walking (*levada* walking); they were built in the dense mountains of Madeira, especially at the highest points such as the area of the Levada das 25 Fontes which has a variation in altitude between 850 and 1300 meters, located to the north and inland of the island due to the existence of greater rainfall and vegetation.

As shown in Figure 2, the royal paths were built with chipped stone from the island of Madeira by order of the Portuguese kings and were for many years the main means of transporting people and commercial products in addition to maritime transport. Currently, many of these paths are inaccessible due to geological alterations, difficulties of maintenance, and successive ravines.



Figure 1. PR6.2 – Levada do Alecrim, Rabaçal- Calheta. *Source*: Author's Own Source.

As can be seen in Figure 3, *veredas* or trails are paths that were marked by man to join the localities and *levadas* and support local agriculture.

These three types of paths are used by residents but also by tourists and represent one of the main reasons to visit the island. *Levada* walks and footpaths allow a visit to the interior of pure virgin forest, and at the same time, an observation of fantastic landscapes over the valleys and mountains.

The IFCN (2023) is a public organization whose mission is to oversee, regulate, certify, and recommend these pedestrian routes, maintaining and repairing them in case of natural occurrences (Figure 4). Contact was made with this official entity to determine the their connection with and responsibility for these routes.

We then proceeded to identify the 33 recommended hiking routes and gather the current available information on them, which was basic and somewhat vague, consisting mainly of the distance, estimated duration, difficulty, altitude profiles, and a few brief recommendations (typical weather occurrences, clothing, recommended footwear, and warnings against some of the main dangers on each route).

Participants were chosen randomly between the May 2 and 17, 2023, and were reached via direct contact by the study authors. The participation of respondents was voluntary, and the method used respected the anonymity and confidentiality



Figure 2. PR21 – Caminho do Norte. *Source*: Visit Madeira.



Figure 3. PR1 – Vereda do Areeiro. *Source*: Author's Own Source.

of data in accordance with ethical recommendations for scientific research. The process of delivering the questionnaire online allowed us to obtain answers from a sample of 336 residents in the Madeira region (n = 336; 147 males (43.75%) and 189 females (56.25%), with an estimated average age of 40.2 years); the questionnaire gathered detailed quantitative and qualitative information linked to each route. The respondents then proceeded to answer whether they had completed at least one of the 33 recommended pedestrian routes, 272 responded "yes" (80.95%) and proceeded to the next questions, while only 64 responded "no" (19.05%), thus ending the questionnaire. The respondents who confirmed they had completed at least one route proceeded to rate each route they completed utilizing a method similar to a five-point Likert scale, rating them between 1 (*Very low/Bad*) and 5 (*Very high/Good*) for the overall "risk" (defined as exposure to danger); and rating the state of conservation/maintenance according to four individual components: (1) handrails and supports; (2) cleaning (bushes and plants); (3) condition of the path; (4) state of the stairs.

The data was processed by the statistical program SPSS Statistics – Version 19.0.0 using descriptive statistics: characterizing the sample and calculating the averages and percentages displayed in the results, as well as the tests for normality of distribution of participants responses for all 33 routes (Kolmogorov-Smirnov test). To analyze the correlation between residents' perception of risk and the conservation of hiking routes, the Pearson test was used, for a probability lower than 0.001.

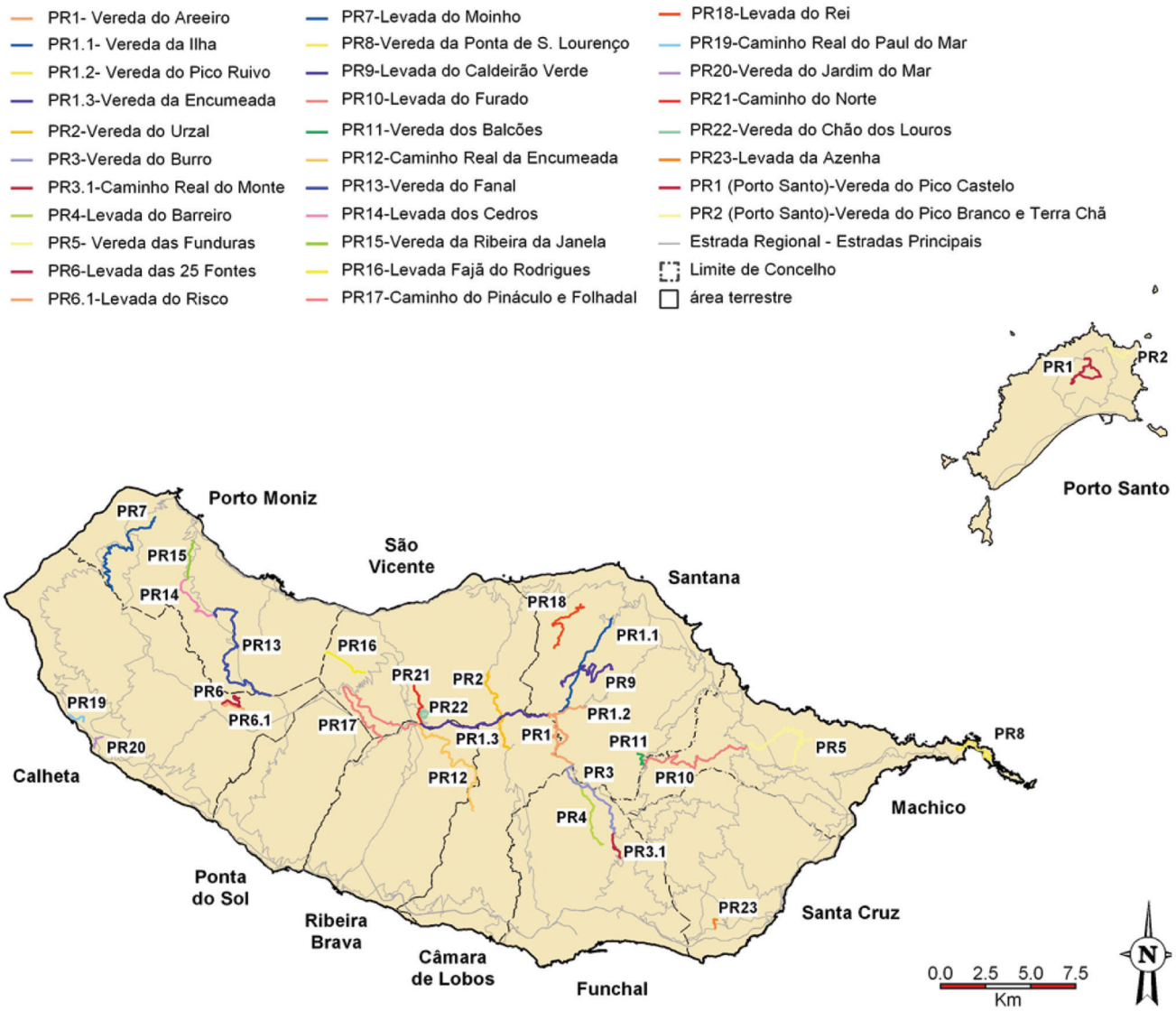


Figure 4. Map of Madeira's 33 recommended routes. *Source*: IFCN (2023).

4. Results and discussion

4.1. Most popular walking routes

The 272 residents who completed at least one route in the last five years completed a total of 2498 recommended routes, leading to an individual average of 9.18 routes in the last five years 1.84 routes per year).

According to the information contained within this sample we estimate the average resident completes 7.44 routes every five years (1.5 routes per year). According to the government's statistical information on the population of Madeira (DREM, 2023) the region is estimated to have 250 744 residents, which according to our results would lead to an estimation of 376 116 residents completing these recommended routes every year, meaning a total of 1 030 residents completing these routes every day.

Represented in Table 1, the data gathered from the questionnaire shows the number of respondents that completed each route, showing that certain routes have a high usage rate by the residents, being completed by over 70% of the respondents (PR6 – Levada das 25 Fontes (71.3%) and PR8 – Vereda da Ponta de S. Lourenço (70.2%)) while some routes were only completed by 7% or less of the

Table 1. Participants that completed each hiking route

Name of the recommended route	Respondents who completed the route	%
PR6 – Levada das 25 Fontes	194	*71.3*
PR8 – Vereda da Ponta de S. Lourenço	191	*70.2*
PR11 – Vereda dos Balcões	179	*65.8*
PR1.2 – Vereda do Pico Ruivo	135	*49.6*
PR1 – Vereda do Areeiro	128	*47.1*
PR9 – Levada do Caldeirão Verde	127	*46.7*
PR6.1 – Levada do Risco	126	*46.3*
PR6.2 – Levada do Alecrim	120	*44.1*
PR6.3 – Vereda da Lagoa do Vento	112	*41.2*
PR10 – Levada do Furado	112	*41.2*
PR5 – Vereda das Funduras	94	*34.6*
PR13 – Vereda do Fanal	83	*30.5*
PR18 – Levada do Rei	82	*30.1*
PR1.1 – Vereda da Ilha	80	*29.4*
PR7 – Levada do Moinho	73	*26.8*
PR22 – Vereda do Chão dos Louros	62	*22.8*
PR4 – Levada do Barreiro	60	*22.1*
PR1.3 – Vereda da encumeada	52	*19.1*
PR19 – Caminho Real do Paul do Mar	52	*19.1*
PR3 – Vereda do Burro	51	*18.8*
PR14 – Levada dos Cedros	45	*16.5*
PR2 (Porto Santo) – Vereda do Pico do Castelo	41	*15.1*
PR12 – Caminho Real da Encumeada	37	*13.6*
PR1 (Porto Santo) – Vereda do Pico Branco e Terra Chã	35	*12.9*
PR3.1 – Caminho Real do Monte	34	*12.5*
PR16 – Levada Fajã do Rodrigues	30	*11.0*
PR17 – Caminho do Pináculo e Folhadal	29	*10.7*
PR2 – Vereda do Urzal	27	*9.9*
PR20 – Vereda do Jardim do Mar	27	*9.9*
PR15 – Vereda da Ribeira da Janela	24	*8.8*
PR23 – Levada da Azenha	20	*7.4*
PR3 (Porto Santo) – Levada do Pico Castelo	19	*7.0*
PR21 – Caminho do Norte	17	*6.3*

respondents (PR21 – Caminho do Norte (6.3%); PR3 (Porto Santo) – Levada do Pico do Castelo (7%); PR23 – Levada da Azenha 7.4%). The six most completed hiking routes are those that provide the greatest diversity of landscapes in high mountains (for example, Pico do Areeiro), and also those that allow one to enter and visit the *Laurisilva* forest (the 25 Fontes and Caldeirão Verde levada walks).

Hence, this information shows which routes suffer more degradation due to greater human presence, with some having up to ten times the usage when compared to the less completed routes. Promoting less-known routes could lead to higher usage not only by residents but also by tourists, allowing a more even distribution of pedestrians across the remaining less-completed/known routes.

Table 2. Hiking routes ordered according to the perception of risk

Name of the recommended hiking route	Risk
PR1 – Vereda do Areeiro	3.18
PR16 – Levada Fajã do Rodrigues	3.06
PR1.3 – Vereda da encumeada	3.05
PR17 – Caminho do Pináculo e Folhadal	2.94
PR19 – Caminho Real do Paul do Mar	2.92
PR21 – Caminho do Norte	2.88
PR12 – Caminho Real da Encumeada	2.86
PR9 – Levada do Caldeirão Verde	2.76
PR7 – Levada do Moinho	2.73
PR20 – Vereda do Jardim do Mar	2.66
PR6 – Levada das 25 Fontes	2.62
PR2 – Vereda do Urzal	2.61
PR8 – Vereda da Ponta de S. Lourenço	2.54
PR5 – Vereda das Funduras	2.52
PR1.1 – Vereda da Ilha	2.51
PR6.3 – Vereda da Lagoa do Vento	2.50
PR1 (Porto Santo) – Vereda do Pico Branco e Terra Chã	2.38
PR3 – Vereda do Burro	2.36
PR18 – Levada do Rei	2.35
PR10 – Levada do Furado	2.33
PR1.2 – Vereda do Pico Ruivo	2.28
PR14 – Levada dos Cedros	2.27
PR15 – Vereda da Ribeira da Janela	2.24
PR6.1 – Levada do Risco	2.20
PR4 – Levada do Barreiro	2.18
PR6.2 – Leva da do Alecrim	2.11
PR23 – Levada da Azenha	2.11
PR3.1 – Caminho Real do Monte	2.09
PR3 (Porto Santo) – Levada do Pico Castelo	1.95
PR13 – Vereda do Fanal	1.94
PR2 (Porto Santo) – Vereda do Pico do Castelo	1.67
PR22 – Vereda do Chão dos Louros	1.67
PR11 – Vereda dos Balcões	1.34

4.2. Recommended hiking routes and the perception of risk

The recommended hiking routes shown in Table 2 are ordered from highest to lowest according to the respondents' perception of risk. The residents rated them between 1 (*Very*

low) and 5 (*Very high*) according to their overall exposure to danger (risk), such as slippery or faulty steps, vertigo-inducing sights, and lack of hand supports.

It is noticeable that despite these routes being somewhat associated with danger and a probability of having an accident that could result in an injury or even death, the highest perceived risk was of 3.18 which is close to an "average" risk ("3"). Only three routes were perceived slightly above what the residents considered as average (3.18 (PR1 – Vereda do Areeiro); 3.06 (PR16 – Levada Fajã do Rodrigues); 3.05 (PR1.3 – Vereda da Encumeada). The average perception of risk of all the recommended routes was only 2.42, which is closer to low than to average. Five of the routes were rated below 2.00, representing a low perception of risk by the respondents (1.34 (PR11 – Vereda dos Balcões); 1.67 (PR2 (Porto Santo) – Vereda do Pico do Castelo); 1.67 (PR22 – Vereda do Chão dos Louros); 1.94 (PR13 – Vereda do Fanal); 1.95 (PR3 (Porto Santo) – Levada do Pico Castelo).

With this data, we can assume that the residents perceive the recommended hiking routes as being of average and below average (low) risk, representing a quite safe activity.

4.3. Recommended hiking routes and perception of their maintenance

The recommended hiking routes in Table 3 are ordered from best to worst according to the average respondents' perception of the state of conservation/maintenance. The respondents were asked to rate four individual components of each route between 1 (*Very bad*) and 5 (*Very good*): (1) handrails and supports; (2) cleaning (bushes and plants); (3) condition of the path; (4) state of the stairs (Table 3).

The overall average conservation/maintenance rating for all routes is 3.29, which is slightly above "average" (3), representing an acceptable overall state of conservation but with high potential for improvement. The best average is in item (2) cleaning (bushes and plants), averaging 3.39. The second best average is a tie between (1) handrails & supports and (3) the condition of the path, with 3.27 for both. The last and worst average was (4) the state of the stairs, which was still slightly above average with 3.23; however, it is still the one in greatest need of intervention, according to the respondents.

Noticeably, PR11 – Vereda dos Balcões is perceived as having the highest maintenance scores in all four components and is also the one with the lowest perception of risk. Another route, PR21 – Caminho do Norte, managed to get the worst maintenance scores in all four components and has the sixth highest perception of risk.

According to the residents, some routes are in greater need of intervention as they are rated with overall scores below and close to the "average" (3) (PR21 – Caminho do Norte; PR20 – Vereda do Jardim do Mar; PR16 – Levada Fajã do Rodrigues; PR17 – Caminho do Pináculo e Folhadal).

Conversely, some routes were highly rated by the residents (PR11 – Vereda dos Balcões; PR22 – Vereda do Chão do Louros: PR1.2 – Vereda do Pico Ruivo; PR6.2 – Levada do Alecrim; PR2 (Porto Santo) – Vereda do Pico do Castelo). Due to their better states of maintenance and lower perceptions of risk (exposure to danger), these routes should be more often recommended amongst pedestrians with lesser physical capacities, reducing their exposure to more dangerous routes. These individual evaluations allow a narrower perception of the conditions on each route, allowing more efficient and focused maintenance for the official entity, as well as providing a more realistic notion of each route's condition for those who will be completing these soon.

4.4. Correlation and comparison between perceptions of risk and maintenance

A test for normality of distribution in both perceptions was conducted, as shown in Table 4. According to the test for normality, we can observe that both variables are normally distributed.

Subsequently, a correlation test was used to determine the association between both perceptions as displayed in Table 5. Observing the correlation ($r = -0.769$, $p < 0.001$) we must consider that: (1) p is inferior to 0.05, thus confirming a statistically significant correlation; (2) the correlation is negative, meaning that when one perception increases the other decreases, and vice-versa; and (3) both perceptions can be considered to have a strong correlation due to the value being greater than 0.7 ($r = -0.769$).

This negative correlation demonstrates how a low perceived state of maintenance can result in a higher perception of risk, further emphasising the importance of keeping these routes well-maintained if we do not want this activity to be perceived as dangerous.

Table 6 shows a comparison between the three different types of route, comparing both average perceptions of risk and conservation/maintenance.

Five out of the 33 recommended routes are *caminhos* (15.15%), defined as a connecting pathway broader than *veredas*. Out of these, three are "royal" pathways built before the implementation of the Republic, working as an alternative and complement to marine connections (Associação do Caminho Real da Madeira, 2023).

Sixteen out of the 33 recommended routes are *veredas* (48.48%), defined as a narrower pathway.

Twelve out of the 33 recommended routes are *levadas* (36.36%).

Noticeably, despite pathways (*caminhos*) being broader than their narrower counterparts (*veredas*), the respondents rated them with the highest risk and the lowest state of conservation/maintenance, indicating a higher urgency of intervention on these types of routes. Regardless of these being the least

Table 3. Hiking routes maintenance.

Name of the recommended route	Maintenance level				
	Handrails/support	Cleaning (bushes)	Path	State of the stairs	Average
PR11 – Vereda dos Balcões	4.11	4.08	4.10	4.01	**4.07**
PR22 – Vereda do Chão dos Louros	3.69	3.63	3.61	3.55	**3.62**
PR1.2 – Vereda do Pico Ruivo	3.57	3.75	3.58	3.53	**3.61**
PR6.2 – Levada do Alecrim	3.60	3.68	3.58	3.54	**3.60**
PR2 (Porto Santo) – Vereda do Pico do Castelo	3.56	3.63	3.55	3.44	**3.55**
PR6.1 – Levada do Risco	3.49	3.61	3.43	3.47	**3.50**
PR6 – Levada das 25 Fontes	3.42	3.64	3.39	3.32	**3.44**
PR4 – Levada do Barreiro	3.47	3.44	3.39	3.45	**3.44**
PR3 (Porto Santo) – Levada do Pico Castelo	3.42	3.42	3.47	3.37	**3.42**
PR8 – Vereda da Ponta de S. Lourenço	3.37	3.72	3.28	3.28	**3.41**
PR1.1 – Vereda da Ilha	3.30	3.50	3.47	3.31	**3.40**
PR13 – Vereda do Fanal	3.48	3.42	3.35	3.24	**3.37**
PR3.1 – Caminho Real do Monte	3.30	3.41	3.44	3.31	**3.36**
PR10 – Levada do Furado	3.37	3.44	3.33	3.27	**3.35**
PR14 – Levada dos Cedros	3.30	3.49	3.29	3.34	**3.35**
PR6.3 – Vereda da Lagoa do Vento	3.32	3.42	3.28	3.30	**3.33**
PR1 (Porto Santo) – Vereda do Pico Branco e Terra Chã	3.36	3.61	3.19	3.11	**3.32**
PR9 – Levada do Caldeirão Verde	3.29	3.46	3.23	3.28	**3.31**
PR18 – Levada do Rei	3.22	3.35	3.16	3.30	**3.26**
PR3 – Vereda do Burro	3.17	3.30	3.32	3.22	**3.25**
PR1 – Vereda do Areeiro	3.19	3.38	3.21	3.12	**3.22**
PR7 – Levada do Moinho	3.01	3.43	3.23	3.22	**3.22**
PR15 – Vereda da Ribeira da Janela	3.28	3.21	3.25	3.13	**3.22**
PR5 – Vereda das Funduras	3.15	3.22	3.20	3.13	**3.17**
PR1.3 – Vereda da encumeada	2.96	3.17	3.06	3.06	**3.06**
PR2 – Vereda do Urzal	3.00	3.20	3.07	2.96	**3.06**
PR19 – Caminho Real do Paul do Mar	2.98	3.25	3.00	2.90	**3.03**
PR23 – Levada da Azenha	2.90	3.11	3.10	3.00	**3.03**
PR12 – Caminho Real da Encumeada	3.03	3.00	3.00	3.00	**3.01**
PR17 – Caminho do Pináculo e Folhadal	2.96	3.19	2.89	2.85	**2.97**
PR16 – Levada Fajã do Rodrigues	2.86	3.00	2.86	3.07	**2.95**
PR20 – Vereda do Jardim do Mar	2.96	3.04	2.80	2.84	**2.91**
PR21 – Caminho do Norte	2.76	2.75	2.80	2.80	**2.78**

Table 4. Tests of normality.

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Risk_Perception	,071	33	,200[*]	,980	33	,783
Maintenance_Perception	,099	33	,200[*]	,961	33	,284

[*]. This is a lower bound of the true significance.

[a]. Lilliefors Significance Correction

Table 5. Test for the significance of the correlation.

		Risk_Perception	Maintenance_Perception
Risk_Perception	Pearson Correlation	1	-,769**
	Sig. (2-tailed)		<,001
	N	33	33
Maintenance_Perception	Pearson Correlation	-,769**	1
	Sig. (2-tailed)	<,001	
	N	33	33

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6. Comparison risk perception – level maintenance of hiking routes type

	Risk (average)	Maintenance (average)
Pathways (*Caminhos*)	2.74	3.03
Waterways (*Levadas*)	2.39	3.32
Narrow pathways (*Veredas*)	2.34	3.35

completed routes, they are still rated as having the worst state of conservation/maintenance.

The narrow routes (*veredas*), despite being narrower and expected to be less safe, were rated as having the lowest perception of risk and the best state of conservation/maintenance, which is a positive sign seeing as four out of the five most completed routes are indeed these narrower routes (*veredas*). This could mean that there is already effective maintenance and prevention on these routes, reducing the risk and impact of the high human presence and increasing the sustainability inherent to these routes.

In the middle of the ratings are the waterways (*levadas*) which are rated very closely to the narrow routes (*veredas*). These routes have also some of the highest rates of completion by the respondents.

Lastly, all three types of hiking routes have a below "average" (3) perception of risk and an above "average" (3) perception of conservation/maintenance, resulting in a slightly positive but still "average" overall perception by the respondents.

5. Discussion

According to the residents' perception of risk, despite the recommended hiking routes being associated with elevated risk due to some accidents and vertigo-inducing passages (LE guide, 2023), these routes were perceived with a risk between "average" (3.18) and "very low" (1.34). The average of the 33 routes is 2.42 (out of 5), which is closer to low risk (2) than to average risk (3). In general, the results suggest the differentiation of pathways according to the criteria of the level of risk and the state of maintenance. The physical capacity and the mountain hiking experience of tourists are also criteria which may be important to differentiate the activity of residents and tourist service for *levadas* and trails (Prudente et al., 2020). For example, *levadas* and paths that present less risk and a better level of maintenance (those with a risk between 1.3 and 2.5) should be recommended for residents and tourists who are looking for a moderate, gentle walk. The *levada* walks are flat routes, and when they are performed at a moderate intensity, they do not demand significant changes in cardiac effort. In addition, the fresh air and the abundance of oxygen inside the forest, in addition to the genuine experiences and landscapes, allow for a very positive physical and emotional well-being (Jenkins et al., 2022; Mygind, et al., 2019; Wolsko, Lindberg, & Reese, 2019) and the social connectedness contributes to better subjective well-being (McNeil, Singh, & Chambers, 2022). These pedestrian routes in pure nature and with less risk can even be used for the development of the health and well-being of residents and tourists if they are used properly. Physical resistance and bodily mobility, along with psychological well-being, can also be improved through physical exercise on stable and moderate paths, such as the *levadas* and nature landscapes in Madeira (Soares & Naidea, 2021).

The results show that the *levadas*, footpaths and trails in the mountains of Madeira are popular with residents and represent a tourist product that needs to be offered with a rational, differentiated approach. From the tourist perspective, the most popular *levadas* and paths must consider the genuine and endemic characteristics of the nature of the Madeira mountains. However, with a substantial increase in tourist demand expected for the most frequented routes and trails (DREM, 2022), it is advisable to control and monitor the number of visitors on each route to preserve its natural state and ensure the safety of residents and tourists. The introduction of ecological fees or limitations on the number of pedestrians on more popular walking routes can contribute to better management, control, and greater safety on these routes. Additionally, the use of the most popular trail routes, for example, Levada das 25 Fontes requires adequate physical capacity and a positive connection with the concerns

of nature, namely the conservation of Madeira's flora and fauna.

On the other hand, the results also demonstrate that some *levadas* and paths require safety precautions and present a considerable risk of accidents, for example, Levada Fajã do Rodrigues or Levada do Norte, because of the lack of protective handrails on some parts of the route. Furthermore, due to the difficulties associated with the irregularity of the route and the variation in altitude and physical effort, the more winding trails require tourists to be properly physically prepared. These hiking routes require strategic planning of tourist activity to reduce risk and raise awareness among tourists to adopt responsible behaviours. Risk management in nature involves a structured process that demands an evaluation of relevant factors and adopting prevention measures (Almeida, 2017).

A greater state of cleanliness and conservation of *levadas* and trails corresponds to a lower probability of accidents for pedestrians. Therefore, on routes frequented by residents who present a higher level of risk, greater care is recommended in maintaining and cleaning the routes. This recommendation can be explained with the example of Levada Fajã do Rodrigues, which despite not being one of the most popular, requires care in protecting the rails and cleaning vegetation.

6. Conclusions

The data gathered from the sample of 336 respondents shows that a high percentage utilize these recommended hiking routes (80.95%, n = 272) with the average respondent completing 1.5 routes per year.

This sample leads to the conclusion that some recommended hiking routes are much more frequently visited than others, up to 10 times more. Despite being more utilized, these routes maintained similar perceptions of the condition of conservation/maintenance and risk as the remainder.

This study concludes that there are popular hiking routes that deserve to be analyzed and recommended with sufficient information to minimize the risk of accidents. This conclusion is more important when there is an influx of mountain tourists and residents who seek to appreciate the scenery and have genuine experiences in the forest classified as a Natural World Heritage Site (*levada* walking) (DREM, 2022; DN, 2023).

The hiking routes that have higher levels of risk need to be more careful in terms of cleaning and safety for human activity (residents and tourists). If the tourism sector intends to continue offering natural tourist products that are safe and suitable for different target groups of active and nature tourists, then it is crucial to have more structured planning and risk management. Overall, Madeira's recommended hiking routes attain reasonable scores from the residents, with a below-average overall perception of risk (2.42) and a slightly above-average overall perception of conservation/maintenance (3.29). However, work must be carried out on all four maintenance components (handrails/supports cleaning (bushes) paths and stairs) to further improve the condition of these routes, as a higher state of maintenance will result in them being perceived as having less risk (and more safety) than "average". Both these variables are a useful aid if the local government wants to maintain these routes with a good standard of safety, as positive perceptions will keep this activity popular amongst future pedestrians and positively influence the region's tourism.

The information gathered from the residents could be used by the official entity (IFCN) to tailor more specific maintenance programmes that could focus on the routes in higher need of certain types of maintenance. Let us not forget, with the recent growth and record-breaking numbers of sleepovers within the region (Dnoticias, 2023; MadeiraWeb, 2023), maintenance efforts need to be readjusted to maintain these routes in optimal condition and keep them sustainable in the long term, avoiding degradation that could result in higher risk, accidents, and even needless deaths.

Unavoidably, the current paper contains various limitations, such as the reasons for which some routes are completed up to ten times more than others. The type of risk is also not specific, leaving open a wide spectrum of reasons why a route could be perceived as having a higher risk. Further, for the present study data was gathered concerning the last five years, which could result in some respondents' perceptions being outdated with the current routes condition. Lastly, the residents' perceptions could perhaps be different from non-residents, opening the possibility for future studies to survey non-residents' perceptions and compare them with those of residents. Moreover, our study does not evaluate the role of ICFN in maintaining hiking routes. It would be important to analyze this process of prevention and maintenance of the routes, especially when there is a substantial increase in tourists in the *levadas* and paths of Madeira.

Finally, based on the results collected in this study, the routes that need to be visited by safety experts and the critical points of greatest risk can be identified. In short, it is necessary to use a robust assessment method that specifically identifies the points that need to be improved to increase safety and reduce the risk of accidents. From an environmental point of view, it is necessary to assess tourist pressure and the overuse of certain hiking routes and to avoid negative impacts on nature. In addition, monitoring and regulating environmental safety is a major challenge for public and private organizations that are responsible for preserving and managing the natural park and protected areas.

The hiking routes in the mountains of Madeira are unique and beautiful landscapes and cultural heritage, built with years and years of hard human work and without significant ruptures to

the local ecosystems (Quintal, 2011). They must be kept and preserved to keep providing future generations of residents and tourists with what they seek the most when completing these routes: contact with nature.

Funding
Funded by national funds through FCT – Portuguese Science and Technology Foundation, within the project reference UIDB/04470/2020

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DOI: 10.34620/978-83-67405-28-7-010 • 2024 • 83-90

sciendo

Proceedings of the International Tourism Congress 23

The digital transition in tourism experiences in portugal: the perception of national tourists

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Abstract

In recent decades, we have seen a growing commitment to digitalisation in tourism. However, the digital transition was more effectively instituted in the national territory during the pandemic. Considering this reality, this study aims to reflect on the current perception of national tourists regarding the use of digital media, in the choice of destination and during the tourist experience in Portugal. Using an online questionnaire, carried out in 2023, to national tourists (n=201), the results show a strong propensity to the use of digital media in the choice of destination and throughout the tourist experience. However, the frequency with which tourists organise their trips, by digital media, is conditioned by factors such as age and education. These results show that at a time when more digital and smarter trips and destinations are being built, digital inclusion is becoming more urgent to consider. It is important to make the tourism sector more socially sustainable and responsible and being supported by more digital literacy.

Keywords

artificial intelligence • digital inclusion • digitalisation • sustainability • tourism

1. Introduction

The COVID-19 pandemic has accelerated the digital transition in several economies and societies (Li et al., 2021; Vargo et al., 2021). As a pioneer in the use of digital media in flight and hotel reservations, tourism has been intensively investing in the digital transition of tourism activity. This transition has made it possible to develop smart destinations and trips, improve the performance and efficiency of the sector, and focus on personalising the tourist experience by offering more sustainable solutions (Belias et al., 2021; Pencarelli, 2020).

According to the literature, an increasingly digital tourist is expected, who makes his choices, and respective tourist experiences, using digital media. By 2028, it is expected that almost 10% of what is produced worldwide will be reflected in tourism activity (Statista, 2022). And in Portugal, more specifically, it was reported that in 2022 tourism activity contributed 8.8% of the national GDP (PORDATA, 2022a). Furthermore, the tourism sector accounted for 47.8% of total exports of services in Portugal in the same year (PORDATA, 2022b). These forecasts emphasise the economic relevance of tourism, both globally and nationally, currently. It should be noted that these data are higher than the data for a pre-pandemic period (2019) in absolute values (despite the slight decrease in relative values) (PORDATA, 2022a, 2022b).

In recent years, the overall strategy has been prioritising innovation, sustainability, accessibility, inclusion, and local community engagement with tourists (Ivars-Baidal et al., 2023; UNWTO, n.d.). This strategy has been accompanied by the European Commission proposing four flanks for mapping the European Union's digital pathway to 2030, entailing: (i) a more digitally skilled population and professionals; (ii) the creation of safe, efficient, and sustainable digital infrastructures; (iii) the digital transformation of businesses; and (iv) the digitisation of public services (European Commission, 2021). In the Portuguese case, although the digital transition and all these developments were already integrated into the national strategy, mainly since the launch of the "Tourism Strategy 2027" (Turismo de Portugal I.P., 2017), the literature points out that it would be in the

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post-pandemic moment that these developments would take hold more effectively (Fernandes, 2021). In fact, it was during the pandemic period that the digital transition was instituted, more effectively, both globally and nationally, definitively marking the future of the sector (European Commission, 2021; Li et al., 2021). This is expected to further increase the use of digital media and technologies and consequently respond to different tourist behaviours and preferences on their trips (Zeqiri et al., 2020).

Therefore, it is urgent to study and reflect on the current perception of national tourists regarding the use of digital media in tourism, as well as the main factors that condition the use of digital media to contribute to a more sustainable, responsible, and digitally inclusive tourism sector. For this reason, we conducted an exploratory online questionnaire survey (n=201), to national tourists, throughout the second quarter of 2023.

Finally, this article is structured as follows: (i) a literature review that briefly maps the evolution of studies on digitisation but gives priority to the most recent studies associated with the (re)structuring arising from the pandemic; (ii) an explanation of the adopted methodology; (iii) an analysis and discussion of the collected empirical data; and (iv) a conclusion that will reflect on the topic under analysis.

2. Literature review

In the recent past, it was globally observed the digitalisation of various economic activities, and the tourism sector was no exception (Pencarelli, 2020). With the numerous technological disruptions, smarter environments have been created, as also structures, practices and processes that have been (re) shaped in the tourism sector.

As a result, several tourism and hospitality-related studies have emerged exploring the digital transition of the last decades (Cuomo et al., 2021; Kalbaska et al., 2017; Marx et al., 2021; Parida et al., 2019). Therefore, these studies have shown the potential of the digital transition, noting that it is possible to: (i) develop and improve tourism experiences; (ii) develop more sustainable practices and protect natural resources; (iii) increase citizen participation in tourism development decision-making; and (iv) offer renewed and higher quality tourism services (Seetanah & Fauzel, 2023; Zeqiri et al., 2020).

The digital economy has been fundamental in the development of tourism globally. The tourists driven by a greater willingness to spend money on travelling, many of their decisions, about travel and tourism experiences, have been influenced by the use of mobile apps in tourism (Genzorová et al., 2018). In a first phase, digitalisation was characterised by reducing costs, building more integrated value chains, and improving the communication of the tourism offer. In a second phase, provided by the COVID-19 pandemic, and with a more active support of industry 4.0 technologies, tourism plans to reduce mass tourism, and offer more personalised and sustainable services (Zeqiri et al., 2020). It should be noted that, industry 4.0 have given life to the concept “Tourism 4.0”. These concepts are aligned with trends related to the fourth industrial revolution and aim to encompass a set of solutions, in addition to digitisation, such as: Artificial Intelligence, Big Data Analytics, Internet of Things (IoT), Augmented Reality and Virtual Reality, among others (Stankov & Gretzel, 2020).

Nowadays, tourists increasingly seek information digitally for the various moments of their trip, gathering information such as prices, accommodation, and tourist spots, among others (Chen et al., 2020; Cheunkamon et al., 2020; Zhou et al., 2023). However, despite the availability of information and communication technologies, there are still numerous disparities in their access, ability, and attitude towards the use of digital media (Maurer, 2014). These disparities indicate the existence of a digital divide between different tourists and even between different professionals in the sector (Dhakal & Tjokro, 2021; Maurer, 2014; Shin & Baek, 2023). This means that despite the vast knowledge of social impacts, digital exclusion has not yet received due attention (Wei & Hindman, 2011). However, variables such as age and gender (Hysa et al., 2021; Mang et al., 2016; Tan & Ooi, 2018) as well as educational attainment should be considered for the (in)success of the implementation of planned strategies.

Thus, there is a need to broaden the space for digital communication and engagement with digital technologies, reducing inequalities between generations. That is, it is crucial to reduce the discrepancy of generations that were born before and during the emergence of digital technologies (such as Baby Boomers, Generation X and Generation Y), as opposed to another generation that was already born in a world immersed in digital: Generation Z (Hysa et al., 2021; Pysarevskyi et al., 2022). As indicated by the study developed by Hysa et al. (2021) in Poland, their results show behavioural differences between generations regarding the use of social networks to check reviews on certain tourist sites.

Despite the increase in digitisation brought about by the pandemic and a strong increase in digital education, this does not mean that the various generations are fully engaged and literate in “digital social sustainability” (Jos et al., 2021). This will imply more challenges that need to be considered, such as financial capacity, training and differentiated adaptation (beyond age and education),

avoiding a stereotyped direction of citizens (Anrijs et al., 2023; Jos et al., 2021).

3. Methodology

This article results from an exploratory study, which is being developed, on how the growing trend towards digital transition affects the tourism experience in Portugal. An online questionnaire survey was conducted throughout the second quarter of 2023, resulting in 201 valid responses. The questionnaire survey, composed of 22 closed and 3 open questions, was divided into three parts: (i) characterisation of the sample, taking into account tourist mobility practices in Portugal; (ii) perception regarding the use of digital media throughout the tourist experience, that is, from choosing the destination, until the end of the trip and the respective reaction of their post-trip experience (*e.g.*, reviews and rates); (iii) perception of innovation and the respective commitment on 4.0 technologies (e.g., artificial intelligence) in tourism in Portugal, considering suggestions for improving tourist experiences, as well as concerns arising from this same commitment. However, in this text, we will address the first two parts. The questionnaire proceeded after obtaining free and informed consent (unsigned) from the participants. All questions were open-ended and the total time allotted did not exceed 5 minutes. Participants were informed of the purpose of the research and agreed to collaborate on a free and voluntary basis.

Subsequently, the responses were analysed using SPSS statistical software and a descriptive analysis of the information present in the questionnaire survey was performed. Later, logistic regression models were created, and the chi-square test was performed in order to observe whether there was statistical significance between the explanatory variables and the response variable. The Chi-Square test was carried out to check the significance of the logistic regression model in order to test whether age, gender and schooling influence the frequency with which domestic tourists organise their trips via digital media.

4. Results and discussion

The sample consists of 201 national tourists, of which 74.1% are female and 25.9% are male. Most of the sample (81.6%) has some higher education degree (e.g., bachelor, master, or doctorate) and resides in the North of Portugal (72%). The average age is 42, with 43% aged between 20 and 35, 26% between 36 and 51 and 31% between 52 and 77 (table 1).

Table 1. Sample structure (%) – basic tourist information

	n	%
Gender		
Female	149	74,1%
Male	52	25,9%
Total	201	100%
Age		
20-35	85	42,3%
36-51	51	25,4%
52-77	60	29,9%
No answer	5	2,4%
Total	201	100%
Education		
Can read and write but has not completed primary school	1	0,5%
Basic Education	5	2,5%
Secondary Education	31	15,4%
Higher Education	164	81,6%
Total	201	100%
Residence		
North	144	71,6%
Lisbon Metropolitan Area	31	15,4%
Centre	19	9,5%
Alentejo	2	1,0%
Algarve	1	0,5%
Azores	1	0,5%
Madeira	2	1,0%
No answer	1	0,5%
Total	201	100%

Source: Own elaboration.

Table 2 analyses respondents' tourist mobility practices. The majority of the sample (90%) travels accompanied, in national territory. 34,3% of respondents visit more regularly in the North, followed by the Algarve (19%), the Lisbon Metropolitan Area (17%), the Centre (15.3%), the Alentejo (10.7%), Madeira (2.2%) and the Azores (1,5%). Finally, 58,7% of the sample stays between two and three nights, and the main reason for their trips is "leisure, recreation or holidays" (70, 6%).

The table 3 analyses the perception of national tourists surveyed regarding the use of digital media in the choice of tourist destinations. Therefore, we conclude that the main factors that interfere in the choice of tourist destinations are the recommendation of family and friends who visit the destination (37,4%), the use of media (16,4%) and the recommendation of digital influencers who have already visited a particular tourist destination (10,3%). On the contrary, websites of public entities associated with tourist destinations (4,7%) and tourist offices tend to be the least used (0,8%).

Table 2. Sample structure (%) – mobility information

	n	%
Normally travelling		
Accompanied by	181	90,0%
Alone	17	8,5%
No answer	3	1,5%
Total	201	100%
Regions in Portugal that you visit the most regularly		
North	141	34,3%
Algarve	78	19,0%
Lisbon Metropolitan Area	70	17,0%
Centre	63	15,3%
Alentejo	44	10,7%
Madeira	9	2,2%
Azores	6	1,5%
Total	411[1]	100%
Regularity with which you stay overnight on national territory		
Once a year	30	14,9%
Between two and three times a year	69	34,3%
Between three and five times a year	44	21,9%
More than five times a year	57	28,4%
No answer	1	0,5%
Total	201	100,0%
Number of nights you stay in the destination you are visiting		
One night	30	14,9%
Between two and three nights	118	58,7%
Between four and five nights	30	14,9%
More than five nights	22	10,9%
No answer	1	0,5%
Total	201	100%
Reason for most of your trips		
Leisure, recreation, or holidays	142	70,6%
Professional	32	15,9%
Visiting family and friends	23	11.4%
Other	4	2%
Total	201	100%

Source: Own elaboration.
[1]*Note*: n=411, means that the answer option was multiple choice, i.e., the tourist could choose up to 3 regions that they visited most regularly.

The most valued factors in choosing a tourist destination in Portugal (Table 4): the value of the accommodation and the inherent services; the presence of specific tourist attractions (e.g., landscape, gastronomy, museums); the ease of access to online information about the destination (at the time of idealising the trip); the possibility of making searches and reservations directly over the internet; and the access to up-to-date online information on the various tourist products in the destination.

Table 3. How you choose your holiday destinations

How you choose your holiday destinations	n	%
Recommendations from family and friends visiting the destination	134	37,4%
Various media	59	16,4%
Recommendations from digital influencers who have already visited the destination	37	10,3%
Other	30	8,3%
Travel agencies	29	8,1%
Advertising campaigns on social media	26	7,2%
Personalised recommendations	23	6,4%
Websites of public organisations	17	4,7%
Tourist offices	3	0,8%
Total	358[2]	100%

Source: Own elaboration.
[2]*Note*: n=358, the answer option was multiple choice, i.e., the tourist could indicate up to three options.

Regarding the sources of information used to organise trips in the national territory, 33.5% of the sample uses websites, 17.6% social networks, 15.5% online reviews and 14.3% online travel agencies. On the contrary, the least used sources of information are books and dedicated guides (7.7%); physical travel agencies (6.8%); and other tour operators (4.6%) (table 5). Thus, it appears that with the digital transition of recent years, the national tourists surveyed significantly devalue physical resources and show a strong predisposition to the use of digital resources. These results are in line with other studies (Chen et al., 2020; Cheunkamon et al., 2020; Zhou et al., 2023) that point out the role of social media in decision-making in relation to travel planning. Namely, in relation to obtaining and disseminating tourist information.

During the tourist experience, most respondents use the following services “often” or “always”: online payment methods (75%); internet to access information about tourist attractions (70%); internet to access other places (e.g., restaurants) (70%); applications for booking accommodation (60%); buying tickets (e.g., shows, transport) (56%); applications with information about tourist attractions (50%); and evaluations of experiences on platforms for reviews (57%). On the contrary, respondents “rarely” or “never” use the following services during the tourist experience: augmented reality (67%), intelligent voice assistants (71%); or chatbots aimed at customer service (74%) (table 6).

Based on table 7, it is possible to see that most of the respondents (69%) organise their trips “often” or “always” by digital media. We then performed the chi-square test to verify the significance of the logistic regression model. In this regard, the chi-square analysis table shows that the addition of the variable “age” and “education” is statistically significant. That is, in both situations the p-value, associated

Table 4. Factors influencing the choice of a tourist destination

	"Very important" or "Important"		"Reasonably important"		"Not very important" or "not at all important"		Total
	n	%	n	%	n	%	
The ease of access to information about the destination before your trip	180	90%	13	7%	5	3%	198
The possibility to carry out searches and bookings directly via the internet	178	92%	12	6%	4	2%	194
Access to up-to-date online information on the various tourism products in the destination	174	90%	18	9%	2	1%	194
The possibility of having positive experiences (not foreseen by you)	155	79%	28	14%	12	6%	195
The evaluation, comments and sharing of experiences on digital platforms about the destination	161	83%	23	12%	10	5%	194
Videos and advertising campaigns for tourist destinations	106	55%	52	27%	34	18%	192
The image of a smart and connected destination	119	62%	35	18%	38	20%	192
The ease of payment (e.g., MBWAY, online transfers) at the destination	146	76%	29	15%	17	9%	192
The value of accommodation and services	185	93%	11	6%	2	1%	198
Access to free Wi-Fi at destination locations	138	72%	38	20%	16	8%	192
The presence of specific tourist attractions (e.g., landscapes, gastronomy, museums)	176	90%	17	9%	3	2%	196
The presence of recreational attractions (e.g., bars, restaurants, attractive public spaces)	151	77%	35	18%	9	5%	195
Contact with local communities and their knowledge	155	79%	28	14%	14	7%	197
Access to shared transport using mobility apps	97	51%	46	24%	49	26%	192
Personalising experiences from your information shared online	102	53%	45	24%	44	23%	191

Source: Own elaboration.

Table 5. Sources of information you use most when organising your trips

Source of information	n	%
Websites	139	33,5%
Social Media	73	17,6%
Online reviews	64	15,5%
Online travel agencies	59	14,3%
Dedicated books and guides	32	7,7%
Physical travel agencies	28	6,8%
Other tour operators	19	4,6%
Total	414[3]	100%

Source: Own elaboration.
[3]*Note*: n=414, the answer option was multiple choice, i.e. tourists could indicate up to three sources of information they use when organising their trips.

with the chi-square test, is less than 0.001. This p-value indicates that the variable "age" and "education" influence the frequency with which they organise trips by digital media, in other words, older respondents and those with less education tend to use digital media less regularly. If we take as a reference a study developed in Poland, the frequency of social media use in planning a trip decrease with age (Hysa et al., 2021). These results are in line with other studies in which they report that younger consumers are more receptive to the use of new technologies in a tourism context when compared to older consumers, but there is no difference in use between women and men (Mang et al., 2016; Tan & Ooi, 2018).

Table 6. Services they use during the tourist experience

	"Rarely" or "never"		"Some-times"		"Often" or "always"	
	n	%	n	%	n	%
Online payment methods (e.g., Paypal, credit card, MBWay)	31	15%	20	10%	149	75%
Use the internet to access certain places (e.g., restaurants, tourist attractions).	29	15%	30	15%	141	70%
Use the internet to access information about tourist attractions	30	15%	31	16%	140	70%
Evaluation of the tourist experience on platforms (e.g., TripAdvisor, Booking)	47	23%	40	20%	114	57%
Digital services in local/city accommodation (e.g., interactive screens)	82	41%	57	29%	61	30%
Making your data/opinion available in tourist destinations	89	44%	55	28%	55	28%
Tourist guides	82	42%	71	36%	45	23%
Real-time recommendations	71	36%	60	31%	66	33%
Accommodation booking apps	40	20%	40	20%	118	60%
Apps for buying tickets (shows, transport)	40	20%	46	24%	109	56%
Apps to access information on tourist attractions	48	24%	52	26%	97	50%
Augmented reality (e.g., virtual visualisation of sights)	133	67%	43	22%	23	11%
Intelligent voice assistants	139	71%	44	23%	12	6%
Customer service chatbots	143	74%	40	21%	11	5%

Source: Own elaboration.

Table 7. Frequency of organising trips by digital media (influencing variables)

	"Rarely" or "never"		"Sometimes"		"Often" or "always"		Total	Teste QQ
Total	**n**	**%**	**n**	**%**	**n**	**%**	**n**	
	20	**10**	**42**	**21**	**139**	**69**	**201**	
Age								
20-35	2	2%	9	11%	73	87%	84	6.084e-06 <0,001
36-51	1	2%	12	25%	37	73%	50	
52-77	15	25%	20	32%	27	43%	62	
Total	18	9%	41	21%	137	70%	196	
Education								
Can read and write but has not completed primary school	1	100%	0	0%	0	0%	1	0.000153 <0,001
Basic Education	2	40%	3	60%	0	0%	5	
Secondary Education	7	22%	11	34%	14	44%	32	
Higher education	10	6%	28	17%	125	77%	163	
Total	20	10%	42	21%	139	69%	201	
Gender								
Female	15	10%	37	25%	97	65%	149	0.9251 >0,001
Male	5	10%	5	10%	42	81%	52	
Total	20	10%	42	21%	139	69%	201	

Source: Own elaboration.

5. Conclusions

The present study aimed to reflect on the current perception of national tourists regarding the use of digital media, in the choice of destination and during the tourist experience in Portugal.

The literature describes an increasingly digital tourist who realises their choices and respective tourist experiences in digital media. The exploratory analysis of the state of digital media use in the Portuguese tourism sector, from the national tourist, shows a strong predisposition to use social media in planning their trips. However, not all national tourists use these digital media equally and, therefore, it may negatively affect the strategies planned for the national digital transition. The analysis indicates that age and education influence the frequency of use of digital media, showing a digital transition at different speeds, i.e., younger, and more educated respondents tend to organise their trips in the national territory more regularly, using digital media. Likewise, the results show a lack of digital skills among people with low education, conditioning access to certain ways of preparing for their trip, as well as less access to different/personalised tourist experiences.

Shortly, age and education are factors that need further study and require constant reflection between theory, directives and the objectives of government entities, organisations and companies that plan and design the future of Portuguese tourism. These entities, organisations, and companies should also have as their first aim the social well-being of both the community and the national tourist, bridging inequalities. It is irrefutable to say that digitalisation will continue to shape the tourism industry, with emerging technologies (such as Artificial Intelligence). For this reason, more empirical studies should be in line with its practical applicability, especially in tourism, where this type of study is quite scarce (Jos et al., 2021; Maurer, 2014). Given this reality, social sustainability, digital inclusion, and the diversity of the tourist offer, it is crucial that the technological commitment considers these factors, based on a digital transition, but with tourist experiences that include more sustainable and inclusive strategies.

This analysis was of an exploratory nature and requires further analysis of age and education disparities. Even so, it was possible to prove that the difference between the theory of digital commitment and the reality of the use of digital media in the Portuguese tourist is still a significant difference and is a reality different from that planned.

This approach requires more studies that follow the digital evolution, understanding that the strong commitment on "Technologies 4.0" and "Tourism 4.0" (e.g., Big Data and Artificial Intelligence), are one of the premises of several national entities and companies. Therefore, it will be equally important, in future studies, to analyse what impacts these new concepts will bring. Alongside these concepts, concepts

of sustainability (environmental, social, and digital), circular economy, quality of life and social value should also be included, in destinations that will be increasingly digital/smart and that also need more empirical studies (Ivars-Baidal et al., 2023; Pencarelli, 2020).

Funding and acknowledgements (optional)
This work is supported by national funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., under the project UIDB/00736/2020 (base funding) and UIDP/00736/2020 (programmatic funding).

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DOI: 10.34620/978-83-67405-28-7-011 • 2024 • 91-96

sciendo

Proceedings of the International Tourism Congress 23

Cocreation of tourist experiences in archaeological landscapes - the prehistory and traditional knowledge festival of mação

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Abstract

The way in which the past can be presented, simulated, re-enacted, re-lived and experienced in archaeology festivals is examined here. For this purpose, the "Festival of Prehistory and Traditional Knowledge" in Mação was chosen as a case study. It is argued that these festivals are places of learning and knowledge transfer, and heritage-oriented tourism, as well as privileged moments for collecting experiences. A semi-systematic review was carried out, that is, an overview of this topic was built through a reasonably comprehensive assessment and a critical analysis of literature. The rigorous analysis allowed for an in-depth contextual analysis of the projected event. An attempt is made to critically evaluate the different ways in which this project can be presented, emphasizing its potentialities, but also its limitations when trying to make archaeology relevant to the understanding of the logistics of production, transformation and exchange in a postmodern consumer society. Discussion is promoted on the role of archaeology based on the contemporary fascination with the past, as a vehicle for the co-creation of knowledge regarding prehistoric technology, gestures and territory. Although there are some successful archaeology festivals, studies and descriptions of processes are scarce, making their comparability and replicability difficult.

Keywords

co-creation • tourist experiences • festival of prehistory • learning • knowledge transfer

1. Introduction

The festival will take place in Mação, that it is a low-density municipality in the district of Santarém rich in paleontological and archaeological evidence. Located in the center of the country, at the apex of three regions - Beira Baixa, Ribatejo and Alentejo -, it is made up of six parishes, and has a very rich forest area, distributed by mountains scattered throughout the territory, as well as a privileged hydrographic network, which give it a unique natural splendour (CMM, 2023).

Culture and the development of cultural tourism are now associated with sustainable economies and societies (Nikolopoulou & Panourios, 2019). This article proposes the development of an innovative tourism product in which prehistory emerges as a performance space, mainly to promote culture, attract cultural tourism and shape a new identity. Combining the old (prehistory) with the new (contemporary technological tools) will provide tourists with a new experience, one that integrates the history and "aura" of the past with some contemporary trends.

While archaeologists, cultural heritage managers and other professionals from other areas can assume the role of responsible for the development of interpretive products and the ongoing management of heritage sites, the local community and other stakeholders must be an integral part of the preservation equation. Thus, for the development of a festival such as 'Prehistory and Traditional Knowledge' presented here, it is necessary that, from the beginning, it will also be co-constructed with these audiences. In other words, in addition of being stakeholders, they must also be partners committed to the success of the event. The perspective is that together we can better reveal and express prehistoric sites and ancient traditional knowledge in a staged experience (Santos Júnior, 2016), one that will transport us to the daily experiences of the past.

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Therefore, we argue that, once the material ruins and traditional knowledge are reconstituted, the creative imagination and ingenuity of the actors will become fundamental, now through historical knowledge and stories about the past. Thus, the "essence of the place" is still maintained, and the historical significance of the archaeological heritage is not completely lost (Scott-Ireton & McKinnon, 2015).

These will, however, be reconfigured and animated with new connotations according to the values, uses and interpretation of the past that the event promoters have. In this particular case, the dissemination of scientific knowledge will be carried out using 'Experimental Archaeology', a field of study that seeks to generate and test archaeological hypotheses, being carried out through the replication or recreation of the practices and techniques of ancient cultures. This includes various tasks and activities, such as the use of ancestral knowledge and techniques, production of tools, materials and artistic recreation. The concept and methods of experimental archeology have long been established, but debates over the definition and scope still continues (Schöbel, 2019).

2. Methodology

A semi-systematic review was carried out, that is, an overview of this topic was built through a reasonably comprehensive assessment and a critical analysis of the literature. In an initial phase that consisted in searching in both Scopus and Web of Science for literature related with our project. In a second phase the authors also searched in google scholar for articles related with our research. In the first phase only a handful of articles were displayed by both databases linked with festivals and archaeology and prehistory and festivals. In the second phase papers related to our research were choose due to its peer review status and number of citations.

The rigorous analysis of the case study allowed for an in-depth contextual analysis of the projected event. A semi-systematic review consists of looking for, evaluating and synthesizing the relevant evidence, as well as the study traditions related to a given topic by different types of researchers in different disciplines, a fact that prevents a systematic review (Fraga and Bernardes, 2021). The semi-systematic review follows steps, measures and describes what was done and found. In this case, it was decided to carry out a semi-systematic review because this is considered to be more trustworthy for the study of broad themes that have been theorized and conceptualized in different ways, in addition studies made by several groups of researchers in different disciplines, a fact that hinders to a thorough systematic review process (Davey et al., 2013; Snyder, 2019). That is, the semi-systematic review is used when it is not possible to review all publications that may be relevant to the topic, or when, as here, the objective of the review is to combine the different perspectives on the topic under analysis, aiming to create a new theoretical model (Wong et al., 2013).

3. Literature review

3.1. The co-creation of experiences in archaeological festivals

Co-creation is strongly linked to the experience economy concept. The term was first conceptualized by Pine and Gilmore (1998). The concepts of experience economy and co-creation have also been associated with the cultural heritage sector. Cultural heritage sites, due to their aesthetic and historical qualities and attributes, are often used as a stage where people meet and jointly create spectacular and memorable experiences (Schrøder, 2015). Although the concept of co-creation can also be applied to cultural events, currently in the cultural industry the concept has been applied mainly in museum spaces, neglecting other forms of consumption of cultural heritage (Minkiewicz et al., 2009; Radder & Han, 2015). In fact, the consumption of cultural heritage products can also be carried out through various services, such as guided tours, festivals, etc. (Strielkowski et al., 2013). To provide a valuable festival experience, festival organizers must efficiently manage all activities involved in the creation and development of the festival for visitors and local participants (Rihova et al., 2018; Jensen, 2014). Among these activities, dramatized and interactive performances are documented to have large effects on participants' experience ratings (Zhang et al., 2019; Cole & Chancellor, 2009). On the other hand, Werner et al. (2017) also demonstrated that continuous processes of co-creation between the participants themselves and between participants, organizers and many other stakeholders resulted in an event that becomes increasingly sustainable over time. Overall, however, empirical studies on value co-creation processes and sustainable practices in the events and festivals sector remain scarce (Werner et al., 2017).

When it was decided to develop this 'festival of Prehistory and Traditional Knowledge' two basic objectives were underlying from the beginning: (1) the transfer of knowledge and teachings because preservation depends on the knowledge that visitors have about a certain heritage collection; (2) that it is of the utmost importance that the interpretation of these heritage sites be carried out 'in situ' for public education, enjoyment and enlightenment. This is because it is our understanding that sites and the recreation of archaeological sites displayed 'in situ' take advantage of contextual integrity, encouraging visitors to understand the relationships established between the place and its surrounding environment, and in doing so, they can thus feel a connection directly with the 'display'

content and appreciate the full wealth of knowledge available. One then agrees with the idea that a visitor to an archaeological site 'in situ' becomes an active participant rather than merely a passive spectator in the presentation of the site as usually happens in museums (Scott-Ireton & McKinnon, 2015).

3.2. Learning and Knowledge Transfer

Engaging with the creative capacity of those who develop tourist activities, and who do so through a constructivist approach to the interpretation of cultural heritage, can facilitate a better understanding of their efforts to (re)create specific meanings (Ross et al., 2017). To go further, within a logic of learning and transferring knowledge, it is our understanding that one should remove some of the static quality that normally covers the preservation of knowledge and traditions of the past. Demonstrating that they have and how they have continually changed over time. To this end, festivals such as the one we propose must be able to (re)create using processes that are capable of conferring meaning and significance.

In addition to the above, and as Scott-Ireton and McKinnon (2015) said, an effective interpretation leads to the appreciation of heritage sites as 'portals' to the past. On the other hand, festivals like the one proposed here can be a leverage to start changing mentalities, involving emotions and informing visitors. In addition to being able to show 'in situ' why evaluation, monitoring and long-term preservation strategies are important.

4. The creation of the festival

TURARQ's (Archaeological Tourism Project embracing five municipalities of Middle-Tagus Regions – Mação, Tomar, Abrantes, Constância and Vila Nova da Barquinha) is a public-private partnership, involving higher education, local authorities and the private sector. Going forward and aiming to develop sustainable archaeological tourism in low density territories, the Polytechnic Institute of Tomar proposed to establish a transformative project, aiming at changing the paradigm or tourism of archaeological sites designing a project-based management methodology, and so the TURARQ project is the result of such partnership (Oosterbeek, 2022). This option was a very well thought out and matured one, allowing to lower the costs, improve stakeholder satisfaction through delivering value to them, and it is hoped, that in the end, it will allow gaining a competitive advantage.

TURARQ is a research project that aims to develop a response to cultural, environmental and social issues through the systematic appreciation of cultural heritage, memory and science. It is an initiative that aims to promote the study of archaeological sites and bring them closer to the public to leverage local development. However, a tourism promotion strategy is needed to develop public interest in visiting the sites. Based on this assumption, a festival is proposed with a focus on education and co-creation that materializes the defined strategy, which is based on the intention of contributing to the development of low-density areas.

This project consists of holding the 'Pre-History and Traditional Knowledge' Festival, which will take place in the village of Mação, in Portugal, with decentralized activities in other partner municipalities of the TURARQ project. The festival will be managed by the TURARQ project team with the support of the Municipality of Mação, the Polytechnic Institute of Tomar and ITM (Land and Memory Institute). The low population density of the Mação area represents a challenge for the social and economic development of the region. On the other hand, and in this sense, the exchange and integration of scientific and local knowledge brought to the festival can be a strategy to improve the competitiveness and cohesion of this area through the promotion and sustainable development of tourism.

There are many festivals around the world based on the knowledge gathered from prehistoric cultures, perhaps the most know of all are the Celtic festivals. Celtic culture has its roots in the iron age. Some of these festivals have become massive as the 'Interceltic Festival of Lorient' (France) with an attendance of 750 000 people (Lorient South Bretagne Sud Tourism, 2023) or less massive as the one of Ortigueira's in Galicia (Spain) with an attendance estimated around 80 000 (Calvo-Sotelo, 2019). Calvo-Sotelo (2019) goes further saying that this festival in particular "as a generative site of Celticness redefined Galician identity" (p. 6).

However, the idea of this project in particular bases itself in the idea of co-creating tourist experiences in archeology and so, it is more similar with the Festas de Astures y Romanos, a historical recreation event held in the city of Astorga, in northwestern Spain, that provided an opportunity to explore the complex interactions between politics, public and heritage management, and evaluate its impact on archeology as a discipline (Álvarez and González, 2013).

One other project with similarities with our own is the Build N Burn festival in Scotland. This project seeks to use experimental archaeology to evoke, educate and entertain, and according with its authors until now the results have been very encouraging (Brophy et al., 2017).

Therefore, this festival of ours, that is projected to occur around March 2024, not only follows the good examples in its preparation but it also seeks to overcome certain limitations already observed by Holtorf (2015). Namely that it can be argued that a single focus on the preservation of material objects and monuments draws more attention to the physical properties of heritage than to its incorporeal meaning and the subtle meanings it embodies, and this should also be one of the aims of preservation.

The festival would change themes annually to focus on different aspects of prehistoric culture and to expand knowledge, to educate the public, but also to better include the community and other stakeholders.
The objectives of the festival will be:

- Expanding the public's understanding of prehistoric heritage and traditional knowledge, without forgetting the environmental component;
- Promoting the importance of culture, but also clarifying its way of life and its connections and relevance today;
- Demonstrate how knowledgeable and skilled our ancestors were and how much they contributed to the region's history;
- Disseminate the information collected through the analysis of artifacts and vestiges;
- Promote the importance of prehistoric sites in the region, so that the community can be proud of the region where they live;
- Train young people with organizational and planning practices;
- Collaborate with partners and stakeholders in organizing community-oriented cultural festivals and activities;
- Incorporate ancestral knowledge, traditions, practices and activities into the festival to promote, preserve and, as a result, protect the much valuable prehistoric heritage.

During the event certain activities will be carried out to attract the public and help in its promotion:

- Exhibitions – the stands will include exhibitions and the transmission of knowledge regarding cultural landscapes;
- Rustic Buildings — buildings intended to serve food to support the community;
- Music—to draw audiences to the festival;
- Traditional activities, including storytelling, food preparation and craft production.

Finally, the promotion of the festival will initially be carried out through social networks, in the written press, and through more traditional means such as posters.

5. Discussion of the results

An attempt was made to critically evaluate the different ways in which this project can be presented, emphasizing its potentialities, but also its limitations when trying to make archaeology relevant to understanding of the logistics of production, transformation and exchange in the postmodern consumer society. Discussion is promoted on the role of archaeology based on the contemporary fascination with the past, as a vehicle for the co-creation of knowledge with regard to prehistoric technology, gestures and territory. Although there are some successful archaeological festivals, studies and descriptions of processes are scarce, making their comparability and replicability difficult. On the other hand, it would be very interesting to study how the concepts of the experience economy and co-creation are applied in multiple cultural heritage services, more specifically in events, considering for this purpose the perspective of consumers.
One of the festival's underlying ideas relates to what Harsløf (2020) not far ago referred about the need for greater application of existing knowledge in practice and consequent discussion of the results, a fact that would be of great interest to researchers and students in the areas of performance studies, experience economics, music and archaeology. On the other hand, the need to better understand how value can be created for visitors in the context of a festival will also be addressed. However, one should bear in mind that events are evaluated in quite different ways, since the evaluation of events is "inherently subjective" (Getz et al., 2017:1).

6. Conclusion

Academic discoveries are generally very difficult for most people to understand, so in order to reach a wider audience and to recognize the importance of archaeology and its contribution to the study of prehistory, there is a great need for publications and events aimed at the general population, especially those with limited formal education (Shing & Willie, 2019). Bearing this in mind, this article examines how the past can be presented, simulated, reenacted, relived and experienced in archaeology festivals. For this purpose, Mação's "Festival of Prehistory and Traditional Knowledge" was chosen as a case study. Taking consumer trends in popular culture as a starting point, the aim was to analyse a differentiating proposal for this target audience. It is argued that these festivals are places of learning and knowledge transfer, and heritage-oriented tourism, as well as places where people gather sensations and collect experiences.
However, understanding the motivations that lead individuals to visit heritage sites and their attitudes towards their preservation is fundamental for us to know what products we should develop, what interpretation should be given to them, and what approaches we should use so that the preservation of resources become a reality. "If you build it, they will come", say mysterious voices in the film 'Field of Dreams' (1989); this can also be applied to the development of historical attractions, in this case of a prehistoric event. However, in the case of heritage preservation, the resulting responsibilities extend

over time, they can never remain just for that one moment. Thus, as attitudes towards heritage change, we also need to understand these changes and their effects, but that alone is not enough either, we must incorporate the conclusions of the studies we carry out in our strategies.

Festival organizers within a prehistory festival context can utilize the results of this study to deliver services that can supply satisfactory and co-created experiences. More specifically, the ones discussed in this project of ours. The overall framing should be strongly considered when planning and executing such an event, as the incorporation of such elements can effectively support the process of co-creation experience, and the provision of an optimal, multidimensional experience.

Future studies may try to gauge the intensity or depth of experience needed in the participatory co-creation of festivals focused on prehistory and traditional knowledge, for example, to what extent communities are willing to share their culture and to what extent are tourists' willing to absorb it? (Ross & Saxena, 2019).

Acknowledgements

The authors would like to thank the project "Hiring Highly Qualified Human Resources - Interior Territories - Non-Business Entities of the I&I System" (CENTRO-04-3559-FSE-000158) funded by the European Social Fund and the Polytechnic Institute of Tomar. Work financed by national funds through the Foundation for Science and Technology (FCT) under the projects UID/00073/2020 (CGEO) "https://doi.org/10.54499/UIDP/00073/2020", UID/05488/2020 (TECHN&ART) and UID/05567/2020 (Ci2).

Disclosure Statement

The authors declare that there are no competing interests to declare.

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DOI: 10.34620/978-83-67405-28-7-012 • 2024 • 97-106

sciendo

Proceedings of the International Tourism Congress 23

Gastronomy as a key element for the attraction of tourists and sustainable development: a case study in Serra da Estrela (Portugal)

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Abstract

For many destinations, gastronomy is an integral part of their history and identity. This study enriches the research on the gastronomic identity of the Serra da Estrela, by exploring the gastronomic potential of this region, as a strategic product and attraction factor of tourists, through the case study of the "Museu do Pão". A mixed method methodology was chosen, involving quantitative and qualitative approaches. This tourist infrastructure assumes a central role in the sustainable tourism development of the region, enhancing the product "Gastronomy and Wines" as an attraction factor and highlighting its cultural link with the territory. The results of the surveys applied to the visitors of the "Museu do Pão", show that family trips and annual visits predominate. Visitors value the tasting of local products, as well as the gastronomic authenticity and the cultural contribution of the museum, which preserves traditions. Adjectives such as "traditional", "tasty", "good" and "cultural" confirm the authenticity of the museum. Over the course of two decades, the museum has enriched the cultural and gastronomic offer of the region and promoted the development of the Serra da Estrela in an authentic and sustainable way. Some of the limitations of the study were the difficulty in obtaining a significant sample in the number of answers to the survey and time of year in which the surveys were carried out.

Keywords

Gastronomy • Cultural Identity • Serra da Estrela • Museu do Pão • Sustainability • Tourism

1. Introduction

Tourism is a fundamental economic activity for generating wealth and promoting social and environmental development, with significant potential for creating dynamism and stimulating other activities around it. It can contribute to sustainable development, especially in regions with strong tourist attractions based on natural environments and rural activities, as is the case of the Serra da Estrela, where tourism practices focused on valuing the authenticity and originality of the tourist experience are essential.

The UNWTO (2023) sustains that gastronomy tourism applies to visitors who partially or completely plan their trips in order to taste local cuisine, or participate in activities related to this theme. This is a type of tourism that corresponds to travel experiences for recreational or entertainment purposes that include visits to food producers, participation in gastronomic festivals, tastings of quality food products or any tourist activity related to food (Hall & Sharples, 2003; Kim & Ellis, 2014). Visitors are increasingly more conscious to the gastronomy heritage of destinations, which is even the main purpose of the visit, or an important part of the tourist experience as a whole.

The Serra da Estrela region has distinct tourism resources, especially related to "gastronomy and wine"," offering products and activities that, although not the primary travel motive, are becoming attractive features of the region (Silva et al., 2018). Thus, in an area with such potential, and specifically in relation to gastronomy built on the preservation of the region's natural and cultural matrix, the role of tourism can be very promising.

Under these premises, the main objective of this investigate and analyze the role of the "Gastronomy and Wines" product from the Serra da Estrela region as a strategic

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product and attraction factor, as well as its contribution to sustainable development. Tourist demand and motivations were diagnosed through a case study of the "Museu do Pão" (Seia), a museum in a privileged location that attracts visitors and plays an important educational, cultural and social role in the Serra da Estrela. The main reasons to go forward with this research include the need to understand how gastronomy contributes to attracting tourists and developing sustainable development, especially in an area like Serra da Estrela, which has a unique gastronomic identity. This study has a significant contribution to understand the importance of the revitalization of the gastronomic heritage and the increase of the attractiveness of the local gastronomy.

2. Literature review

2.1. The importance of gastronomy in the attractiveness of a destination and the motivations of the visitors

Portuguese culture is enriched by its gastronomic traditions, which have contributed significantly to the enhancement of the country's tourist offer. Within the Strategic Plan for Tourism 2027 in Portugal (ET27) and the Action Plan for the Revitalization of Tourism, "Gastronomy and Wine" are highlighted as one of the ten differentiating and qualifying assets of the Portuguese territory. This has to do not only with history, culture and identity, but also with nature, agriculture and local production techniques (Ministry of Economy, 2017; Ministry of Economy, 2020).

Unlike other travel activities, food is of fundamental importance to visitors to a destination, as it is a basic need and is always associated with corresponding expenditures (Kumar, 2019). Gastronomy is central to tourism and accounts for about one-third of total tourism spending. However, gastronomy is of immense importance to tourism more broadly, not only as a physiological necessity, but also because of its social, recreational, artistic, and health-related aspects. It serves as a motivating factor for travel (Bizinelli et al., 2016; Krause & Bahls, 2013, Millan, et al. 2021). This perspective is shared by Vitorino (2017, p. 1), who asserts that "even if gastronomy is not the primary motivation for travel, there is always a need to enjoy a basic food supply that often allows tourists to understand local culture and create memories."

A destination's gastronomy is increasingly becoming the focus of visitors' interest, even the main purpose of the visit or an important part of the overall tourist experience. Tourists with a special interest in local gastronomy share similar motivations with those who visit other gastronomy destinations, with a special focus on learning about the process of making and tasting products. This is a segment for whom gastronomy is essential during the holidays and they look for all types of gastronomic elements, especially local food and who only consider the experience to be authentic when they experience the atmosphere, friendliness, traditions, history and the meaning of local products (Boyne et al. 2003; Chaney & Ryan 2012). It is characterized by an interest in tasting local cuisine; visit food producers and participate in activities related to gastronomy such as gastronomic festivals, tasting quality food products. It is also a way to recover local gastronomy and position regional foods in a sustainable and innovative way, contributing to a lower cost to the planet and can even be an alternative to crisis scenarios (Hall & Mitchell, 2005; Teodoroiu, 2015; Kastenholz et al., 2014; Krause & Bahls, 2013; Millan et al., 2021).

According to Millan et al. (2021), this segment demonstrates a higher average income and higher average expenses per day compared to sun and beach tourists, often being characterized as mature tourists, aged between 50 and 59 years old, and has considerable potential for sustainable development and diversification of tourist activities (Millan et al., 2021).

Among the happiest memories in a trip may be the experience of dining in a place where local dishes are prepared or served (Goeldner, Ritchie & McIntosh, 2002; Quan & Wang, 2004) and knowledge of local cuisine is a way of creating a greater bond between tourists and destination locations, which plays an extremely important role in the quality of the tourist experience (Cohen & Avieli, 2004; Guzmán & Cañizares, 2012). Kivela and Crotts (2006) also reveal that gastronomy plays such an important role in the tourist experience that some tourists may even return to the same destination to taste and experience it again.

Gastronomic tourism thus represents an opportunity to promote and strengthen destinations and plays a key role in their promotion and development (Guzmán & Cañizares, 2012). The attractive potential of gastronomic tourism has become an important strategic element in the tourism sector. Thus, tourism destinations are increasingly using their gastronomic resources to differentiate themselves from their competitors (Seyitoğlu & Ivanov, 2020). In addition, destinations can have a strong image that includes their unique cuisine and cultural values (Hall & Mitchell, 2005). Tourists will be the best sellers of the destination. By participating in authentic local gastronomic activities, these positive experiences have the potential to generate word-of-mouth publicity (Seyitoğlu & Ivanov, 2020).

Therefore, gastronomy is not only a primary necessity, but also reflects the local culture of the destination by incorporating cultural, social, and natural factors of the regions, providing learning opportunities and attraction in learning about different cultures, and promoting of attractiveness and promotion of the destination (Kim & Ellis, 2014; Seyitoğlu & Ivanov, 2020; Hall & Mitchell, 2005; Teodoroiu, 2015; Kastenholz et al., 2014; Krause & Bahls, 2013).

2.2. Gastronomic heritage as a pillar of sustainability

Gastronomic heritage is an essential part of a destination's cultural legacy and plays a significant role in satisfying and promoting memorable experiences. Visitors are increasingly attentive to the cuisine of destinations, often making it the main purpose of their visit (Hall & Sharples, 2003; Kim & Ellis, 2014) or an essential component of the overall tourism experience. In particular, Portuguese gastronomy was officially recognized as Portugal's intangible cultural world heritage in 2000[1], reinforcing its role as a tourist attraction with particular implications for the development of the hospitality industry, the agricultural sector and traditional and genuine products. This recognition privileges the regional diversity as an enriching factor.

The culinary diversity of the Portuguese territory is evident in its local and regional productions as well as in its Mediterranean heritage. A decade ago, Portugal actively participated in a joint application that led to the inclusion of the Mediterranean Diet on UNESCO's prestigious list of the Intangible Cultural Heritage of Humanity in 2013 (Real & Graça, 2019). This recognition exemplifies sustainability, quality of life and well-being for all (FAO, 2017). It is in line with the "2030 Agenda"," which contributes to safe access to food, emphasizes the importance of food safety and ethics (SDG 2), and raises awareness of sustainable production and promotes conscious and local consumption (SDG 12) (United Nations, 2015; World Tourism Organization, 2021).

As technology advances, more sustainable gastronomic practices become more important for the well-being of the planet and its inhabitants (Cândido & Brito, 2020; Junior et al., 2021). Gastronomy, which is fundamental to tourism, can positively impact climatic conditions, social well-being, and ecosystems while maintaining their economic viability (Krause & Bahls, 2013; Hjalager, 2010). The environmental impact of agricultural production is significant and necessitates a reassessment of food habits. Gastronomy, as an expression of people's relationship with food, plays a critical role in promoting sustainability (Junior et al., 2021).

According to Queiroz (2008), safeguarding regional gastronomy is equivalent to ensuring and preserving a people's culture. Therefore, it is essential to consider the cultural aspects of the food served, whether in terms of the ingredients themselves, which tell unique regional stories, or the utensils and craftsmanship that enrich the culinary experience. In addition, tourism rooted in local culture provides economic viability for small local producers (Krause & Bahls, 2013). Preserving diverse raw materials and different preparation methods directly promotes biodiversity. Traditional foods promote local production and combat food massification and homogenization to the point of potential extinction of different species and gastronomic cultural aspects (Krause & Bahls, 2013; Junior et al., 2021). Authenticity, culture, and local gastronomy are therefore inextricably linked to sustainability in gastronomic tourism experience. Preserving cultural aspects is one of the pillars of sustainable gastronomy.

2.3. Geographic and touristic context of Serra da Estrela

The present study is situated within the territory of the Intermunicipal Community of Beiras and Serra da Estrela (CIM BSE), which includes about 22% of the total central region of Portugal, covering 15 municipalities and including one of the main borders with Spain (Vilar Formoso). It has a population of 210,602 inhabitants and registered a negative growth rate of the resident population from 2011 to 2021 (-10.77%) (INE, 2021). The context of interiority in this region is reflected in some weak socio-demographic indicators, far from the averages for Continental Portugal and the Central Region. The population density of the Beiras and Serra da Estrela region is only 33.4 inhabitants/km2 (2021) and its aging index is 333.79, with about 33% of inhabitants over 64 years old (INE, 2021). The region is facing a continuous process of depopulation and aging, leading to a loss of human and social capital and a progressive abandonment of the traditional economic structure.

It is in this territory that the Serra da Estrela Natural Park (PNSE) is located, created by Legislative Decree No. 55/76 of July 16. It is a region characterized by its mountainous economy, where there are still refuges for wildlife and endemic plant formations of national importance. With an area of about one hundred thousand hectares, it is the largest natural park in the country. It corresponds to the territories of the municipalities of Celorico da Beira, Covilhã, Gouveia, Seia, Manteigas and Guarda (Salgado & Leitão, 2011). This area is of great importance due to its natural and landscape value, as well as its historical and cultural heritage. However, it presents itself as a region disadvantaged by persistent regional asymmetries and a progressive rural exodus, leading to a shrinking resident population and increasing aging. Therefore, it is important to design tourism development strategies that will help the region to be recognized as a resilient, responsible and sustainable territory.

Tourism, associated with natural, historical and cultural heritage, tends to invigorate these spaces, offering them new attractions in their various forms, ranging from the admiration of landscape elements to sports activities and the revival of traditional activities. Tourism in areas with low population density deserves special attention, as it can contribute to the revitalization of local economies and, above all, to the decentralization of tourism in favour of less frequented destinations that offer authentic, genuine and sustainable development opportunities (Amado & Carvalho, 2012;

[1] Cf. Legislative document, Resolution of the Council of Ministers nº 96/2000, July 26th.

Salgado & Leitão, 2011; Kastenholz et al., 2014; Rodrigues et al., 2022).

As far as tourism is concerned, Serra da Estrela is part of the Central Portugal Tourism Region and has steadily distinguished itself based on the use and valorization of its endogenous resources. "Culture, history, heritage, gastronomy and wine are identity factors that attract visitors and contribute to a sustainable development model. In terms of tourism demand, the majority comes from the domestic market, with the main international source markets being Spain, France, Brazil and Germany. The Italian market also stands out, although it is less represented compared to the other markets (Turismo Centro de Portugal, 2019). In 2021, the Beiras and Serra da Estrela region recorded over one million overnight stays in tourist accommodations and hotel units, with the 142 tourist accommodations and 27 hotel units from the six municipalities of the PNSE hosting approximately 42.2% of these overnight stays (INE, 2021).

The Serra da Estrela holds a high symbolic, cognitive and emotional value for tourists. Serra da Estrela is not only the highest mountain range in mainland Portugal, but also has unique tourism resources, especially in the area of "gastronomy and wine" These products and activities, although not necessarily the main reason for a trip, are an important attraction for the region (Silva et al., 2018). Gastronomy is a distinguishing resource that characterizes the tourist potential of the region, with natural conditions favouring the presence of food that manifests itself as distinctive, original and appealing gastronomy. It has a cultural symbolic value that represents the identity of the destination and local communities (Silva, et al., 2018).

Since gastronomy is a stronghold of the region, there is the potential to develop an offer focused on specific products to improve the image and competitiveness of Serra da Estrela as a destination, meet the demands of demanding tourists and promote sustainable tourism development (Salgado & Leitão, 2011). Research into the gastronomic identity of the Serra da Estrela can contribute to its sustainable tourism development and prove crucial in reversing the negative scenario of an area with so much potential.

2.4. The "Museu do Pão": a gastronomic tourism reference

The "Museu do Pão" is a tourist facility inaugurated in 2002, an integral part of the "O Valor do Tempo" business group. It is a tribute to the theme of bread and positions itself as one of the most important museological references in Portugal and the largest complex dedicated to this theme in the world. Located in the city of Seia, a gateway to the Serra da Estrela, it emerged from a private investment made by a group of educators and entrepreneurs with a deep interest in traditional mountain gastronomy. The location is directly related to the project founders' origins in Seia and their desire to decentralize culture and bring it to the interior of Portugal. This became an inevitable necessity and a natural location for a community-integrated project of this nature (Amado, 2011; Carvalho, 2012; Rodrigues et al., 2022).

This complex includes museum rooms, a bar-library, a traditional grocery store, a restaurant and a bakery. It presents itself as a comprehensive tourist product with synergies and complementarities between its different components. In the four museum rooms, the history of the traditional Portuguese bread cycle is presented: from its cultivation, grain processing, milling and baking to its arrival on our tables. This is done through documents and ancient records that provide a comprehensive and enriching description of bread in its different forms (artistic, social, political, religious) and show thousands of artifacts related to bread. The Bar-Library, open to visitors and the local community, serves as a recreational and cultural space, housing an impressive library specializing in the museum theme and hosting regular cultural activities, including thematic discussions. The traditional grocery store recreates the experiences and customs of the old village stores, selling the most important products of the region. Here, tradition and innovation are harmoniously combined, offering both traditional bread and pastries from Serra and innovative baked goods made in the museum bakery. The restaurant, a spacious and open space, is also a real gastronomic research center, where the old and noble traditional flavours are rediscovered. Although it is a restaurant, this space goes beyond its function and is dedicated to collecting knowledge and creating unique gastronomic experiences where the bread will always be remembered (Amado, 2011; Carvalho, 2012; Rodrigues, et al. 2022).

By adopting a new museum philosophy, it became a pioneer and innovator in its themes, structure and management. After two decades of success, it stands as a symbol for the region, proving that it is possible to create a dynamic in the interior of the country that justifies its exploration and offers potentially significant contributions to the formation of knowledge and theory. According to the museum, between 2003 and 2022 a total of 1,574,415 visitors were recorded, with an annual average of 77,462 visitors. The first decade was the most visited, later stabilizing at around 60,000 visitors, with the exception of the worst years in 2020 and 2021, marked by the pandemic, and in 2022 it returned to previous levels. Annually, the months of February, March and April register the highest attendance, followed by August and December, although with lower numbers. Other museum data show that the primary target audience is primarily groups, with schools and seniors predominating. Independent visitors come mainly as families during vacation periods and weekends.

The privileged location of the "Museu do Pão" within the Serra da Estrela Natural Park and on one of the main

access routes to the top of the mountain, the inherent interest in bread as a staple of Portuguese cuisine and cornerstone of the Mediterranean diet, combined with the variety of cultural activities it promotes, and the various educational activities it supports, together with its significant contribution to the study of local and regional history, lifestyles, and traditions, as well as the numerous thematic developments related to bread, all these factors lead to the enormous success of this museum initiative (Amado & Carvalho, 2012; Rodrigues, et al. 2022).

3. Methodology

In this section, we detail the methodological approach employed in conducting this study. The selection of methodology is crucial to ensuring appropriate data collection, analysis, and interpretation (Quivy & Campenhoudt, 1998). A mixed methodology, combining quantitative and qualitative approaches, was chosen taking into account the objectives defined for the study. This form of approach allowed for a broader analysis of the thematic with data analysis on the supply and demand sides, seeking to cross-reference this collection of data.

We opted for a case study approach due to the unique relevance of the "Museu do Pão" as a success story in the Serra da Estrela region. This approach facilitates a deeper comprehension of this tourist complex, celebrating its 20-year existence as a significant cultural and touristic attraction in the region. The study's design enables a holistic analysis of the museum, its visitors, and its connection to the local gastronomy, contextualizing the museum's success within the broader framework of the Serra da Estrela and its contribution for a sustainable form of tourism development.

Data collection represents a fundamental step in research. We carried out a comprehensive review of the existing literature on the relationship between gastronomy and tourism, covering concepts such as gastronomy and sustainability and its importance in the tourist experience and for the attractiveness of a destination, and as a pillar of sustainable development. In addition, we resorted to external sources of evidence, such as reports, articles and publications, to contextualize the Serra da Estrela Region and the "Museu do Pão" tourist complex. Secondary data was also provided by the General Manager of the "Museu do Pão", as for example, visitor´s records and visitor's profile.

In order to gather important information directly from the visitors of the "Museu do Pão", we chose to structure a survey, based on the literature review and other studies on the "Museu do Pão" (Berbel-Pineda et al., 2019, Amado & Carvalho, 2012). Between May and July of 2023, 162 valid surveys were collected using two different methods of data collection, namely, a random sampling technique conducted in person to the visitors at strategic locations within the "Museu do Pão" tourist complex, such as the Reception, Bar-Library, and the Restaurant, as well as convenience sampling technique were an online version of the survey was made available on the internet, in Facebook groups linked to Serra da Estrela and on the researchers' social media networks. The application of the survey was preceded by a pre-test applied to a restricted group of 10 visitors of the museum.

The survey was developed a three-part questionnaire aiming to gather information about the visitor's profile, their behaviour when visiting the "Museu do Pão" in the Serra da Estrela region, and the significance of the "Gastronomy and Wines" product in their visit. The data collected and other sources were examined using statistical software that allowed tabulation and analysis to identify patterns and trends in visitor's behaviour and opinions.

4. Results and discussion

In this part we will undertake a detailed analysis of the survey data collected. The questionnaire, divided into three different sections, provided valuable information on tourist demand: socio-demographic information; behaviour when visiting the "Museu do Pão" in the Serra da Estrela region; relevance of the product "gastronomy and wine".

4.1. Socio-demographic data

Regarding the demographic profile, as can be seen in Table 1, most of the respondents were female (61.1%). Regarding the educational level of the participants, the data show a wide dispersion. The lowest percentage, 1.2%, had completed primary school, while 21.6% had completed high school. A significant percentage, 46.9%, had a bachelor's degree and 30.2% had a master's or doctoral degree.

Examining the occupations of the participants, 9.9% of the participants were students and 8.0% were business people. Commercial or service employees accounted for 16.7%, civil servants 24.7%, and middle/high management professionals 22.2%. A smaller percentage, 6.2%, worked alone, while 4.9% of respondents were retirees. Another 7.4% fell into other categories.

The data presented in Table 2 describe the age distribution of the participants. The largest percentage of respondents is in the 41- to 60-year-old age group, which accounts for 55.6% of the total number of participants. The 26- to 40-year-old age group also represents a sizable segment, with 24.7% of participants. In addition, participants aged 25 and under make up 13.0% of the sample, indicating that younger individuals are highly representative. The data also show a smaller percentage (6.8%) of participants aged 61.

Table 1. Socio-demographic profile of participants

Variables	Frequency (N=162)	Percentage (%)
Gender		
Female	99	61,1%
Male	63	38,9%
Education level		
Elementary School	2	1,2%
Secondary Education	35	21,6%
Bachelor Degree	76	46,9%
Master's/PhD	49	30,2%
Occupation		
Student	16	9,9%
Business person	13	8,0%
Trade or service employee	27	16,7%
Civil servant	40	24,7%
Middle/senior management	36	22,2%
Self-employed	10	6,2%
Retired	8	4,9%
Other	12	7,4%

Source: Own elaboration based on conducted questionnaires.

Table 2. Age distribution of the participants

Variables	Frequency (N=162)	Percentage (%)
Age		
Up to 25 years	21	13,0%
26 to 40 years	40	24,7%
41 to 60 years	90	55,6%
+ 61 years	11	6,8%

Source: Own elaboration based on conducted questionnaires.

Regarding the participants' districts of residence (Table 3), the distribution is quite diversified, with respondents coming from different districts in Portugal and even from abroad. The largest number of respondents, 32.1%, indicated Guarda as their district of residence, suggesting a strong local presence in the study. Porto and Coimbra also had notable percentages, 17.9% and 15.4%, respectively. The data show a diverse geographic distribution, with participants from districts such as Aveiro, Braga, Bragança, Castelo Branco, Leiria and others. In addition, the inclusion of participants from abroad (1.2%) gives the study an international dimension.

Regarding the socio-demographic information of visitors, we observed that overall the data reflects a diverse tourist demand in terms of educational level, occupation, age and origin. This demonstrates the transversality of the "Museu do Pão" as a cultural attraction that appeals to all generations and different levels of education, occupations, and origins. According to the bibliographic review, the transversality and interest in bread as a staple of gastronomy and pillar

Table 3. Residence District of the participants

Variables	Frequency (N=162)	Percentage (%)
Residence district		
Aveiro	7	4,3%
Braga	4	2,5%
Bragança	4	2,5%
Castelo Branco	3	1,9%
Coimbra	25	15,4%
Évora	1	0,6%
Guarda	52	32,1%
Leiria	2	1,2%
Lisboa	13	8,0%
Porto	29	17,9%
Santarém	2	1,2%
Setúbal	3	1,9%
Vila Real	1	0,6%
Viseu	14	8,6%
Foreign Country	2	1,2%

Source: Own elaboration based on conducted questionnaires.

of the Mediterranean diet, combined with the variety of spaces and cultural activities that the museum promotes, along with its significant contribution to the study of local culture and regional history, lifestyles and traditions, lead to a diversified demand (Amado & Carvalho, 2012; Rodrigues, et al. 2022). The significant local demand also demonstrates the importance of this tourism infrastructure to the community and the region.

4.2. Behaviour of the visitors during the visit to the "Museu do Pão"

Regarding visitor behaviour (see Table 4) when traveling to the "Museu do Pão", we seek to understand the circumstances under which the participant visits the "Museu do Pão". In addition, we would like to obtain information about the length of stay in the Serra da Estrela region, the frequency of visits to the region and the most frequent times of visit during the year. The data presented in Table 5 provide information on the circumstances and frequency of travel, as well as the length of stay in the region. A significant percentage (57.4%) of visitors reported being accompanied by family members during the visit. Approximately 20.4% of respondents reported traveling with friends, while 18.5% reported traveling with family and friends. The frequency of visits varied, with 33.3% of respondents visiting the region once a year. In addition, 17.3% reported visiting the region 2 to 3 times per year and 13.6% visited more than 3 times per year. A percentage of 35.8% of respondents indicated that they live in the region. In terms of length of stay, most visitors (31.5%) stayed for 1 day, while 18.5% stayed for 1 to 2 nights. A smaller percentage

Table 4. Visitor behaviour

Variables	Frequency (N=162)	Percentage (%)
Circumstance of visit		
With family	93	57,4%
With friends	33	20,4%
With family and friends	30	18,5%
Others	6	3,7%
Frequency of visit		
Once a year	54	33,3%
2 to 3 times a year	28	17,3%
More than 3 times a year	22	13,6%
Resident in the region	58	35,8%
Staying in the Region		
1 day visit	51	31,5%
1 to 2 nights	30	18,5%
3 to 4 nights	17	10,5%
5 or more nights	7	4,3%
Resident in the region	57	35,2%

Source: Own elaboration based on conducted questionnaires.

Table 5. Relevance of the product "Gastronomy and Wine" in the visit

Relevance of the Product "Gastronomy and Wine" in the Visit	Average	Error variance
To taste the gastronomy and/or buy local products	4,38	0,75
Favour typical restaurants and regional gastronomy	4,34	0,75
Participate in gastronomic activities (workshops, tastings, festivals, etc.)	3,72	1,09
To visit producers and/or take part in activities which highlight local gastronomy	3,75	1,05
To get to know the origin and storytelling of typical products and dishes	3,91	1,04

Source: Own elaboration based on conducted questionnaires.

(10.5%) extended their stay to 3 to 4 nights and an even smaller percentage (4.3%) stayed 5 or more nights.

We found that family tourism is a prominent trend among study participants. The data emphasize the social nature and shared experiences of travel, especially visits with family. Regarding the frequency of visits, the majority (33.3%) visit the region once a year, demonstrating a strong demand for the Serra da Estrela destination. This distribution is consistent with the data on tourism demand in Serra da Estrela, as a visit destination and interest in domestic tourism. Also, as a transit destination, which can be seen in the 1-day visits. Serra da Estrela region is a point of attraction for visitors from the 6 municipalities that compose it. A percentage of 35.8% of participants indicated that they live in the region and frequently visit tourist attractions such as the Bread Museum. The Serra da Estrela has a strong symbolic, cognitive, and emotional value for tourists (Turismo Centro de Portugal, 2019; Silva et al., 2018).

4.2. Importance of the product "gastronomy and wine" for the visit

This item focuses on the importance of gastronomy and wine in the Serra da Estrela region, evaluating the level of agreement of the participants to situations related to this product. It also considers different aspects related to gastronomy during the visit, the contribution of the cultural and gastronomic experience in the "Museu do Pão" and the classification of the gastronomic experience in this place. Finally, adjectives or nouns that describe the gastronomy of the "Museu do Pão" are required.

Regarding the most appreciated aspects related to the product "Gastronomy and Wine", it should be noted that all aspects received very positive values, indicating their importance. The most valued ones were: "Taste gastronomy and/or buy local products": 4.38, "Prefer typical restaurants and regional cuisine": 4.34, "Know the origin and stories of the products and typical dishes": the participants value knowing the background and stories behind the local dishes and products, which is in second place with a value of 3.91. In summary, participants show a preference for aspects related to experiencing and tasting local cuisine, either through tasting and buying local products or by appreciating typical restaurants and regional cuisine. The other aspects are slightly less important, but still significant, overall the experience of "Gastronomy and Wine" during your visits to the region. According to literature, gastronomy is not only a primary need, but also reflects the local culture of the destination and is a strong attraction during the visit, as it includes cultural, social and natural factors of the regions (Kim & Ellis, 2014; Seyitoğlu & Ivanov, 2020; Hall & Mitchell, 2005; Teodoroiu, 2015; Kastenholz et al, 2014; Krause & Bahls, 2013).

The data from Table 6 show the evaluation of the contribution of the cultural and gastronomic experience of the "Museu do Pão". The highest average score is obtained for the item "contributes to the preservation of traditional knowledge and values" with an average score of 4.48, followed by 4.31 for "the cultural and gastronomic experience was very important for the overall visit". The item "contributes to knowledge and appreciation of gastronomy" received a slightly lower average score of 4.22.

Regarding the gastronomic experience at the "Museu do Pão", Table 7, with the highest rating "recommendation as a gastronomic destination" with an average score of 4.48, indicating that visitors highly value the potential of the museum as a recommendable gastronomic destination. it is followed by "service and hospitality" with an average score of 4.33, indicating that visitors highly value the quality of service and the level of hospitality, as well as the traditional gastronomic offer during the visit. The "offer of genuine products" obtained an average score of 4.25, indicating the importance of authenticity and availability of genuine gastronomic products

Table 6. Cultural and gastronomic Experience at the "Museu do Pão"

Contribution of the cultural and Gastronomic Experience at the Museu do Pão	Average	Error variance
Contributes to the conservation of traditional knowledge and values	4,48	0,77
Contributes to the knowledge and appreciation of gastronomy	4,22	0,92
The cultural and gastronomic experience was very important in the overall visit	4,31	0,89

Source: Own elaboration based on conducted questionnaires.

Table 7. Gastronomic experience at "Museu do Pão"

Gastronomic Experience at Museu do Pão	Average	Error variance
Innovation and new flavours	3,88	0,81
Service and hospitality	4,33	0,80
Traditional gastronomy experience	4,27	0,80
Genuine products on offer	4,25	0,84
Recommendation as a Gastronomic Destination	4,48	0,78

Source: Own elaboration based on conducted questionnaires.

for visitors. Finally, the aspect "innovation and new flavors" received an average score of 3.88, indicating that this aspect is still valued but is comparatively somewhat less prominent.

As we can see in Figure 1, the most frequently mentioned adjectives were "traditional," "tasty," "good," "delicious," and "culture." These words emphasize aspects such as the authenticity of the food, the pleasant taste, the perceived quality, and the connection with the local culture. "Museu do Pão" is a good example with the gastronomy and culture of the region.

Regarding the most appreciated aspects of the product "Gastronomy and Wine", it should be noted that all aspects were rated very positively, which shows the importance of this tourist product for the destination. The best rated aspects were "taste the gastronomy and/or buy local products" with a score of 4.38 and "prioritization of typical restaurants and regional cuisine" with a score of 4.34.

The evaluation of the cultural and gastronomic contribution of the "Museu do Pão" shows high scores in the most important points. "It contributes to the preservation of traditional knowledge and values" received the highest average score of 4.48, while "the cultural and gastronomic experience was very important for the visit" as a whole received a score of 4.31. It should be noted that the cultural and gastronomic elements significantly enrich the overall experience of visitors to the "Museu do Pão" and contribute to their understanding and appreciation of gastronomy.

Concerning the gastronomic experience at the "Museu do Pão", visitors' opinions are very positive. the rating "recommended as a dining destination" received the highest score with an average of 4.48. The predominant role of the product "Gastronomy and Wine" in the "Museu do Pão" is confirmed by the survey data. Participants' positive ratings on aspects such as tasting local products, preferring authentic regional food experiences, and engaging with the stories of the dishes' origins underscore the demand for culturally immersive and gastronomically enriching activities. These findings are consistent with literature highlighting the role of gastronomy as a gateway to local culture and a major attraction for tourists (Kim & Ellis, 2014; Seyitoğlu & Ivanov, 2020; Hall & Mitchell, 2005; Teodoroiu, 2015; Kastenholz et al., 2014; Krause & Bahls, 2013).

5. Conclusions

This study analyzed the gastronomic potential of the Serra da Estrela as a strategic product and attraction factor for sustainable development, using the findings of a case study – the "Museu do Pão" - as the main basis. Tourism can be a promoter of the economy of regions with relevant endogenous resources such as gastronomy, which must be valued as anchor products for the attractiveness of low-density areas, where they are present and can therefore be enjoyed from a perspective of integration, authentic experience and authenticity.

The objective of analyzing the attractiveness and relevance of the "Gastronomy and Wines" product for the tourist development of Serra da Estrela was fully achieved. Local gastronomy plays an increasingly important role in the quality of the tourist experience, which is why it is essential to ensure its uniqueness in the context of a sustainable destination.

Gastronomy and wines are among the strategic assets of Portuguese tourism, mainly because they contribute decisively to the tourist experience, enhancing the territories and adding value to the destinations, those classified as low density, such as the Serra da Estrela, a region characterized by a diversified tourist offer that should be based on the appreciation of the natural and rural environment and promote the development of tourist products based on cultural heritage. In this branch of gastronomy, suppliers of agricultural products from the Serra da Estrela region stand out, whether they are endogenous, regional (Rodrigues, 2020) or local (Pires, 2021), which is the result of the interaction of various natural and environmental factors in this area. Some of these products have exceptional quality and characteristics that are taken into account in the systems of protection and valorization of the agricultural products of the region, which has allowed the creation of gastronomic specialties considered typical of the region.

This investigation is a mixed investigation based on the case study of the "Museu do Pão". Being a tourist structure that celebrates its 20th anniversary and the world's largest complex

dedicated to bread, we wanted to study its contribution in depth, which justifies the choice of this case study.

In summary, the results and discussions provide valuable information about the profile and behavior of tourists in relation to the product "Gastronomy and Wine" associated with the "Museu do Pão" in the Serra da Estrela region. The socio-demographic information of the participants shows a diversified tourist demand, including different levels of education, professions, age groups and regions of origin. This highlights the relevance of bread as a fundamental element of Portuguese gastronomy and pillar of the Mediterranean diet, as well as the structure of the museum as a composite product with different aspects of social and cultural interest for visitors from different backgrounds. The expressive local demand also shows the importance of this tourist infrastructure for the community and the region.

Regarding the behaviour of visitors, the study points to the prevalence of family visits (57.4%), confirming data from the "Museu do Pão", which indicates that family visits represent the majority of the public when they are independent visits and not visits. of group. Regarding the frequency of visits, most of the 33.3% of respondents visit the region once a year. A percentage of 35.8% of the participants indicated that they lived in the 6 municipalities of Serra da Estrela. Regarding the length of stay, most visitors, 31.5%, visited the region for 1 day. The Serra da Estrela region is of great importance to national and local tourists, reflecting its symbolic and emotional value. These data correlate well with the general trend of tourism and travel behaviour in Serra da Estrela.

The analysis of the importance of the product "Gastronomy and Wine" shows that it plays an important role in attracting visitors. Elements such as the tasting of local products, the appreciation of typical restaurants and the knowledge of the origin of the dishes were highly valued, highlighting the search for authentic gastronomic experiences rooted in the region. In addition, the contribution of the cultural and gastronomic experience of the Bread Museum stands out, namely its role in the preservation of traditional knowledge and values, enriching the overall experience of the visit and promoting the understanding and gastronomic appreciation of visitors.

In relation to the gastronomic experience at the Museu do Pão, results have shown that visitors appreciate the authenticity of local products and receive strong positive feedback. It is worth highlighting the average score of 4.48 for "recommendation as a gastronomic destination". The association of adjectives such as "traditional", "tasty", "good", "delicious" and "culture" with the gastronomy of the "Museu do Pão" underlines the voluntary and culturally enriching offer.

The "Museu do Pão", due to its integrated approach, proved to be a practical example of how to effectively implement the relationship between culture, gastronomy, tourism and sustainable development. In the 20 years of its existence, the museum has not only revitalized the area, but also strengthened the local identity, promoting authenticity and valuing the natural and cultural resources of the Serra da Estrela region.

In summary, the data presented show the positive impact of the "Museu do Pão". By offering a unique variety of cultural and gastronomic experiences, the museum not only revitalizes the area, but also strengthens its identity, attracts new visitors and contributes to the overall growth of the region. local cultural and gastronomic tourism. This study thus demonstrates the fundamental role of the "Museu do Pão" and how its focus on gastronomy, culture and sustainability can contribute to the sustainable development of the Serra da Estrela region, assuming its cultural connection to the territory through its identity products, and a series of proposals are developed to enhance this strategic tourism product.

An intrinsic limitation of the present study lies in its dependence on a single case analysis, although it is a paradigmatic case of success in the region. The lack of multiple case studies represents a significant challenge regarding the generalization of results. Therefore, it is suggested that future investigations consider the inclusion of multiple case studies, allowing a more comprehensive analysis and a more solid understanding of gastronomy as a strategic product and attraction factor contributing to the sustainable development of the Serra da Estrela region. The surveys should also be applied in other months of the year.

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DOI: 10.34620/978-83-67405-28-7-013 • 2024 • 107-112

sciendo

Proceedings of the International Tourism Congress 23

Internet of things and artificial intelligence in tourism and hospitality: a bibliometric analysis

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Abstract

This study examines IoT and AI which play an important role in tourism and hospitality literature. Internet of Things (IoT) and Artificial Intelligence (AI) applications offer great opportunities for the tourism and hospitality sector for increasing customer satisfaction and reducing operational costs. The aim of this study is to examine the literature on the impact of the IoT and AI applications in the tourism and hospitality sector. A total of 632 publications between the years 2010-2023 were considered in the study. Data from Web of Science was applied bibliometric analysis using VOSviewer and R-Biblioshiny. The co-occurrence network of using IoT and AI in the tourism and hospitality sector was obtained. Six main thematic areas of tourism and hospitality related to AI and the IoT were identified: media, smart tourism, service robots, recommender systems, machine learning, and deep learning. Analysis of scientific cooperation revealed that the Chinese has a strong relationship with USA and United Kingdom researchers. In the study, the effect of technology on tourist attraction in the development of the tourism and hospitality sector has been revealed. The findings are guiding the experts and managers operating in the tourism and hospitality sector.

Keywords

Artificial Intelligence • Bibliometric Analysis • Internet of Things • Smart Tourism

1. Introduction

The number of studies and applications on Artificial Intelligence (AI) has increased in many fields in recent years. At the same time, the Internet of Things (IoT) is important for creating the smart technological environment. This is because it offers significant advantages in many sectors. These advantages can be listed as business models, fast response, time and money savings. One of the sectors that have gained advantages with the development of AI is the tourism and hospitality sector.

The tourism and hospitality sector plays an important role in the development of countries (Kivilcim, 2020). Tourism is a key driver of trade and contributes to economic growth. The volume of tourism and hospitality sector equals or even exceeds the volume of exports in some areas (food, oil, automobiles etc.) (UNWTO). Smart tourism is defined by UNWTO as “tourism with a strategy of technology, innovation, sustainability, accessibility and inclusivity along the entire tourism cycle: before, during and after the journey”. Tourists make many different decisions among many options while planning their travels, and as a result of these decisions, their level of satisfaction is determined. Meeting these demands in the right way is a complex process. At this point, artificial intelligence applications come to the fore in finding the best options to meet the needs (Bulchand-Gidumal, 2022). AI can help both customers and companies to improve their decision-making and innovations driven by the Internet of Things are important in tourism development (Gretzel et al., 2015). Customer service, chat boots, service robots, flexible pricing, smart baggage, security, demand prediction, personalized travel, smart travel etc. can be shown as examples for AI and IoT applications used in tourism and hospitality sector.

In tourism, data usually comes from two sources: the environment and the tourist. Environmental data can come from different sources: sensors, meteorological data, etc. Tourist data can be collected from tourists before, during and after travel. This can be online (e. g. digital footprint) or offline (e. g. booking, consumption) activities, wearables (e. g. smartwatches) and user-generated content (e. g. online reviews) or biometric and emotional (e. g. facial recognition)

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data (Li et al., 2018). Evaluating the data obtained from these sources with AI methods saves time and costs, as well as discovering new ways to increase tourist satisfaction and has opportunities for the development of the sector.

For companies in the hospitality industry to remain competitive, they need to adapt to the development of new technologies. There is no doubt that the adoption of IoT and AI creates new challenges and opportunities in the hospitality industry. Using IoT and AI technologies can improve customer experiences while reducing the need for human labor. The hospitality industry is evolving rapidly with the help of technological advancements in artificial intelligence, robotics and big data (Reis et al., 2020). Shoukry and Aldeek (2020) revealed that IoT has an important role in improving customer satisfaction and maximizing profits in hotels. The use of IoT and AI in the hospitality industry can help automate processes, create strategic plans, improve guest experience, increase service quality and customer satisfaction levels, and help hospitality companies save on energy costs and maintenance (Car et al., 2019; Prentice et al., 2020; Ruel & Njoku, 2021; Huang et al., 2021; Leung, 2021; Limna, 2022).

All these positive attributes can come with some risks. AI systems, including the Internet of Things, can be vulnerable to security and privacy threats. At the same time, the use of IoT and AI technologies in the hospitality sector can result in inadequate communication between a robot and a human, which can jeopardize worker safety. It can also put workers at risk of mental health deterioration. In addition, there may be a risk of human unemployment caused by robots and/or AI, as the duration of tasks to be performed by a robot is shorter and cheaper. In this case, the use of IoT and AI technologies in the hospitality sector would have negative impacts on labor and employment (Reis et al., 2020; Lu et al., 2020; Tussyadiah, 2020; Kumar et al., 2021; Limna, 2022).

2. Literature Review

IoT, which is defined as a network of interconnected objects where every object in the world tries to communicate and actively exchange information, anytime and anywhere with anything, is being used extensively in the hospitality industry together with AI (Car et al., 2019; Elkhwesky & Elkhwesky, 2022).

There are many applications in the tourism and hospitality sector, including search/booking engines, tourism-demand forecasting, virtual agents/chatbots, robots and autonomous vehicles, service automation, kiosks/self-service displays, augmented reality (AR) and virtual reality (VR) devices (Doborjeh et al., 2021; Huang et al., 2021).

Car et al. (2019) revealed how IoT solutions offer opportunities to the tourism and hospitality industry to better serve customers, improve the efficiency of operations and provide differentiated services.

Bisoi et al. (2020) highlighted the impact of AI in the hospitality industry. They emphasized that the implementation of Artificial Intelligence-based systems in the hospitality industry will benefit the hospitality industry, as AI systems are a promising technology to be applied in the hospitality industry to increase efficiency and at the same time improve customer experience.

Li and Law (2020) conducted a bibliometric analysis to understand the current state of big data research in tourism and hospitality sectors between 2008-2017. They show that social media and user-generated content applications have gained momentum, but theory-based studies on big data in tourism remain limited. Tourism and other related fields have similar concerns about the challenges involved in big data, such as privacy, data quality and appropriate data use.

Samara et al. (2020) conducted a systematic literature review to investigate the benefits and overall role of big data and artificial intelligence in the tourism sector. They found that adopting an big data and AI strategy can overcome challenges and will be critical to the competitiveness and resilience of existing established and new players in the industry.

Doborjeh et al. (2021) conducted a systematic review of how efficiently AI methods and algorithms in the tourism and hospitality sectors perform according to the type of application and multimodal data domain sets. Demirel et al. (2022) presented a model that aims to fill the gap in existing methods for the use of IoT devices with smart contracts.

Citak et al. (2021) found that AI applications in the hospitality industry are related to face-to-face customer service, chatbots and messaging tools, business intelligence tools powered by machine learning, and virtual reality and augmented reality. They emphasized the need for future studies to measure the potential benefits and risks of AI applications, identify the factors affecting the adoption of AI by customers, and measure the user (guest) experience of hotel services supported by AI-based technologies.

Knani et al. (2022) conducted a bibliometric analysis to reveal the current state of AI in the field of tourism and hospitality sectors between 1984 and 2021. In their study, they showed that research interest in automation, robotics (service robotics) and smart tourism has increased.

Limna (2022) published a review article on artificial intelligence in the hospitality industry. In his study, he revealed both positive and negative impacts of AI technologies on labor force and job employment in the hospitality industry.

Elkhwesky & Elkhwesky (2022) examined 78 articles published on IoT in the hospitality industry from 2015 to March 2022. They stated that IoT research in the hospitality industry is scarce and should be investigated more comprehensively.

Singh et al. (2023) conducted a bibliometric analysis with 188 articles searched in Scopus database between 2010 and

2022 to reveal the current state of IoT in the field of tourism and hospitality sectors. They found that from 2015 to 2020, keywords such as internet, management, model, technology, progress, networks and cities dominated the research. From 2020 onwards, they found that there was an increase in keywords such as challenges, industry, behavior, big data, system and architecture.

Studies show that IoT and AI have great potential in the tourism and hospitality sector. Since IoT allows many devices to be connected at the same time, it offers numerous opportunities in the hospitality sector as well as in tourism (Car et al., 2019).

In light of this information, the purpose of this study is to review the literature on the impact of IoT and AI applications in the tourism and hospitality sector, based on a bibliometric analysis of studies published in the WOS literature between 2010-may 2023. The research questions of this study are developed below:

RQ1: What are the main IoT and AI applications in the tourism and hospitality sector?

RQ2: What are the emerging themes in the tourism and hospitality s*ector and future applications of IoT and AI?*

To summarize briefly, this study examines the current use of AI and IoT in the tourism and hospitality sector and discusses the future advantages of these tools.

3, Methodology

In order to answer the research questions, bibliometric analysis method was used in this study. Bibliometric analysis is a quantitative method used to analyse scholarly publications, such as articles, books, and conference proceedings, to gain insights into research trends and patterns. Bibliometric analysis involves using statistical and mathematical techniques to evaluate the quantity and quality of scholarly publications and their impact on the academic community.

To perform the bibliometric analysis, the data was collected from the main database Web of Science (WOS). WoS is a leading database and it is often used to conduct systematic reviews in various fields (Paul & Criado, 2020). A total of 632 publications between 2010 and May 2023 were accessed with the identified keywords. VOSviewer and R-Biblioshiny (Aria & Cuccurullo, 2017) was used to analysis.

The search query is (TS=(“hospitality” OR “tourism”) AND TS=(“internet of thing” OR “IoT” OR “iot” OR “AI” OR “artificial intelligence”)). The language of publication of the articles has also been selected in English, and only scholarly articles were included. The data was downloaded in May 2023.

4. Results and Discussion

Annual distribution of publications of IoT and AI in tourism and hospitality industry from the year 2010 to May 2023 are shown in Figure 1. More than half of the articles have been published in the last three years (Knani et al., 2022).

Among the 632 documents, 79 are single-author documents. A total of 1842 authors contributed to the publications. The most productive authors are Ivanov with 11 publications, Webster with 9 publications, and Law with 8 publications. The top five papers ordered by citations score is shown in Table 1.

The average number of citations per document is 15.65. The most relevant institutions are Hong Kong Polytech University and Kyung Hee University. The most productive journals in terms of publishing research are Sustainability, International Journal of Contemporary Hospitality, Tourism Review and Wireless Communications & Mobile Computing. The most cited countries are China, USA and United Kingdom.

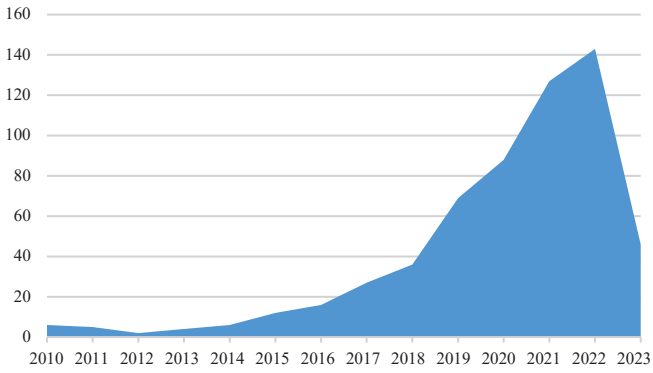


Figure 1. Annual Scientific Production.

Table 1. Top five papers ordered by citations score

Author	Title	Total Citations
Sun, Y. (2016)	Internet of Things and Big Data Analytics for Smart and Connected Communities	500
Jiang, Y. (2020)	Effects of COVID-19 on hotel marketing and management: a perspective article	349
Borras, J. (2014)	Intelligent tourism recommender systems: A survey	246
Zeng, Z. (2020)	From high-touch to high-tech: COVID-19 drives robotics adoption	235
Lu, L. (2019)	Developing and validating a service robot integration willingness scale	233

When a words cloud from the keywords was created Figure 2. The following terms were found prominent: tourism, model, technology, artificial intelligence, hospitality, internet, impact, experience, big data, information technology.

Countries' Collaboration World Map is shown in the Figure 3. Countries with the thickest connections are countries with the most cooperation. For example, USA and China are the most collaborative countries (Singh et al., 2023).

According to the bibliometric analysis, some results are presented in science mapping analysis. Figure 4 shows the result of the co-occurrence analysis. The co-occurrence network of using IoT and AI in the tourism and hospitality sector was obtained.

The yellow cluster in Figure 4 shows connections among related concepts such as 'media', sentiment analysis, TripAdvisor, 'marketing' etc. The green cluster shows connections among related concepts such as 'recommender systems', 'e-tourism', 'chatbots', 'tourism experience' etc. The red cluster shows connections among related concepts such as 'smart tourism', 'big data', 'IoT', 'smart cities', etc. The orange cluster shows connections with 'sustainability' issues. The blue cluster shows connections among related concepts such as 'service robots', 'Covid-19', 'AI', etc. Clusters of other



Figure 2. Words' cloud.

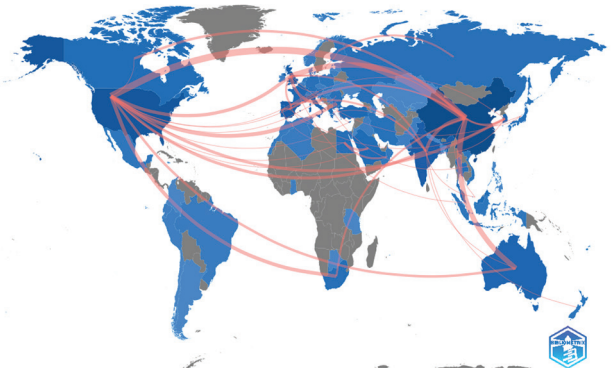


Figure 3. Countries' Collaboration World Map.

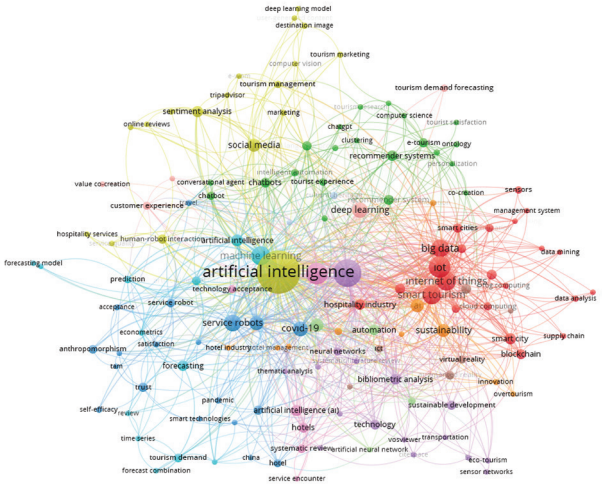


Figure 4. Co-occurrence network visualization.

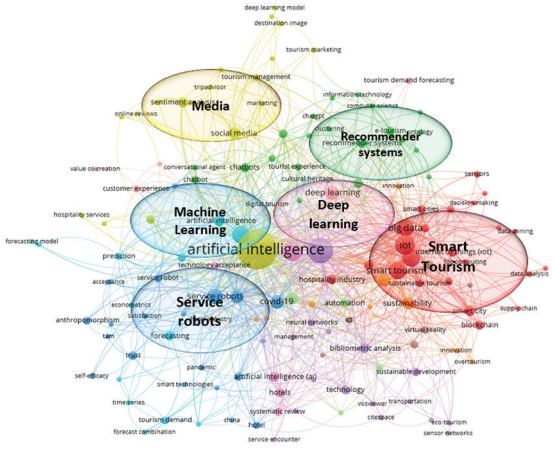


Figure 5. Main thematic areas.

colors also came together in relation to different concepts. Based on these clusters, main thematic areas were created. The main thematic areas of tourism and hospitality related to AI and the IoT were identified in Figure 5. These areas were named; media, smart tourism, service robots, recommender systems, machine learning, and deep learning.

Media has been found to be an important emerging theme. Digital media is increasingly being delegated to computational processes of classifying, sorting, and hierarchizing people, places, ideas, and objects (Van Nuenen & Scarles, 2021). Due to the ubiquity of the internet and mobile devices, data from social media platforms are playing an increasingly important role.

Another main theme is smart tourism. Big data and the Internet of Things (IoT) are part of this theme. Smart tourism is a new form of tourism through the application of IoT, cloud

computing, Big Data, AI and other modern technologies in tourism experience, industrial development and administrative supervision (Wu, 2017). 5G and AI-empowered IoT systems are being used and developed for smart tourism. Also, studies (Gupta et al., 2020; Pelet et al., 2021; Kirtil & Aşkun, 2021; Singh et al., 2023) emphasized that IoT and smart devices shape marketing actions. The adoption of IoT technology will revolutionize the tourism and hospitality industry by providing a competitive edge in the market through device interconnectivity (Singh et al., 2023).

Studies emphasized robotic involvement and experience design for high-tech-high-contact service businesses (Wu et al., 2021) and the use of a robot for customer services in hotels (Parvez, 2020). Understanding AI technology is important to influence consumer engagement. At the same time, AI offers suggestions for developing service business strategies.

Recommender systems is other main theme. Recommended Systems are commonly used in the tourism and hospitality sector to find a restaurant or a travel destination etc. The main purpose of the recommender system is to facilitate the information search process for the traveller and to convince her/his of the relevance of the proposed services. Recommender systems use different data sources and approaches. These systems evolve over time and are contributing to all tourism and hospitality sectors (Renjith, et al., 2020).

5. Conclusions

This study contributed to the understanding of current trends and opportunities in the tourism and hospitality sector and to accurately predict future conditions with AI methods. Worldwide research into the published literature on AI and IoT in the tourism and hospitality sector has increased year by year.

The results showed the increase of publications in this field, particularly over the past three years. The most productive authors were Ivanov, Webster, and Law. The most collaborative countries were USA and China. In our study, for RQ1, the main thematic areas of tourism and hospitality related to AI and the IoT were found media, smart tourism, service robots, recommender systems, machine learning, and deep learning. On the other hand, for RQ2, digitial media were found to be an emerging theme.

As the results indicate, AI applications are being developed and used in many areas of the tourism and hospitality sectors. Digital technologies change business practices. Data-driven methods continue to increase in the tourism and hospitality sectors. In the future, these technologies will further transform the tourism and hospitality experience.

In conclusion, this paper has contributed to the existing literature on IoT and AI adoption in the hospitality industry. Therefore, it can be used to guide future research on IoT and AI adoption in the hospitality industry. It can also help academics to expand their research by including more potential elements.

Funding and Acknowledgements

This study is supported by REMODEL project which is funded by the European Union's Horizon Europe research and innovation programme under grant agreement No. 101079203. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

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DOI: 10.34620/978-83-67405-28-7-014 • 2024 • 113-122

sciendo

Proceedings of the International Tourism Congress 23

Sustainability in wine tourism: a bibliometric and content review

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Abstract

The wine sector increasingly recognizes the importance of adopting sustainable practices. In tourism, sustainability works as a valuable and appropriate tool to attract tourists, who are increasingly selecting companies that have sustainable performance. This paper aims to identify and analyze the existing literature related to the topic of sustainability in wine tourism. Based on a literature review, this study provides an analysis of the most important topics in the research related to sustainability in wine tourism. This analysis is divided into two phases, a qualitative analysis with a literature review, and a bibliometric analysis through VosViewer. The results show that sustainability in wine tourism has been an area of growing interest, with a greater number of publications in recent years. The most recent research topics are related to the strategic approach, competitiveness, covid-19, spatial-temporal analysis, and sustainable practices.

Keywords

Bibliometric Analysis • Sustainability in Wine Tourism • Wine Tourism

1. Introduction

Wine has always been an integral part of human culture, forging a connection between primary sector activities and services while playing a significant role in the tourism sector. In recent years, the wine industry has increasingly recognized the paramount importance of adopting sustainable practices to ensure the preservation of the environment and the long-term prosperity of their businesses (Karagiannis & Metaxas, 2020). Concurrently, sustainability has become an essential criterion for modern tourists, who actively seek out companies and destinations that demonstrate a commitment to environmental and social responsibility (Serra-cantallops et al.,2021).

The marriage of sustainability and wine tourism is proving to be a powerful alliance, with sustainable agricultural practices not only enhancing the appeal of tourist destinations but also fostering competitiveness within the wine industry (Serra-cantallops et al.,2021). The wine tourism sector has rapidly adapted to evolving travel preferences and trends, positioning itself as a vital driver of regional development, job creation, and economic growth, particularly in rural areas (Afonso et al., 2018). For tourists, wine tourism offers a unique and immersive experience of the rich cultural and natural heritage of wine regions, while simultaneously providing winemakers with a platform to showcase their sustainable practices and winemaking approaches (Lamoureux et al., 2022).

To further understand and analyze the dimensions of sustainability in wine tourism, this paper aims to conduct a comprehensive literature review on this subject. By delving into the existing body of knowledge, our study seeks to identify and examine the most pertinent topics related to sustainability in wine tourism. The research will be divided into two distinct phases, commencing with a qualitative analysis through a literature review and subsequently employing a bibliometric analysis using VosViewer (Aramendia et al., 2021).

The significance of this research lies in the growing interest and attention sustainability in wine tourism has garnered in recent times, as evidenced by the increasing number of publications on this topic. Through our analysis, we aim to shed light on the current state of research, exploring themes such as strategic approaches, competitiveness, the impact of the COVID-19 pandemic, spatial-temporal analysis, and sustainable practices (Karagiannis & Metaxas, 2020; Serra-cantallops et al.,2021; Aramendia et al., 2021).

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By synthesizing and organizing the existing knowledge on sustainability in wine tourism, this study strives to provide valuable insights for wine industry professionals, tourism practitioners, policymakers, and researchers.

2. Literature Review

Wine and tourism create a perfect union so that tourists can enjoy a distinctive product and get to know a destination in a different way, triggering the economic development of certain rural territories based on the concept of sustainable development (Vo Thanh & Kirova, 2018; Rodríguez García et al., 2010). Wine Tourism occurs when a tourist is motivated to visit a place for its vineyard properties and wine-related activities (Carvalho et al., 2017).

Wine tourism seamlessly merges the joy of wine tasting with the rich cultural aspects tied to the historical evolution of wine culture in various wine regions (González San José, 2017). As affirmed by Rachão et al. (2020), culinary and wine-related activities hold a pivotal role in shaping tourists' overall travel experiences. The wine tourism experience encompasses a diverse array of offerings, with popular options including engaging in events and festivals, exploring cultural heritage, savoring gastronomic delights, partaking in tastings, visiting wine houses, purchasing wines at wineries or cellars, and embarking on informative winery tours (Charters & Ali-Knight, 2002).

The profound influence of wine culture and its integration into wine tourism experiences intricately connects with the social, economic, environmental, and cultural fabric of wine regions and territories (González San José, 2017). As highlighted by Getz (2000), wine tourism can be viewed from at least three key perspectives: that of wine producers, wine agencies representing destinations, and the viewpoint of consumers. Consequently, this unique form of tourism product warrants a comprehensive examination of consumer behavior, the strategic development and marketing of attractions related to wine products by destinations, and the valuable marketing opportunity it presents for direct product sales (Getz & Brown, 2006).

2.1. Sustainability in Wine Tourism

Sustainability permeates various sectors of society, drawing inspiration from diverse sources such as stakeholder pressures, customer attraction through environmental considerations, legal obligations, long-term vision, and even cost reduction and enhanced competitiveness (Flores, 2019). As an indispensable element, sustainability plays a pivotal role in optimizing resources and effectively addressing present and future challenges that could impede the further advancement of wine tourism (Alonso et al., 2020). Within the wine sector, sustainability emerges as a powerful driver of competitive advantage, fostering the creation of ecologically conscious images that resonate with consumers and are thus valued by them (Gázquez-Abad et al., 2015).

Elkington (2017) introduces a comprehensive framework for approaching sustainability, known as the "Triple Bottom Line," which encompasses three essential dimensions: economic sustainability, social sustainability, and environmental sustainability. Each dimension represents a critical aspect of the company's responsibilities towards creating a sustainable future:

- Environmental sustainability: This dimension revolves around the preservation of our planet and includes all actions taken by the company that can impact the environment. Emphasizing eco-friendly practices, companies seek to minimize their ecological footprint and contribute to environmental conservation.
- Social sustainability: Fostering equal opportunities, promoting diversity, and encouraging meaningful connections within and beyond the local community form the core of social sustainability. Companies committed to this aspect prioritize the well-being and quality of life of their stakeholders, and strive for open and accountable governance structures.
- Economic sustainability: In pursuit of economic sustainability, companies engage in activities that yield positive outcomes locally, such as hiring and investing in human resources from the communities in which they operate. By bolstering local economies, these companies contribute to the prosperity and growth of the regions they are part of.

By embracing the "Triple Bottom Line" model, organizations can adopt a comprehensive approach to sustainability, ensuring a harmonious balance between economic prosperity, social inclusivity, and environmental conservation, ultimately working towards a more sustainable and resilient future.

IPDT (IPDT, n.d.) adds another dimension, Cultural Sustainability, which is related to the preservation of values and traditions of the different communities, valuing people's knowledge and cultural elements.

The Strategic Plan 2020-2024 of the International Organization of Vine and Wine (OIV, 2017) has also objectives related to sustainable development namely: Promote environmentally friendly viticulture; Promote economic activity according to the principles of sustainable development and market growth; Contribute to social development through vitiviniculture; Continue the development of a harmonized regulatory environment; Facilitate the industry's digital transition.

2.1.1. Sustainable Practices in Wine Tourism

Global wine consumption is growing, and along with this growth, wine companies face environmental sustainability issues such as water consumption, waste management, and community impact (Karagiannis & Metaxas, 2020). Casini et al. (2010) proposed a matrix of four behaviors adopted by wine companies in relation to sustainability (Figure 1). The matrix is divided according to the degree of implementation of sustainable practices in the company (orientation) and the degree of communication (exposure) of the companies' sustainable orientation:

- "Devoted": they are strong promoters of sustainability in their wine production adopting sustainable practices and actively promoting this. They constantly invest to pass these values to their employees and customers.
- "Unexploiter": they adopt sustainable practices, but do not communicate them.
- "Opportunists": they strongly communicate the sustainable side of their work to obtain differentiation in the market, however they need a deeper motivation or interest in its adoption.
- "Laggards": they are not interested in adopting sustainable agriculture and don't know or don't understand its benefits in terms of promotion.

Table 2, presents several practices related to environmental, social and economic sustainability that organizations can adopt, according to several authors.

2.1.2. Benefits of Sustainable Practices

Sustainability embodies a temporal dimension, where the pursuit of sustainable benefits involves striking a delicate balance between present actions and their implications for the future (Van Dam & van Trijp, 2011). Embracing a proactive sustainability strategy not only fosters capacity building within companies but also cultivates corporate capabilities that yield competitive advantages, manifested through enhanced efficiency and productivity (Sharma & Vredenburg, 1998). As a result, the implementation of sustainable practices empowers companies to gain numerous advantages, positioning them for success in the long run. Table 3 presents some benefits of adopting sustainable practices by companies.

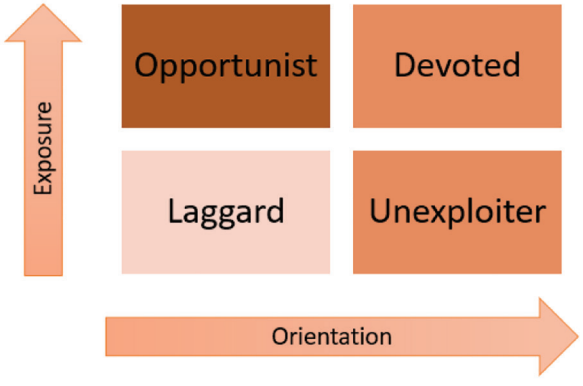


Figure 1. Sustainable Positioning Matrix.
Source: Adapted from Casini et al. (2010)

2.1.3. Barriers to the Adoption of Sustainable Practices

Barriers in the context of sustainability can be understood as challenging situations or obstacles that impede the successful execution of specific activities or actions (Laurett & Paço, 2019). Extensive literature on this subject identifies various barriers that hinder companies from effectively implementing sustainability-related practices, as summarized in Table 4.

3. Methodology

The methodology of the present research took into account a qualitative approach, with a literature review (Table 1) that was based on the search for scientific documents available on the Scopus platform on Sustainability in Wine Tourism, corresponding to the first part of the research. In the second part, a content analysis was performed and bibliometric methods were used through VosViewer (bibliographic coupling, citations and co-occurrence analysis) and the analyses performed by the Scopus platform itself. The database was exported through Scopus during the month of March 2023.

The construction of a keyword co-occurrence map, which examines the frequency of keywords appearing together within the dataset of publications (Agapito, 2020), offers valuable insights into the thematic landscape and interrelationships that shape the conceptual space of a particular topic (Koseoglu et al., 2019). In parallel,

Table 1. Methodology

Methodology	
First Part: Literature Review	**Second Part: VosViwer Analysis**
Key Words: "sustainability" and "wine tourism" Category: Title, Abstract, Keywords Document Type: Paper Language: English Results: 52 Query: (TITLE-ABS-KEY (sustainability) AND TITLE-ABS-KEY ("wine tourism")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English"))	Documents per year Main journals Documents per country Documents by authors Co-occurrence (all keywords) Bibliographic coupling (documents) citation (authors)

Source: The authors.

Table 2. Sustainable Practices

Dimension	Practices	Authors
Environmental Sustainability	Turn off lights when not in use, save energy, print on both sides of the paper.	Lamm et al. (2015)
	Environmentally friendly raw material; Substitution of environmentally questionable material; Consider environmental criteria; Consider eco-design; Optimization of the process to reduce solid waste and emissions; Use of more sustainable technological processes to save energy and water; Selective waste separation (recycling) and incorporation of environmental management principles.	Rao & Holt (2005)
	Use of ecological products; Energy and water saving activities; Selective separation for recycling, and use of renewable energy sources (solar, wind, biomass).	Font et al. (2016)
Social Sustainability	To provide equal opportunities, encourage diversity, promote links within and outside the community, and ensure the quality of life of its employees.	Elkington (2017)
	Providing professional training; assisting employees in obtaining higher education; spending time or monetary contributions to local community projects; contributing to social solidarity actions; considering diversity in hiring decisions; and providing flexible work schedules.	Collins et al. (2007)
	Supporting the development of local communities and heritage conservation; promoting gender equality in working practices; actively promoting respect for the culture of the surrounding region; facilities adapted for people with reduced mobility; collaboration in social and solidarity projects; encouraging customers to contribute to social initiatives; promoting work-family balance.	Font et al. (2016)
Economic Sustainability	The company must be committed to activities that have a positive return locally, for example hiring human resources from the place where it operates.	Corbo et al. (2014)

Source: The authors.

Table 3. Sustainable Practices Benefits

Benefits	Authors
Improved internal performance, external marketing, and benefits from stakeholder relations	Poksinska et al., (2003)
Productivity benefits (related to the functional/operational side); financial benefits (related to waste reduction); market benefits (related to customers, suppliers, and competition); and societal benefits (related to society and government agencies).	Gavronski et al., (2008)
Increased sales, profitability, competitive advantage, efficiency (productivity, cost savings, better management control), improved image, improved employee results (motivation, satisfaction, communication, knowledge), improved customer satisfaction (fewer complaints), improved relations with suppliers and other stakeholders.	Tarí et al. (2012)

Source: The authors.

Table 4. Barriers to the Adoption of Sustainable Practices

Barriers	Authors
Lack of human and material resources.	Álvarez-García & del Río Rama (2016)
Lack of knowledge and information	Grimstad & Burgess (2014)
Lack of training, lack of understanding of how to incorporate sustainable practices, and lack of funding	Bhanot et al., (2017)
Resistance to change	Duarte (2015)
Lack of technical knowledge and problems with infrastructure, resistance to change, poor environmental knowledge, lack of investment in training, difficulty in complying with regulations, little knowledge about legislation, and lack of incentive and support policies.	Neto et al., (2017)

Source: The authors.

citation maps serve as a means to gauge the influence of documents or authors through the analysis of citation patterns, enabling the identification of seminal works relevant to the subject under investigation (Zupic & Čater, 2015). Furthermore, bibliographic coupling, by connecting documents and authors based on shared references, serves as a powerful tool for mapping the current research front and highlighting prominent contributors to the field (Zupic & Čater, 2015). This bibliometric analysis can thus help researchers verify similarities between documents based on collaborative relationships between institutions and authors (Serrano et al., 2019).

4. Results and Discussion

4.1. Production

The first work, by Scopus, appeared in the year 2010, however, it is verified that only from the year 2019, there has been a growing interest in the topic. It can be seen that

71% of the papers were published in the last 4 years (2019 to 2023). As can be seen in Figure 2, it is a theme with growing importance at the scientific level, where the year with the most publications was in 2021, with 11 papers.

At the level of the main sources of publication the top five sources are: Sustainability Switzerland (16 articles), International Journal of Wine Business Research (4 articles), African Journal Of Hospitality Tourism And Leisure (2 articles), Journal of Cleaner Production (2 articles), Journal Of Wine Research (2 articles).

Through the Scopus analysis, it was also possible to obtain the articles published per author (Figure 3). The author Nave A. counts (5 publications), Szolnoki, G. (3 publications), Tafel, M. (3 publications), do Paço, A. (3 publications) and Bressan, A. (2 publications) are the five authors with more publications on sustainability in wine tourism.

Taking into account the 10 countries with more publications, Spain (11 articles), Australia (9 articles), Portugal (8 articles), United States (6 articles) and Italy (5 articles), are part of the top five with the highest number of publications on the subject (Figure 4). This is followed by countries such as the United Kingdom (5 articles), Germany (4 articles), Chile (3 articles), Viet Nam (3 articles) and Canada (2 articles).

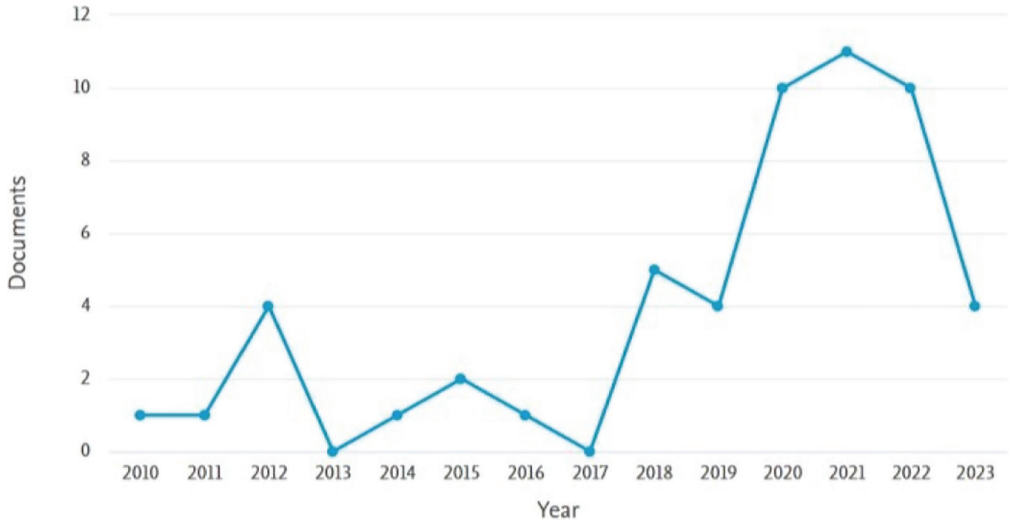


Figure 2. Documents by year.
Source: Scopus (2023).

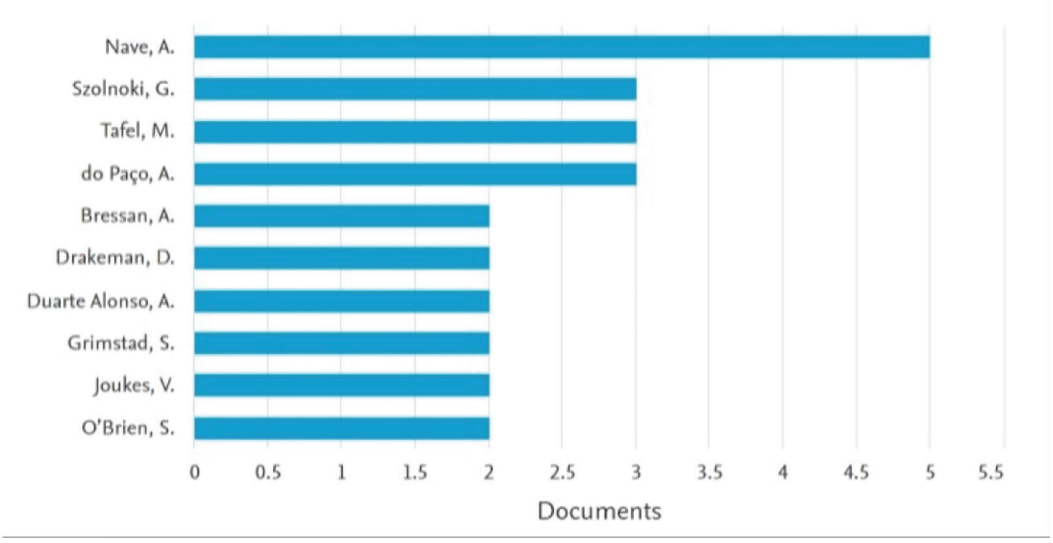


Figure 3. Documents by Author.
Source: Scopus (2023).

4.2. Co-occurrence

To determine the co-occurrence map, the minimum number of occurrences of three keywords was set, with 24 keywords meeting the thresholds (Figure 5). The co-occurrence network consists of three clusters. The most significant are the red cluster, marked by the keywords “wine tourism”, “tourism” and “strategic approach”, and the green cluster, where “sustainable development”, “wine industry” and “tourist destination” stood out. The blue cluster highlights the work done with a focus on “sustainability”, “sustainable tourism”, and “wine”.

The co-occurrence map also shows that the most recent research themes are related to the strategic approach,

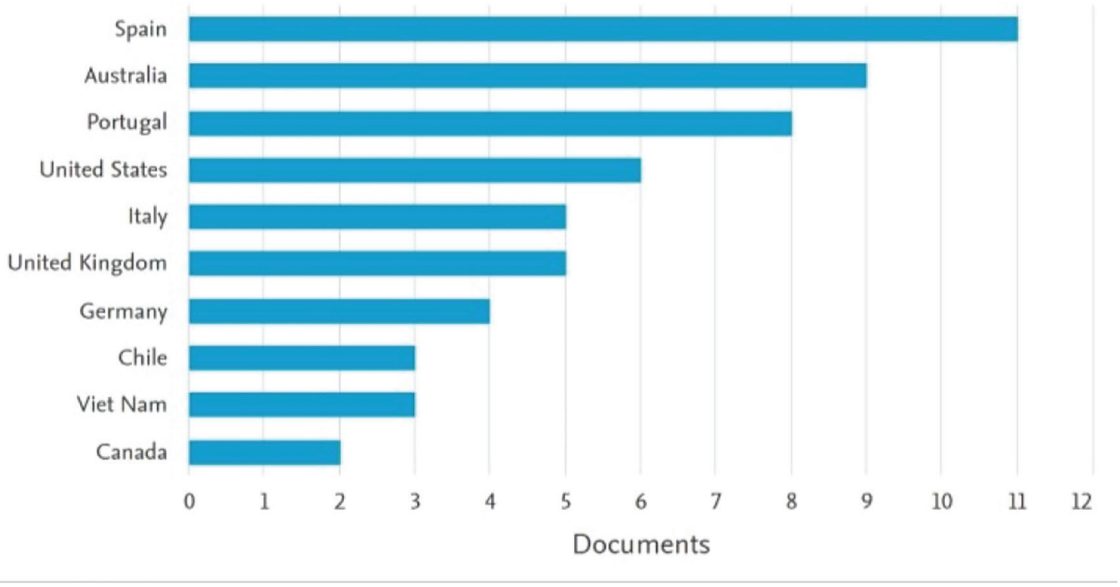


Figure 4. Documents by Country.
Source: Scopus (2023).

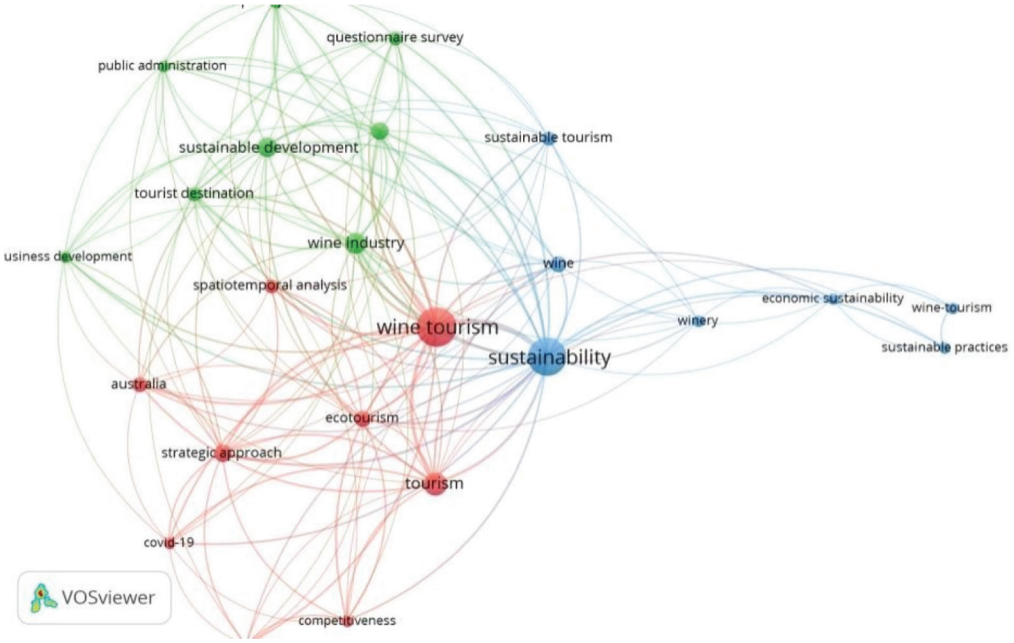


Figure 5. Co-occurrence Map.
Source: Elaborated by Vosviewer.

competitiveness, covid-19, spatial-temporal analysis, and sustainable practices (Figure 6).

4.3. Citations

The authors' citation network map (Figure 7) illustrates the relationships between individual authors based on the frequency with which they cite each other's work. The strength of these citation links is visually represented by the size of the circles. Within this network, 37 authors stand out as major contributors to the scientific documentation on sustainability in wine tourism, forming 16 distinct clusters. Notably, the most influential clusters are characterized by the significant contributions of authors such as Nave A., Duarte Alonso A., and Grimstad S.

4.4. Bibliographic Coupling

Bibliographic coupling establishes relationships between items based on the number of references they share. Figure 8 presents a map featuring the 18 most cited authors in studies on sustainability in wine tourism. A minimum threshold of 10 citations per paper was set to be included in the map, and only these 18 authors met the criterion. Notably, this network map reveals a prominent central figure, Baird T. (2018), whose work has established 16 strong connections with other authors, signifying extensive collaboration and interrelated research within the field of sustainability in wine tourism. It can be seen that the most cited studies are by Baird et al., (2018), Gázquez-Abad et al., (2015) and Figueroa & Rotarou (2018).

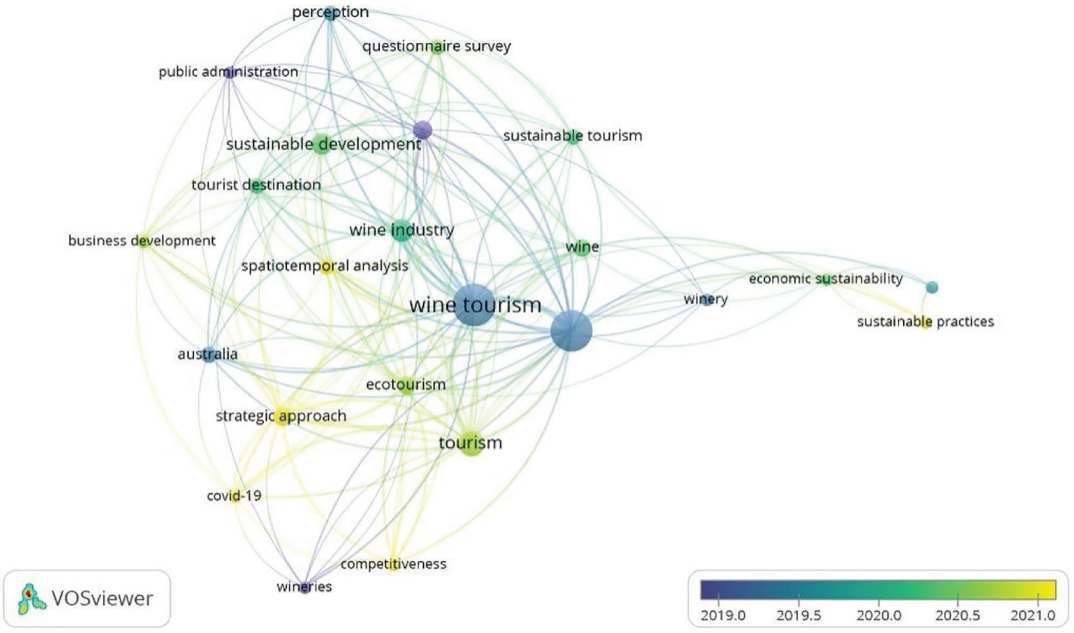


Figure 6. Temporal Co-occurrence Map.
Source: Elaborated by Vosviewer.

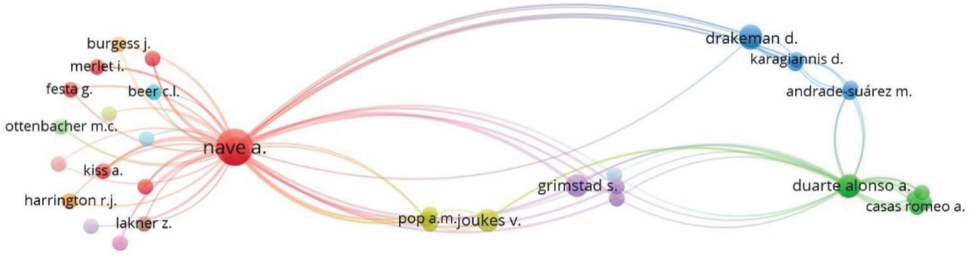


Figure 7. Co-occurrence Map.
Source: Citation map.

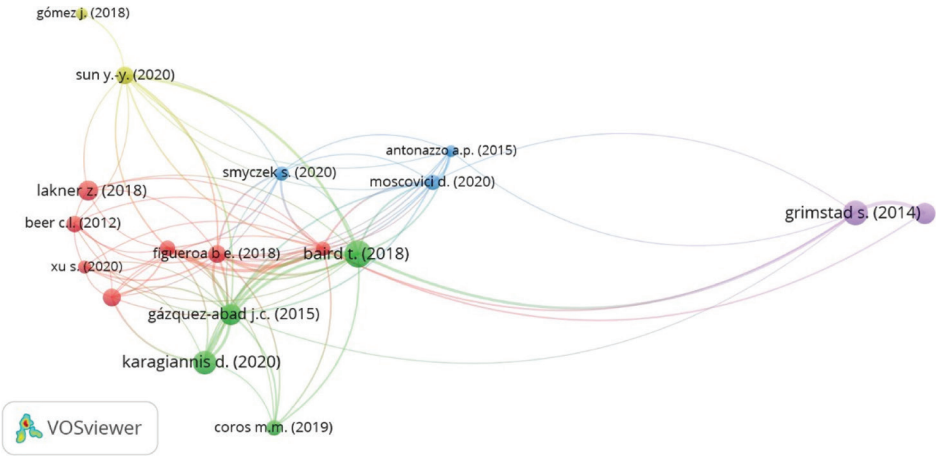


Figure 8. Bibliographic coupling map.
Source: Elaborated by Vosviewer.

5. Conclusions

The alliance between wine tourism and sustainability emerges as a vital factor in shaping the future of the wine industry. As sustainability becomes increasingly important in the global context, it is evident that wine tourism companies must adopt sustainable practices not only to ensure the preservation of resources for future generations but also to remain competitive in the evolving market, attracting a growing number of environmentally conscious tourists.

This study has provided a comprehensive overview of the existing literature on sustainability in wine tourism, shedding light on the most prominent research topics, influential authors, notable publication sources, and the countries contributing significantly to this field. Through the co-occurrence map, we identified the recent research themes, which encompass the strategic approach, competitiveness, the impact of the COVID-19 pandemic, spatial-temporal analysis, and sustainable practices.

The findings demonstrate a clear and growing interest in the relationship between sustainability and wine tourism, exemplified by the significant increase in publications over the last four years.

The literature reveals that the majority of studies in this area focus on analyzing the development of sustainable strategies and practices adopted by wineries, as well as the associated benefits and barriers to their adoption. This highlights the industry's acknowledgment of the pivotal role sustainability plays in enhancing the overall wine tourism experience.

Our study emphasizes that the integration of sustainability principles within wine tourism not only has positive ecological impacts but also enhances the competitiveness and attractiveness of wine regions as tourist destinations. It serves as a catalyst for innovation, enabling wineries to differentiate themselves and appeal to an increasingly discerning and environmentally conscious consumer base.

The comprehensive citation and bibliographic coupling analyses showcased the prominent contributions of specific authors and highlighted key studies that have significantly influenced the development of sustainability in wine tourism research. Notably, the work of authors such as Nave A., Duarte Alonso A., and Grimstad S. has been instrumental in advancing knowledge in this domain.

In conclusion, this study offers valuable insights into the dynamic landscape of sustainability in wine tourism. It underscores the critical role of sustainability in the wine industry and its profound impact on attracting responsible tourists seeking immersive experiences in wine regions. As we move forward, continued research and collaboration among academia, wine industry stakeholders, and policymakers will be instrumental in fostering sustainable practices that contribute to the growth, resilience, and long-term viability of wine tourism.

6. Limitations and Suggestions for Future Research

Despite the valuable insights gained from this study on sustainability in wine tourism, there are certain limitations that should be acknowledged to ensure the integrity and applicability of the findings. Firstly, the research was conducted within a specific time frame, which might have constrained the depth of the analysis and the inclusion of more recent developments in the field. Conducting a longitudinal study that spans a more extended period could provide a more

comprehensive understanding of the evolving trends and shifts in research focus over time.

Additionally, the bibliometric analysis was conducted using a single database (Scopus), which might not encompass the entirety of research related to sustainability in wine tourism. To address this limitation, future investigations should consider employing multiple databases, such as Web of Science, to ensure a more extensive and diverse dataset, enabling a broader perspective on the subject.

Furthermore, while the co-occurrence map provided valuable insights into the thematic clusters and associations, it may not capture the full complexity of relationships between different research areas. Future studies could explore advanced network analysis methods and incorporate semantic analysis techniques to gain a more nuanced understanding of the interconnections between themes and sub-topics within sustainability in wine tourism research.

To enhance the scope and depth of future research, we recommend expanding the search by incorporating additional keywords relevant to sustainability, wine tourism, and related concepts. A comprehensive keyword search will broaden the dataset, enabling a more comprehensive analysis and offering a more robust foundation for future research inquiries.

As sustainability in wine tourism continues to evolve, examining the influence of different factors and external forces, such as changing consumer preferences, climate change, and global economic shifts, could provide valuable insights. Investigating the interaction between sustainability practices, regional development, and the socio-economic impacts on local communities would contribute to a more holistic understanding of the outcomes and potential challenges faced by the wine tourism industry.

Furthermore, research exploring the specific implementation of sustainable practices by wineries and their impact on visitor experiences would offer practical guidance for industry stakeholders seeking to create authentic and sustainable wine tourism offerings.

Funding and Acknowledgements

This paper is financed by national funds provided by FCT-Foundation for Science and Technology through project Ref. UIDB/04470/2020 CITUR.

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DOI: 10.34620/978-83-67405-28-7-015 • 2024 • 123-135

sciendo

Proceedings of the International Tourism Congress 23

Importance of strategic partnerships between higher education institutions and tourism and hospitality stakeholders: perceptions of stakeholders, students and the HEI structure in the context of ESTH/IPG

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Abstract

This study addresses the importance of strategic partnerships between higher education institutions and different types of stakeholders related to tourism and hospitality. The research conducted has confirmed the existence of some studies with objectives in this area in general, but in the field of tourism and hospitality there are some gaps in the number of publications dealing with this topic. Therefore, it is intended to analyze the benefits for the academic community and partner organizations as part of a win-win strategy and to promote the development of common projects. This topic is relevant in the current context, as networking is necessary and should be further developed in order to optimize and better manage the resources of the organizations. In order to analyze the results already achieved, an empirical study was carried out within the framework of a specific HEI to describe the partnership relationships developed at the level of teaching, research and service delivery or community collaboration. A mixed exploratory analysis was also carried out through questionnaire surveys. This study analyzes the HEIs moving towards a new strategic approach based on partnerships and provides an overview of the benefits and requirements of strategic partnerships.

Keywords

education and training • higher education • partnerships • stakeholders • tourism and hospitality

1. Introduction

The research developed in this article focuses on the meaning and importance of the roles attributed to the development of strategic partnerships between higher education institutions (HEIs) and various types of stakeholders associated with the complex tourism and hospitality industry (TH). Given the diversity of sectors that this academic field is expected to contribute to strengthening by enabling its future professionals to better respond to the growing challenges, especially in terms of sustainability, competitiveness, productivity and digitalization, it is considered essential to establish and maintain symbiotic relationships with different types of organizations in this multisectoral structure.

The main objective of this study is to know the level of this collaboration in the periodic updating of course syllabuses in order to allow their curricular restructuring and scientific evolution, especially to adapt the skills to be acquired by the trainees to the needs of their performance in the context of the different and rapid transitions that occur in the current and global context, from digital, energy, green, among others. In this context, other dimensions of mutual cooperation and their benefits for both the universities of the academic community and partner organizations will be analyzed in a long-term symbiotic strategy by promoting the development of common projects.

The current context of tourism is globalized and increasingly competitive, both between companies and destinations, which implies the need for networking between HEIs at different levels, from the regional to the national. These partnerships are therefore essential to deepen relationships and optimize the use of organizations' resources. They allow for greater cohesion at regional and national levels in this sector, which plays an important role in Portugal's economic growth and sustainable development.

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To analyze the results already achieved, an empirical study was developed within the framework of a specific HEI to describe the partnership relationships already developed at the level of teaching, research, and service delivery/ community connections. A mixed exploratory analysis was also carried out through questionnaire surveys with Master's, Bachelor's and CTeSP students, as well as stakeholders from the sector with partnerships with the HEI under study, as well as leading members of its structure (Presidency, Directorate, Pedagogical Council, Scientific Council and Technical-Scientific Unit of Tourism and Hospitality). This work allowed us to understand a great harmony in the authors' perspective on the role and importance of strategic partnerships for the development of HEI networks and their competitiveness in a more global higher education market that requires an increasing internationalization in the different axes of action. The conclusions allow us to assume the relevance of the perspectives of the 3 types of agents surveyed on collaborative networking with TH organizations and to assume that the contributions of the study deserve to be included in the strategic management practices of these HEI and eventually others in a similar situation. This study is also innovative because it compares the different perspectives of the agents and thus seeks to validate the level of importance of higher education institutions' relationships with external organizations of the regional and national tourism system.

The structure of the paper reflects an initial approach to strategic partnerships in higher education in this scientific area of TH (section 2), in a theoretical contextualization of the state of the art, especially in terms of important policies and strategies at the national level. Therefore, it was interesting to focus the case study on the educational project of ESTH and its training offer, in order to then try to understand the opinions of the different internal and external stakeholders. The methodology used (section 3) served to describe the process and the development of the empirical study of this work (section 4), which allowed to discuss and analyze the data collected. The behavior of the indicators (section 5) allowed us to draw some conclusions about the trends and to envisage the planning of relationships and partnerships at a strategic level, which is indispensable for the sustainability and development of the school in question. Thus, the hypothesis of this study aimed to confirm that strategic partnerships can be important to ensure the competitiveness and sustainability of a HEI, especially in regions with low population density.

2. Strategic Partnerships & Higher Education

The current demanding context in which HEIs operate requires the development of strategic partnerships, i.e., collaborative agreements with other types of organizations (companies, public institutions, educational institutions, and others).

Hughes & Scheyvens (2021, p. 105529) "the word 'partnership´ is generally evoked to describe various forms of collaboration between or among a range of development actors". These partnerships aim to promote cooperation, sharing of resources and knowledge, developing joint research, and thus better achieving goals of common interest in the fields of education, research, innovation and development, internationalization, etc., which may be of particular interest even to only one of the parties, but to the achievement of which the other contributes.

According to Scheyvens & Cheer (2022, p. 2274) "partnerships by their very nature, in theory at least, suggest shared goals, beneficial outcomes for all parties, joint governance, cooperative institutional arrangements, and inter and cross sectoral engagement."

As Hodzi and Amoah (2023) refer in their study, the higher education sector is setting up several bilateral and multilateral partnerships between public and private institutions across the globe. A significant number of strategic partnerships are currently being implemented, developed as part of the activities of HEIs' activities, for: improving the quality of teaching, as partnerships can enable the exchange of resources, knowledge and good practices between the parties involved; developing research and innovation, as collaboration can enable the optimization of resources to carry out joint research; promoting academic mobility and internationalization by fostering exchange programs, including student and faculty mobility, joint courses, and institutional relationships with institutions from different countries; Establishing partnerships with businesses that can foster internship and employment opportunities for students (Olszewski, 2021; Thomas, 2012; Yalçınkaya, & Güzel, 2019; Peacock, & Ladkin, 2002).

In addition, Arionesei et al. (2015) note that partnerships between HEIs and companies/organizations contribute to the transfer of technology and knowledge, the promotion of innovation and entrepreneurship, and the attraction of resources and funding sources, as well as the development of academic programs and projects.

Therefore, it is important that strategic partnerships are well planned, in a win-win format, i.e., that they take into account the interests, values, and goals of the institutions involved (Jauhari & Thomas, 2013), and that communication channels are established to build a fruitful relationship between the parties so that agreements are honored and expectations and goals are successfully met.

The relevant literature and the varying experiences of HEIs in establishing partnerships allow us to divide them into five broad categories. First, 'academic partnerships' are those that involve student exchange programs with other countries to promote mutual mobility and cultural diversity, as well as

collaboration in joint development programs (Jongbloed et al., 2008; Dredge et al., 2015).

Another category is "research partnerships," which are established between HEIs and external organizations to conduct joint research, scientific studies, technology development, and more to promote knowledge transfer between academia and the productive sector, resulting in mutual benefits (Jauhari & Thomas, 2013).

Higher education institutions play an important role in regional development. As a result, 'regional development partnerships' are often established between them and regional and local government organizations, businesses, and other various local organizations that help promote entrepreneurship, for example, by establishing joint incubation centers to support the emergence of local startups that foster innovation and socioeconomic development in the region. Indeed, higher education institutions "can act as catalysts by forming alliances to promote local, national and international development and solve the increasingly complex challenges of today's world. Strategic partnerships between higher education institutions and other sectors of society are available to meet immediate needs, seize emerging opportunities with minimal resources, and deliver programs, academic innovation, administration, and public services cost-effectively" (Whealler & Noftsinger 2004, p. 19). Another form of partnership is so-called 'continuing education,' whereby HEIs establish forms of collaboration with companies to plan continuing education courses for their employees, such as specialized postgraduate courses, workshops, and other formats designed to update technical and scientific knowledge and expand participants' knowledge (Wang, 2018).

Finally, the so-called "international partnerships," in which HEIs seek other partner institutions to promote international collaboration in research and development programs, dual certifications, the creation of joint academic programs, and proposals for development strategies to create new collaborative and innovative values in selected areas that cannot be achieved independently and that, when properly combined with the growth/prosperity of developing and developed countries, act as impacting factors in the success and implementation of good education policies (Suherlan, 2017).

Strategic partnerships in the context of higher education institutions thus offer a number of benefits to all parties involved. They allow the sharing of know-how and resources, the promotion of innovation, the improvement of educational processes, and the definition of collaborative networks with the aim of promoting the academic and socioeconomic development of the community and the region where HEI is located.

In the case of the TH sector, strategic partnerships with stakeholders offer some advantages, especially the improvement of curricula (Wineaster & Sanga, 2019), as they allow HEIs to pay more attention to the real needs of the sector, ensuring that the study plans of the courses are more up-to-date and that graduates' profiles are better adapted to the world of work. Another advantage, given the peculiarities and needs of the training offered in the sector (Suherlan, 2017), is the possibility of carrying out internships and training courses in a work context, which help students to get in touch with the world of work, developing specific technical skills of the sector and giving them more knowledge for a future career.

The existence of these partnerships also enables professional development and networking between HEI teachers and researchers and the various agents in the sector (Solnet et al., 2007) through collaboration on joint innovation projects, obtaining financial support for research, and sharing best practices. This type of collaboration can lead to innovative solutions, technological advances, improvement in organizational and management practices, and other areas that benefit the entire TH sector. However, these stakeholders also have the opportunity to gain further benefits through these partnerships, such as access to talent and advanced academic knowledge (Breen, 2002) through more efficient recruitment of qualified professionals, availability of current and relevant research for the sector developed by specialized professors, updating and improvement of technological processes, management and staff skills through the joint definition of training programs, such as postgraduate courses, training-on-the-job, specialized workshops to keep up with the latest trends and innovations.

In summary, according to the literature analyzed, strategic partnerships between HEIs and TH stakeholders in general can be mutually beneficial, providing access to data and resources in this shared context, opportunities for publication and dissemination of studies in this shared field, increased visibility and reputation of this area of scientific knowledge, contributing to innovation in problem solving, fostering the link between theory and practice, and the academic, professional and business development of the TH sector as a whole.

2.1. School of tourism and hospitality – polytechnic university of guarda

The School of Tourism and Hospitality (ESTH) of the Polytechnic Institute of Guarda (IPG) is one of the four schools of the IPG. The choice of this case study is justified by having a specialised vocation that aims to train students for the various sectors and professions of TH. Its educational project includes a solid theoretical training of the complex tourism system and is also supported by technical learning

and various sectoral practices, as well as including a broad general culture and good practices for developing relational skills, including the spirit of teamwork and service, namely through CTeSP, bachelor's and master's degrees, as well as postgraduate courses.

ESTH is a public school that generally follows the guidelines published by the Portuguese Government, as well as those issued by the Ministry of Science, Technology and Higher Education (MCTES), through the Directorate-General for Higher Education (DGES). This School started operating in 2000 and since 2004 it has been operating in a building built from scratch and well equipped to respond to the best technical training in the areas of TH. Thus, it is assumed that ESTH is an organic teaching and research unit with a vocation for regional development (Interior Centre of Portugal), supported by the enhancement of TH sectors through the scientific areas of Tourism and Leisure and Hospitality and Catering, as it is the only comprehensive project in TH in this territory, with this delimited and ambitious specialisation (Salgado et al., 2021).

In this sense and to stimulate the promotion of local and regional development, it is essential to develop diverse partnerships to support its ambitious objectives, in a territory classified as low demographic density, so it is also necessary to project itself at national and international level. To support this strategy, the IPG integrates several structures with strong links to the HT sector and other related sectors and deepens partnerships in terms of research and development in Tourism in the national context, such as participation in the Centre for Research, Development and Innovation in Tourism (CITUR) or in the National Tourism Platform (PNT) and also its recent integration as a full member of the European University UNITA (network integrated by 11 other HEIs in Europe).

The departmental structure of ESTH is responsible for 6 CTeSP, namely 2 already implemented - Cooking and Food Production (CPA) and Management of Tourist Accommodation (GAT); the degrees in Tourism and Leisure (TL), Tourism and Hospitality Management (GTH), Hotel Management (GH) and Food Service and Catering (RC); master's degree in Management and Sustainability in Tourism (GST); postgraduate degree in Wine Tourism. It can be seen, therefore, that the training offer available at this School is diverse and has an appropriate articulation in the 3 levels of polytechnic education, which aim to be complementary according to existing needs in the labour market of the TH sectors. The two specialised training areas (811 - Hospitality and Catering and 812 - Tourism and Leisure) of the National Classification of Education and Training Areas (CNAEF) thus aim to contribute to regional and national tourism development, mainly based on the strong relationship with organisations in the tourism sectors, which presuppose partnerships and joint strategic projects, which allows students to carry out curricular internships in Portugal, but also abroad, with the aim of consolidating the training acquired in the courses and giving it a strong professionalising character in TH.

3. Methodology

This section describes the mixed exploratory analysis which was carried out to investigate the case ESTH-IPG through questionnaires administered to master's, bachelor's, and CTeSP students, as well as TH sector stakeholders who have partnerships with this HEI. It was also intended to listen to several elements of the structure of HEI, namely the President of the HEI, the Directorate of the School, the President of the Scientific Council, the President of the Pedagogical Council and the UTC Coordinator of Tourism and Hospitality. Thus, the objective was to know the perspectives of the different stakeholders on the importance and role of strategic partnerships of HEIs and to know this reality and its impact on the educational project of ESTH.

The questionnaire templates for surveying the structural elements of HEI, stakeholders, and students were created by the research team as part of the study objectives and implemented using Google Forms and made available online after emails were sent to recipients requesting participation during the period of May 5-20, 2023. In this way, the number of responses was obtained through a non-probabilistic sampling technique called random sampling (Coutinho, 2014).

Regarding students, 76 responses were obtained, for a response rate of 28%. The distribution by degree program is shown in Figure 1, with the highest representation of students in Tourism and Leisure (40%) and Hotel Management (37%). In addition, 45% of respondents were recent graduates, 18% were first-year students, 26% were second- year students, and 11% were third- year students. Among students, 55% of respondents were from the districts of Guarda (26%), Coimbra (16%) and Leiria (13%).

In terms of stakeholders, 14 responses were obtained, with 50% of respondents representing hotels with a restaurant, 33% representing hotels without a restaurant, and 17% representing technology service companies. Of these companies, all have more than 10 employees, the majority (67%) have up to 50 employees, 16% have up to 250 employees, and 17% have more than 250 employees. In terms of turnover, 67% of the companies reported up to €2 million, 16% up to €10 million and 17% more than €50 million.

4. Results and Discussion

The results regarding the importance that the three groups of respondents attach to strategic partnerships between ESTH-IPG and stakeholders in TH are shown in Figure 2.

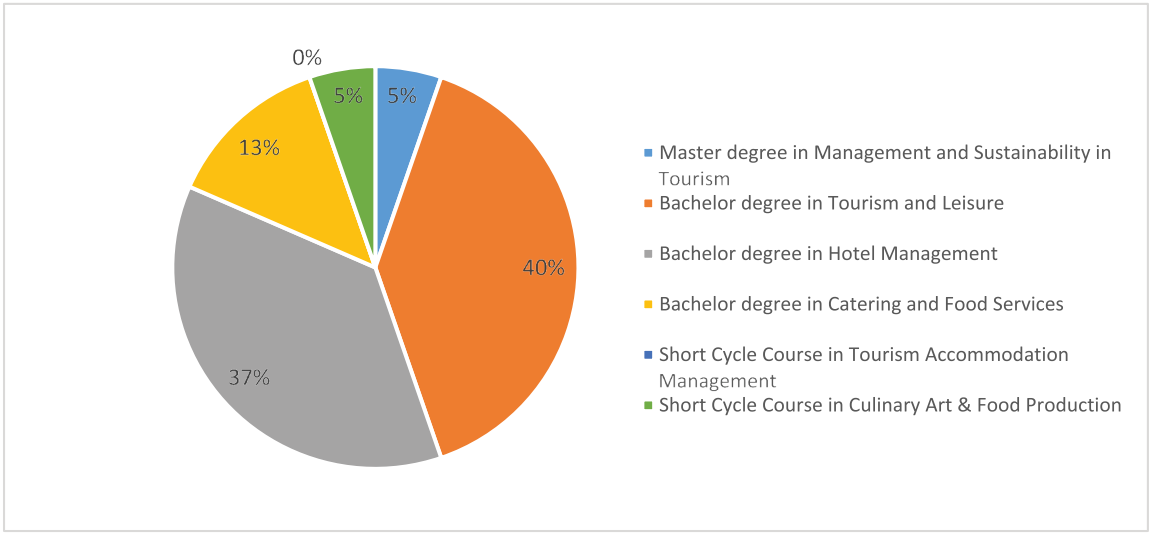


Figure 1. Distribution of responding students by course.
Source: Own elaboration based on conducted questionnaires.

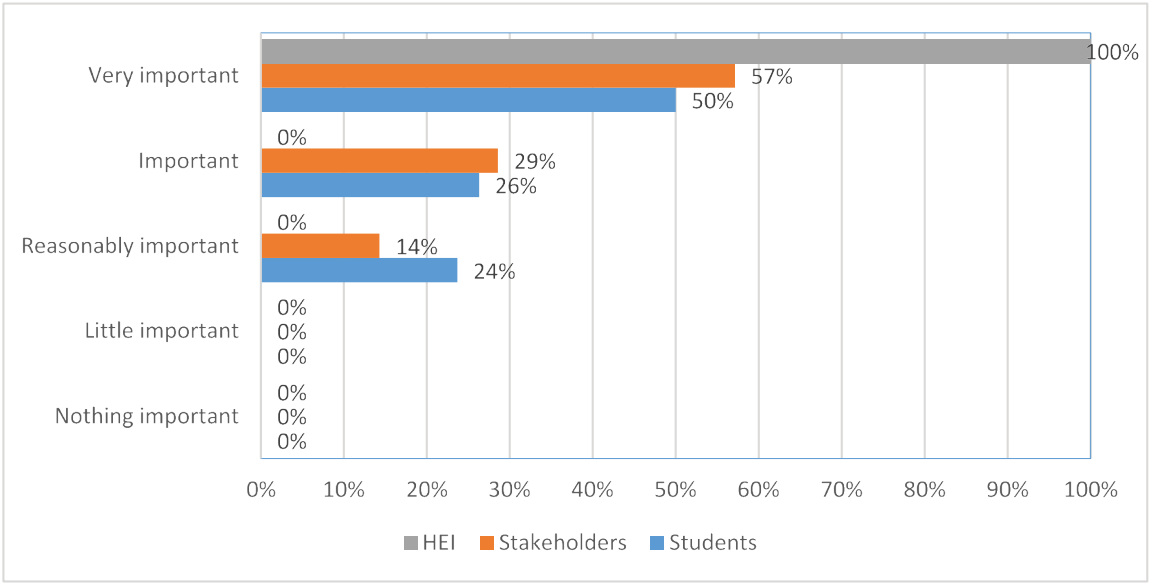


Figure 2. Importance attributed to the types of strategic partnerships between ESTH-IPG and stakeholders in the area of Tourism and Hospitality, by stakeholders, by elements of the HEI structure and by students.
Source: Own elaboration based on conducted questionnaires.

It can be seen that the three groups place a high value on the strategic partnerships mentioned above, highlighting that all respondent elements of the HEI structure (100%) consider them very important and that 86% and 76% of stakeholders and students respectively consider them important or very important.

Looking at the results separately for non-graduate and graduate students, it can be seen that the average value given to the importance of strategic partnerships between ESTH-IPG and stakeholders in the area of Tourism and Hospitality for non-graduate students is 3.95 (with a variance of 0.75) and for graduates it is 4.65 (with a variance of 0.37) and that the respective medians are 4 and 5, respectively. Between Reasonably important (3) and Very important (5), there is a more or less equal distribution among non-graduate students, although the highest percentage is in 3, and among graduates

Table 1. Importance attributed to strategic partnerships by current students and graduates

Importance of strategic partnerships	Not Graduate Student	Graduate	Total
Reasonably important	16[a]	2[b]	18
	88,9%	11,1%	100,0%
	38,1%	5,9%	23,7%
Important	12[a]	8[a]	20
	60,0%	40,0%	100,0%
	28,6%	23,5%	26,3%
Very important	14[a]	24[b]	38
	36,8%	63,2%	100,0%
	33,3%	70,6%	50,0%
Total	42	34	76
	55,3%	44,7%	100,0%
	100,0%	100,0%	100,0%

Each letter (a and b) indicates a subset whose proportions do not differ significantly from each other at the .05 level.
Source: Own elaboration based on conducted questionnaires

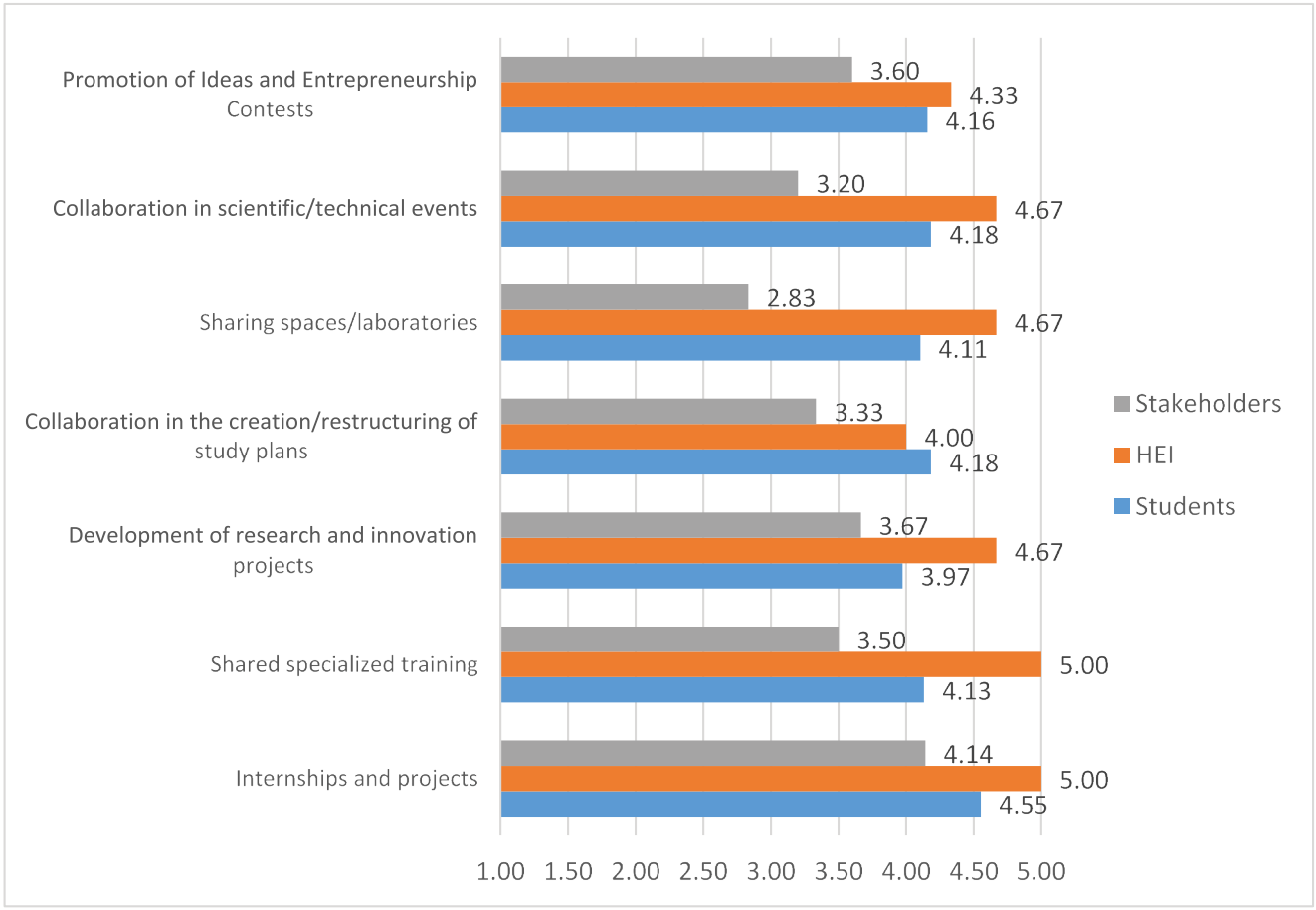


Figure 3. Priority attributed to types of strategic partnerships between ESTH-IPG and stakeholders in the Tourism and Hospitality area, by stakeholders, by elements of the HEI structure and by students.
Source: Own elaboration based on conducted questionnaires.

the concentration is clearly higher in 5, with 70.6% (Table 1). Only for value 4 (Important) the proportions do not differ significantly from each other at a significance level of 0.050, while there are differences for value 3 (Fairly important) and value 5 (Very important). In addition, using the Mann-Whitney non-parametric U test, and also at a significance level of 0.050, a *p*-value of 0.019<0.050 was obtained, thus rejecting the hypothesis that the distributions of the two groups are equal, i.e. confirming that there are statistically significant differences between these two groups, with graduates attributing greater overall importance to strategic partnerships between ESTH-IPG and stakeholders in the area of Tourism and Hospitality than non-graduate students, which is to be expected as they already have more experience and a greater vision of the future.

The results obtained by the three groups of respondents at the level of priority they attribute to the different typologies of strategic partnerships between ESTH-IPG and tourism and hospitality stakeholders are presented in Figure 3, based on the respective average values obtained from the responses on a scale from 1 - zero priority - to 5 - highest priority. For stakeholders, the scores in all typologies are lower than those of the other two groups. The most important typologies with average values above 3.5 are the implementation of internships and projects (4.14), the elaboration of research and innovation projects (3.67) and the promotion of ideas and entrepreneurship competitions (3.60).

Among the members of the HEI structure, all typologies had average scores greater than or equal to 4, but the highest average scores, greater than 4.5, were for internships and projects (5), joint technical training (5), elaboration of research and innovation projects (4.67), collaboration in scientific/technical events (4.67), and sharing of spaces/labs (4.67). It is noteworthy that two of these typologies correspond to those given the highest priority by stakeholders, and the last two correspond to those given the lowest priority by stakeholders (3.20 and 2.83, respectively).

Student responses reflect very similar prioritization across the typologies examined, with average scores ranging from 3.97 to 4.55. However, it is noticeable that the highest value corresponds to the implementation of internships and projects (5), as well as stakeholders and elements of the HEI structure. The second highest value given by students is collaboration in the creation/restructuring of study plans (4.18). This is the only typology where the value given by students is higher than that of stakeholders and elements of HEI structure, with the latter having the lowest average value (4.0).

Focusing on the subgroups of non-graduate students and graduates (Table 2), with regard to the level of priority given to the above-mentioned types of strategic partnerships between ESTH-IPG and stakeholders in the tourism sector, and applying the Mann-Whitney non-parametric test to all the types of partnerships covered in this study, we can conclude, with a significance level of 0.050, that only for "Shared specialized training", with $p = 0.005<0.05$, and for "Development of research and innovation projects", with $p = 0.033<0.05$, the hypothesis of equality of the distributions of the two groups is rejected, i.e. it is confirmed that there are statistically significant differences between these two groups in these two types of partnerships. In both cases, graduates give higher priority to strategic partnership topologies than non-graduate students.

Respondents were asked, through an open-ended question, to indicate the 3 main benefits they believe strategic partnerships bring to ESTH-IPG. The quantitative results were grouped into five categories and are shown in Figure 4, although it should be noted that not all respondents indicated all three benefits.

Stakeholders indicate as the most representative category of benefit of partnerships for the HEI the Articulation of internships/Linkage to labor market (44.4%), followed by coopetition (22.2%), understood here as simultaneous competition and collaboration, and the least representative category was image/positioning.

Regarding the elements of the HEI structure, the most representative category was the improvement of the teaching/learning process (33.3%), followed by coopetition, knowledge transfer/research/innovation/entrepreneurship and image and positioning (all with 22.2%), while the articulation of internships/connection to the labor market was not mentioned, which contrasts with the fact that it was the most frequently mentioned by external stakeholders.

As for the students, as for the elements of the HEI structure, the most representative category is the improvement of the teaching/learning process (33.3%), followed by image and positioning (23%) and knowledge transfer /research/innovation/entrepreneurship (17.2%), while the articulation of internships/connection to the labor market (12.6%) was the least mentioned, which is also contrary to the fact that it is the most mentioned by the stakeholders.

Similarly, respondents could indicate the top 3 benefits that strategic partnerships bring to TH stakeholders. In this case, the quantitative results were grouped into four categories, shown in Figure 5, although again it should be noted that not all respondents indicated all three benefits.

The most frequently cited benefit to stakeholders was human resources, with 45% of responses, followed by knowledge transfer/innovation (25%) and collaborations and image/positioning, each with 15% of responses.

For the representatives of the HEI structure, knowledge transfer/innovation is the most frequently mentioned category of benefit of strategic partnerships for stakeholders (36.8%), followed by the human resources category (30.3%) and the least mentioned category of benefit image/positioning (13.2%).

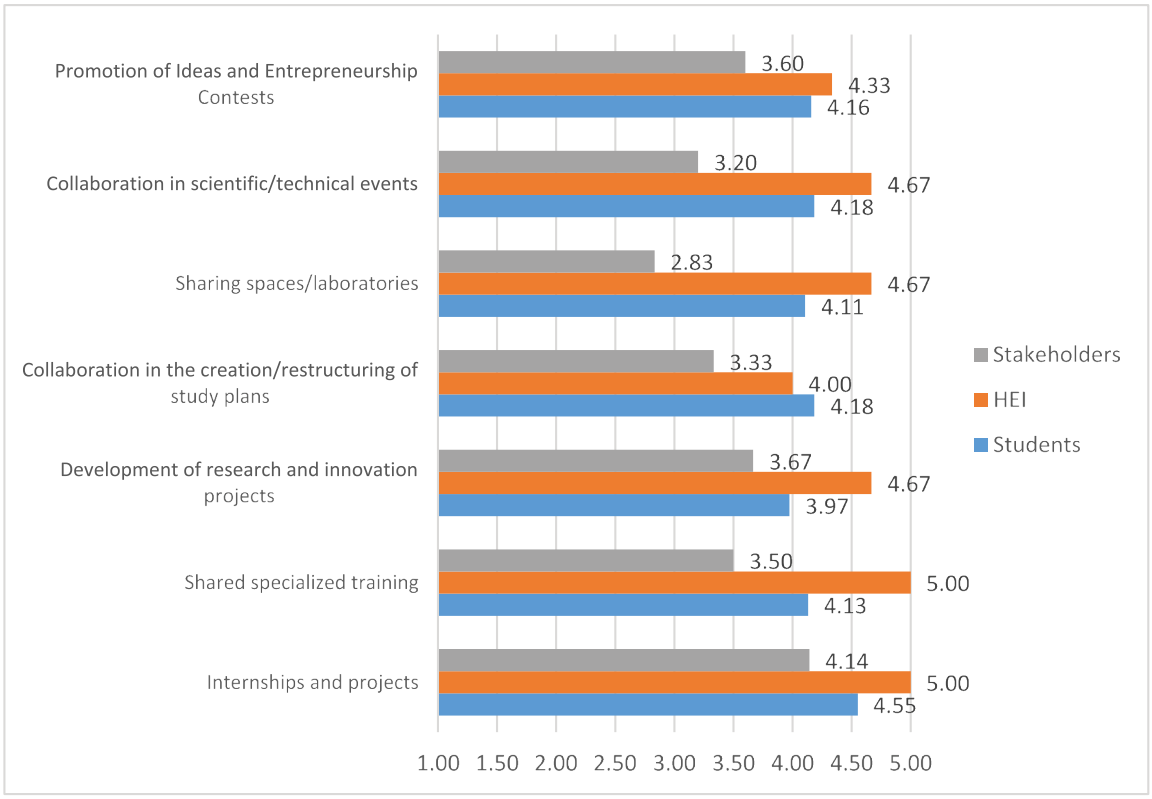


Figure 4. Categories of the main benefits that strategic partnerships bring to HEI.
Source: Own elaboration based on conducted questionnaires.

Table 2. Decision about null hypothesis with Mann-Whitney Test for the partnerships tipologies

Partnership Tipology	Sig.	Decision
Internships and projects	,308	Accept the null hypothesis
Shared specialized training	,005	Reject the null hypothesis
Development of research and innovation projects	,033	Reject the null hypothesis
Collaboration in the creation/ restructuring of study plans	,209	Accept the null hypothesis
Sharing spaces/laboratories	,581	Accept the null hypothesis
Collaboration in scientific/technical events	,199	Accept the null hypothesis
Promotion of Ideas and Entrepreneurship Contests	,101	Accept the null hypothesis

Source: Own elaboration based on conducted questionnaires

Regarding the 3 main benefits that strategic partnerships bring to HEI students, the quantitative results were divided into four categories, which are reflected in Figure 6, noting that not all respondents indicated all three benefits.
Of the four categories identified, bridge to employability was cited most frequently by stakeholders (61.9%) and second most frequently by HEI staff and students (33.3% and 30.2%, respectively), while training/skills was cited most frequently by HEI staff and students (44.4% and 41.9%, respectively) and second most frequently by stakeholders (28.6%). The other two categories, internship placement and innovation/ entrepreneurship, are mentioned least often.
In the context of strategic partnerships and for the question of what level of student and stakeholder involvement/ participation is considered appropriate in the development and/ or restructuring of a curriculum, a scale of 1 - No involvement to 5 - Maximum involvement was used. The results of the average scores obtained, shown in Figure 7, indicate values that correspond to above average to high participation.
The values for stakeholders show that stakeholders are considered to have a higher level of involvement (4) than students (3.57).
The HEI structure elements show identical levels of participation for students and stakeholders (3.67 in both cases), which corresponds to above average participation.
For students, the scores are very similar for both student and stakeholder levels of involvement (4.03 and 4, respectively), which is a higher rating than the other two groups surveyed.
Regarding the degree of importance attributed to the implementation of internships and projects integrated into the study plans, as well as the implementation of practical work related to real cases presented by stakeholders in the TH

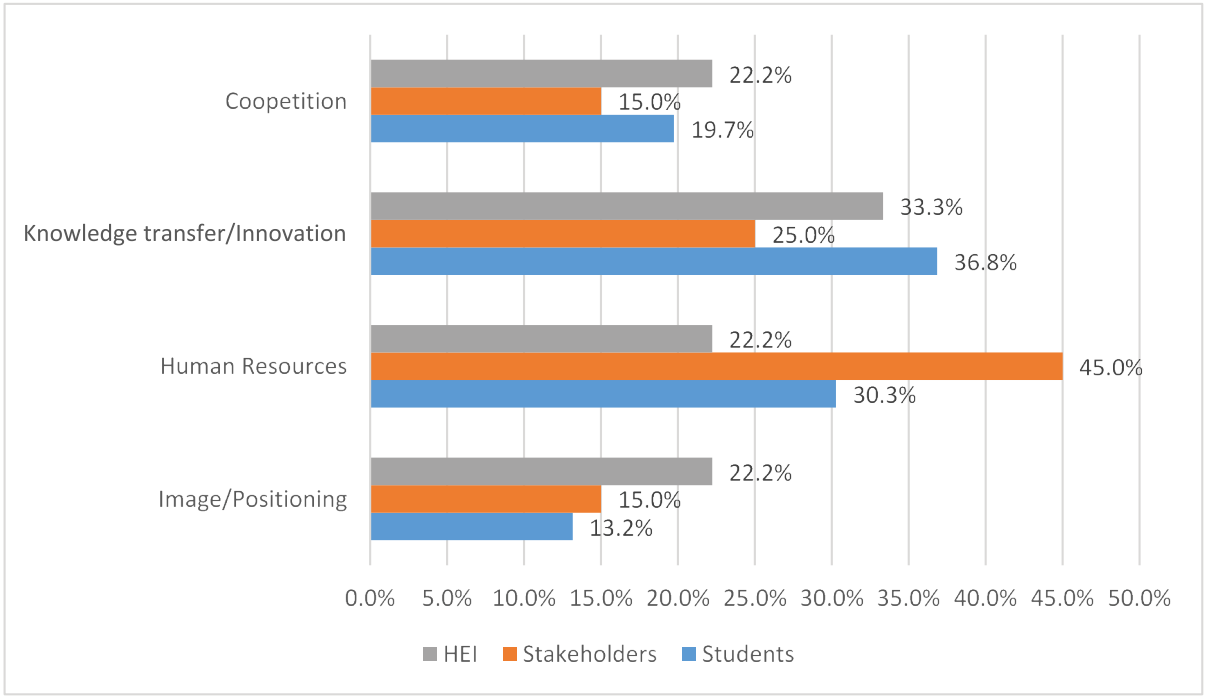


Figure 5. Categories of the main benefits that strategic partnerships bring to stakeholders in the Tourism and Hospitality area.
Source: Own elaboration based on conducted questionnaires.

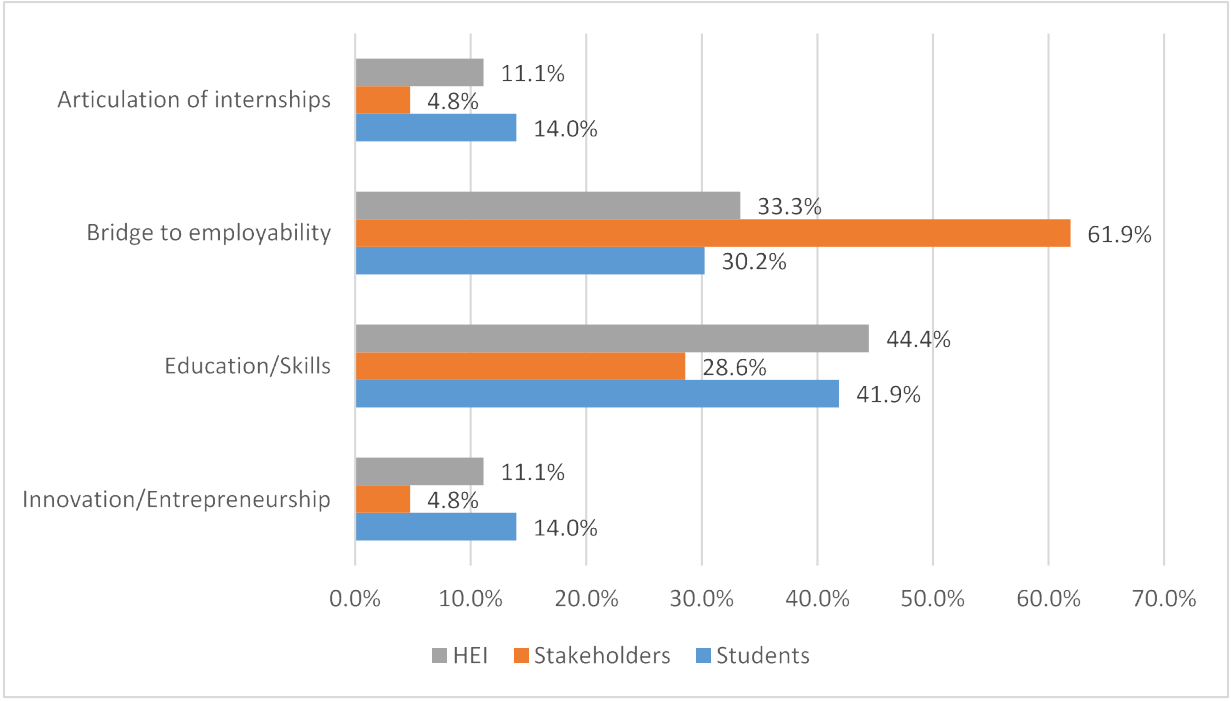


Figure 6. Categories of the main benefits that strategic partnerships bring to HEI students.
Source: Own elaboration based on conducted questionnaires.

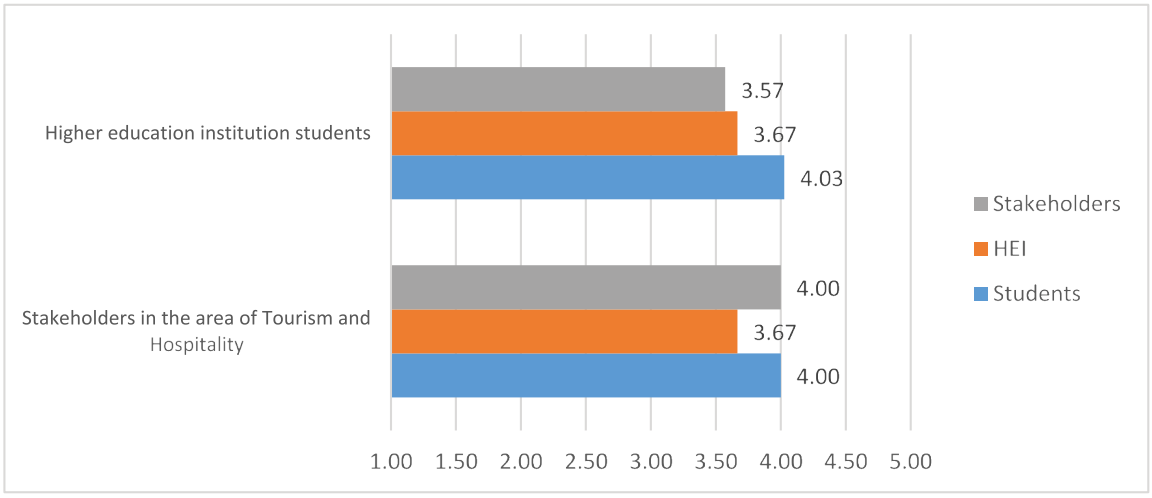


Figure 7. Averages of the level of participation/involvement of students and stakeholders that is considered adequate for the elaboration and/or restructuring of the study plan of a course.
Source: Own elaboration based on conducted questionnaires.

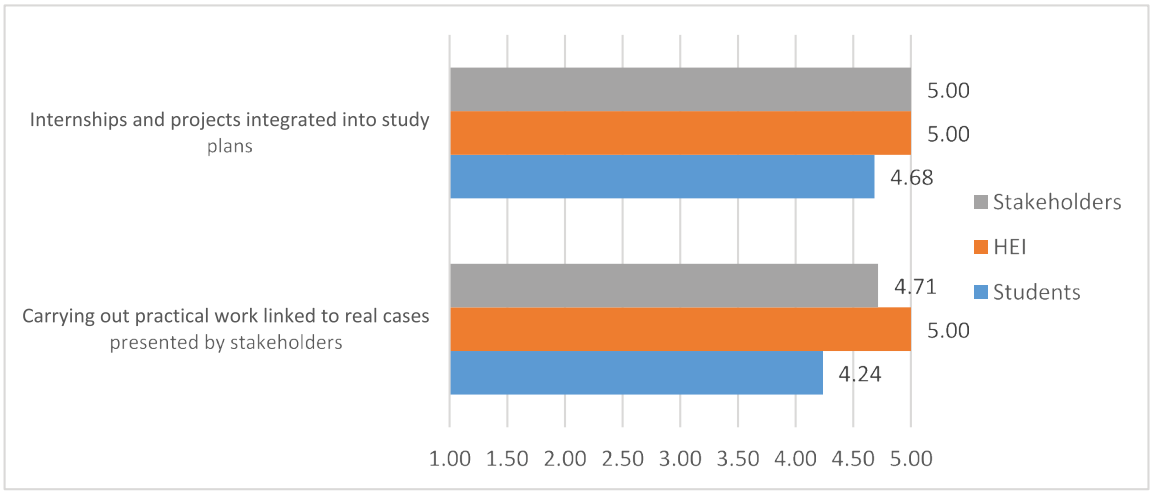


Figure 8. Averages of the degree of importance attributed to carrying out practical work linked to real cases presented by stakeholders in the Tourism and Hospitality area, as well as internships and projects integrated in the study plans.
Source: Own elaboration based on conducted questionnaires.

area, a scale from 1 - Not at all important, to 5 - Very important was used. The results of the average scores obtained, shown in Figure 8, clearly indicate the values that the three groups assign as important or very important to the two forms of collaboration between HEI and the stakeholders that also involve the students in their learning process.

Stakeholders and students assigned greater importance to conducting internships and projects integrated in the study plans (5 and 4.68, respectively) than to the realisation of practical work linked to real cases presented by stakeholders in the field (4.71 and 4.24, respectively), with the average scores of stakeholders being higher than those of students.

The HEI structure members attributed the highest importance to both situations in question (average score 5 in both cases). Regarding the years in which curricular internships should take place, and as can be seen in Figure 9, both stakeholders and students clearly favor internships in all years (71% and 82%, respectively), with a much smaller percentage favoring internships in the 2nd and 3rd years (29% and 13%, respectively). On the other hand, members of HEI favor the hypothesis of internships in all years (33%), the hypothesis of internships in the 2nd and 3rd years, and the hypothesis of internships only in the 3rd year, with the latter hypothesis shared by 5% of students.

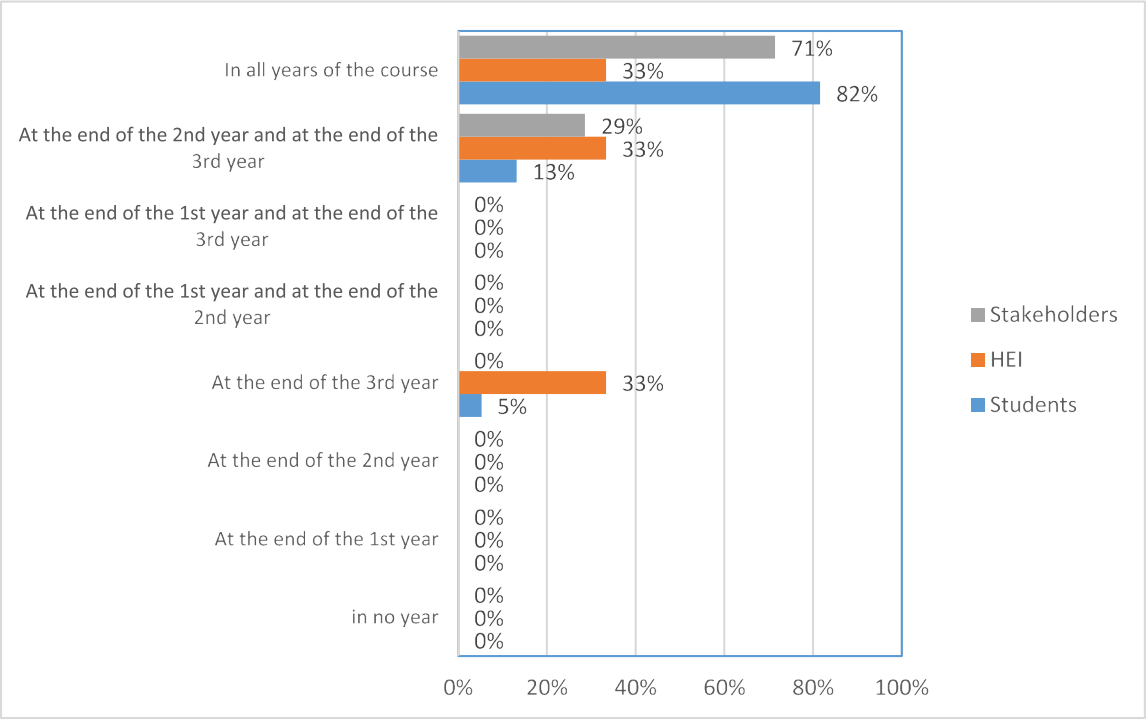


Figure 9. Year(s) in which the curricular internship(s) must take place.
Source: Own elaboration based on conducted questionnaires.

The data collected and analyzed allowed us to understand the perspectives of the different stakeholders in the academic environment regarding the importance that strategic partnerships have between ESTH, the case study under consideration, and stakeholder organizations in the TH area. It can be noted that, in general, a high level of importance is attributed to the strategic partnerships of HEIs, with the opinion of the members of the internal structure of HEI itself standing out. The main conclusions that emerge from this study are presented below.

5. Conclusions

Typically, applied disciplines such as TH require by their very nature that HEIs build and leverage strong relationships with industry and the surrounding community to pursue best teaching practices, new research opportunities, resource sharing, the creation of internship and employment programs, and other multiple benefits as outlined in the theoretical matrix.

With this in mind, it is important to build sustainable and balanced strategic partnerships that benefit all parties. The long-term success of these partnerships depends on proper planning, setting clear and rigorous goals, building solid relationships of trust between the parties involved, and ensuring compatibility of interests and principles to guide collaboration and avoid potential future conflicts.

The research shows that the establishment of partnerships between a HEI and various stakeholders is an effective method of sharing resources, whether human, financial, technological, or logistical, that are often not available and/or accessible within the institution. HEIs are using new approaches that are not limited to theoretical models, but also incorporate integrated learning methods based on on-the-job practice and enable the introduction of formal training in TH, thereby raising industry service standards and promoting the competitiveness of the sector. In the context of this research and taking into account the case studied, all stakeholders clearly believe that the existing collaborations promote the preparation of a better qualified workforce that meets the needs of the labor market and that the Academy has benefited in the development of efficient teaching programs.

At the same time, all parties assumed that established partnerships are of interest and add value, often leading to the creation of internship programs and employment opportunities that enhance student employability and allow host institutions to better prepare students for the labor market.

The survey also found general agreement that the partnerships established have helped strengthen the

reputations of both parties and that there has been a two-way transfer of technology and knowledge between HEI and partner organizations.

In the context of intercultural relations, the importance of creating international partnerships with other HEIs or organizations in different countries that allow students and faculty to experience a global perspective and learn from different cultures the practice of new methods, techniques and tools in the field HT is confirmed.

However, the study has some limitations, such as the fact that it was applied to a single HEI, which limits the drawing of generalizable conclusions and the extrapolation of the results to other realities. However, it may allow us to establish a focus of interest for the development of future studies in this area at other HEIs, and to develop more global comparative studies of the higher education system in the future with the results obtained.

Another limitation relates to the number of responses to the surveys conducted and the variability in the types of stakeholders interviewed, of which it would have been desirable to have a larger and more diverse number for a more informed analysis.

It can be concluded that there are several authors who have studied the scope of strategic partnerships in the context of higher education institutions and their stakeholders. At the level of the TH sector, it is important to conduct in-depth and specialized research to obtain a more comprehensive knowledge, both at the level of available academic literature in the field, which is more challenging, since the availability and access to documents and information may vary depending on the policies of each HEI.

This study has shown the need to involve more industry representatives, at a higher level than the traditional approach. The experience from the case study shows that once contact is made with higher hierarchical structures and agreement is reached, relationships can be operationalized more vigorously and with more commitment than when the relationship is established with lower organizational levels. In this sense, it will be necessary to develop tools that will allow a continuous and adequate dialog, monitoring the partnerships and the benefits for all parties involved in the TH sector,at the level of education, training, corporate structure and sectoral governance.

Funding and acknowledgements (optional)

This work is supported by National Funds through FCT – Fundação para a Ciência e a Tecnologia, I.P., under the project Refª UIDB/04470/2020.We would also like to thank the Center for Research, Development and Innovation in Tourism (CiTUR), UDI – Research Unit for the Development of the Interior and the Polytechnic Institute of Guarda.

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

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DOI: 110.34620/978-83-67405-28-7-016 • 2024 • 136-147

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Proceedings of the International Tourism Congress 23

“Azores - all in blue” case study: evaluation of the tourism offers in azores for families with children with autism spectrum disorder

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Abstract

There are few studies focused on the development of inclusive tourism products for families with children with Autistic Spectrum Disorder, and even fewer that seek to proceed with its empirical validation. The present work describes the creation and development process of inclusive tourism products in the Azores for these families and evaluates its implementation. Five families participated in the study. A mixed methodology was used, integrating quantitative and qualitative data. The results indicate that all-inclusive measures and conditions implemented positively impacted the child’s well-being. Parents evaluate the child’s experience in each phase very positively. The training and customer service skills of professionals are the most valued aspects. In the qualitative assessment, families reported the happiness and well-being of the children as the main justifications for their evaluation and the possibility for caregivers also to relax and, at the same time, enjoy leisure time with the family. We conclude that it is essential to evaluate tourist offers to validate their adequacy and to identify aspects to improve, searching for continuous improvement.

Keywords

Autism spectrum disorder • Children • Inclusive tourism • Impact • Well-being

1. Introduction

There has been increasing interest and research in the field of tourism for families with children diagnosed with autism spectrum disorder (ASD). Studies have focused on this population’s difficulties and tourist needs (e.g., Freund et al., 2019). However, few studies have outlined inclusive tourism products for these families and that seek to proceed with their empirical validation (e.g., Chiscano et al., 2021; Lussenhop et al., 2016) assessing the tourist experience of the child and family (Amet, 2013), and its impact on the well-being of the child with ASD.

The present work intends to describe the creation and development process of inclusive tourism products in the Azores for families with children with ASD and to evaluate its implementation.

For a better understanding of the process of development and implementation of inclusive offers for these families, in the theoretical framework, the condition of ASD and its impact on children and families are described, as well as the role that tourism can assume in the quality of life and minimisation of the impact. It then addresses the obstacles these families face in accessing tourist and leisure experiences and the measures and practices indicated by the literature to increase their accessibility and inclusion.

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2. Literature Review

2.1. Children with ASD condition: characteristics, impact, and possibilities for tourism

Literature and research have indicated the economic potential of tourism aimed at people with disabilities or special needs (Dwyer & Darcy, 2011; Gillovic & McIntosh, 2020), which includes people diagnosed with ASD and, specifically, children (Conde et al., 2023).

Tourism is an increasingly competitive market, so companies must consider specific market sectors to gain competitive value and customer loyalty (Zadadacz, 2015). The most recent data from the World Health Organization (2022) indicates that worldwide, one in 100 children is diagnosed with ASD, and research has shown an increase in ASD prevalence among children in recent decades (Chiaorotti & Venerosi, 2020; Zeidan et al., 2022).

So, given the high prevalence of ASD, families with children with ASD are an essential market sector and represent business opportunities for tourism (Chikuta et al., 2018), namely if it provides inclusive tourism offers and services that consider the specificity of their needs and preferences.

To develop inclusive tourism products for families with children with ASD, tourism companies and professionals need to understand the specific characteristics of children with ASD, know their needs and be able to respond to the demands of this target audience adequately. For that, they must be aware of the characteristics of the ASD diagnosis and the impact on the child and their families.

There are four primary clusters of difficulties that define ASD (APA, 2013), specifically, social interaction (establishing eye contact, understanding facial expressions, demonstrating feelings, developing relationships with others), communication (lack of language or repetitive language, difficulties in starting or maintaining a conversation); (iii) behaviour (extreme linking to routines, presence of tics or stereotypies, disproportionate interest in specific things, difficulties using imagination), and sensory sensitivity (differences in sensory tolerance level).

In addition, ASD is a spectrum disorder because its symptoms can appear in a variety of combinations and degrees of severity (Akyildiz & Pan, 2021; APA, 2013). According to the effects of the diagnosis on the child's functionality, the severity of the condition can range from mild to severe. It may change throughout a child's life, depending on the stimulation and experiences (Akyildiz & Pan, 2021).

Those four sets of difficulties described above may range in severity. For instance, a child may have moderate behavioural issues but severely limited social skills. Because it is impossible to generalise, understanding each child's degree of capability is more important than knowing the clinical diagnosis. It is necessary to consider the unique characteristics of each child and his or her family, including limitations and capacities, to create tourist offers for this group. Both the child's life and the lives of their family or caretakers are impacted by ASD. A child's ability to perform daily tasks and take part in travel and leisure activities may be considerably restricted by the features of an ASD diagnosis. This restriction is made worse by limited access to tourism-related services and activities as well as inadequate and poorly trained existing responses. This situation may produce significant obstacles to the potential of children with ASD to engage in tourism activities under equal conditions, encouraging exclusion and prejudice (Michopoulou et al., 2015).

Health professionals have highlighted the quality of life of people with ASD, namely their physical well-being (implies recreation, physical activity, and leisure) and emotional well-being (feelings of pleasure, happiness, reduced levels of stress), the promotion of their interpersonal relationships (interaction with others and social support) and their social inclusion (involvement in community activities) (Schalock, 2000; Saldana et al., 2009). Globally, these are inherent and intrinsic aspects of tourism, which is why it is increasingly seen to promote and improve the quality of life of children diagnosed with ASD (Hamed, 2013).

It should be noted that contextual factors, in conjunction with other factors, can contribute to decreasing the characteristics and impact of ASD (Petrina et al., 2014). In this logic, the challenges arising from the characteristics of children with ASD can become opportunities for tourism companies. The offer of appropriate tourist products that consider measures adjusted to the child can constitute resources to increase their functionality, well-being, and quality of life. These children respond well to well-structured, supportive, predictable contexts that could respond appropriately to their specific needs, and tourism can be assumed as a privileged area for this purpose.

Concerning the impact of ASD on the family, research indicates that parents of children with ASD as caregivers are subject to high levels of demand and overload (Geráin & Zech, 2018), revealing worse mental health indicators when compared to the general population (Da Paz & Wallander, 2017). Caring for a child with ASD can have a profound impact on the quality of life of parents/caregivers, affecting all daily spheres and in several domains, compromising their satisfaction with life (Dardas & Ahmad, 2014). It is a demanding task, given that children with ASD depend, to a varying degree, on another person to carry out their daily tasks and continuous therapeutic support. The figure of parents/caregivers becomes fundamental for maintaining their well-being. In addition, the stigma associated with ASD - which entails barriers, rejection, and discrimination - has been identified as one of the factors that most contribute to weakening the mental health and well-being of these caregivers (Papadopoulos et al., 2019).

Thus, children, family members or caregivers require attention from tourist companies and need leisure and recreation experiences (Pinquart & Sörensen, 2007). Tourism can offer family leisure activities, which promote interaction and communication between family members (Cloquet et al., 2018). Several authors indicate that family leisure activities improve family functioning: communication, interaction, cohesion, and well-being (Cloquet et al., 2018; McCabe & Johnson, 2013). Considering the enormous burden these parents have (Sedgley et al., 2017; Townsend & Van Puymbroeck, 2017) resulting from the daily challenges and responsibilities they face (Cloquet et al., 2018), family tourism and leisure activities can assume a central role.

2.2. Accessible tourism: Obstacles that families with children with ASD face in access to tourism

Families with children with ASD face various obstacles when accessing tourism and travel experiences (Conde et al., 2023; Freund et al., 2019). These challenges range from sensory sensitivities (Andersson & Tuuri, 2020; Chiscano, 2021) to communication difficulties (Conde et al., 2023; Freund et al., 2019; Sak et al., 2020).

Sensory overload is one of the main obstacles (Andersson & Tuuri, 2020; Chiscano, 2021). Children with ASD can be highly sensitive to sensory stimuli, such as loud noises, bright lights, and crowded places (Weyn et al., 2022). Many tourist destinations, including airports, theme parks, and popular attractions, can be overwhelming due to these sensory factors, making it difficult for children to participate and appreciate the experience (Kohl & Barnett, 2020; Neo & Flaherty, 2019; Sedgley et al., 2017).

The lack of familiarity with the contexts is also difficult (Conde et al., 2023; Hamed, 2013). Children with ASD need routines and predictability. Travelling to new and unfamiliar destinations disrupts their routines, and they need to adapt to the change in routine and environment (Hamed, 2013). Not having enough information about the trip, the tourist destination, spaces, places, and activities does not allow anticipation and familiarisation (Neo & Flaherty, 2019; Kohl & Barnett, 2020), which can cause anxiety and stress for both the child and the family.

Lack of knowledge and comprehension on the part of tourism professionals (Freund et al., 2019; Hamed, 2013; Sak et al., 2020). Many professionals, including hotel staff, tour guides, and restaurant employees, may not be familiar with the characteristics and needs of children with ASD. This can lead to misunderstandings, miscommunication, and even discrimination (Conde et al., 2023; Freund et al., 2019; Sak et al., 2020).

Many children with ASD have problems with communication and interaction with others. So, communication difficulties could be another obstacle. Most tourist services do not provide information accessible to the child's understanding (Hamed, 2013; Chiscano, 2021; Sedgley et al., 2017), and professionals may not be able to understand the child and may not know how to communicate and interact appropriately with the child (Chiscano, 2021; Hamed, 2013). This can generate frustration in the child and contribute to the isolation and social exclusion of the child and family.

There is a lack of inclusive conditions and practices in the various tourist services, from accommodation, transport, and restaurants to recreational and leisure tourist activities (Hamed, 2013). For example, the excessive waiting time to access different services and activities, non-adapted and very restricted food menus, and tourist activities that are not very diversified and not adapted to the needs of children with ASD (Freund et al., 2019; Hamed, 2013).

Families find it difficult to find accommodation that meets children's sensory needs and behaviours, with quieter rooms, without fluorescent or bright light, without too many objects (Schaaf et al., 2011) and with accessible, quiet spaces for sensory breaks (Hamed, 2013).

Studies and literature also indicate that families face a lack of diversified activities that meet the needs and preferences of the child (Andersson & Tuuri, 2020; Sak et al., 2020). Thus, it becomes difficult for the family to keep the child busy, which may cause irritability or meltdown crises (Andersson & Tuuri, 2020; Conde et al., 2023). On the other hand, the lack of professionals with specific training in ASD and child development does not allow the provision of leisure and recreational activities that promote the child's development and respond to their needs (Freund et al., 2019; Sak et al., 2020).

Another specific obstacle that families face is the need for more tourist services with qualified technicians to take care of children in tourist contexts or during leisure activities (Andersson & Tuuri, 2020; Schaff et al., 2011; Kim et al., 2018). This also makes it impossible for parents to enjoy time for themselves and relax, being in constant hypervigilance (Schaff et al., 2011; Kim et al., 2018; Sak et al., 2020).

It is necessary to eradicate these obstacles and consider their needs and worries to create inclusive tourist offers for families with children with ASD.

2.3. Measures and conditions to make tourism accessible to children with ASD

As already indicated, literature and research have focused on identifying and describing obstacles but have simultaneously suggested some measures and guidelines to make tourism accessible to this population (Conde et al., 2023). Below, we briefly present the leading suggestions indicated in the literature:

- One of the main recommendations is to create or adjust conditions that meet the sensory needs of children in all

contexts of the tourist offer. This may involve reducing overload, adapting lighting, controlling noise, and minimising objects or visual clutter (Freund et al., 2019; Kohl & Barnett, 2020; Schaff et al., 2011); providing stimulus control devices (e.g., glasses, headphones) (Hamed, 2013); create quiet low-stimulation spaces (Chiscano et al., 2021; Neo & Flaherty, 2019; Freund et al., 2019) within airports, hotels, restaurants, as well within or close to places where tourist and leisure activities take place; provide rooms more reserved and silent (Schaff et al., 2011; Sedgley et al., 2017).

- Give priority access to avoid queues and long waiting times (Andersson & Tuuri, 2020; Chiscano, 2021; Freund et al., 2019; Kohl & Barnett, 2020). This includes check-in at the airport and hotel, access to tourist places and activities, restaurants, transport, etc.
- Offer diversified and well-structured tourist leisure activities that meet the child's preferences and needs (Andersson & Tuuri, 2020; Freund et al., 2019; Sedgley et al., 2017).
- Familiarise the child with the spaces, places, and activities of the tourist offers. This implies providing detailed and specific information accessible to the child using pictures, videos, or social stories (Andersson & Tuuri, 2020; Freund et al., 2019; Sedgley et al., 2017). It also implies providing visual itineraries with pictures that allow the child to understand the activities, from beginning to end; attractive maps with pictures of the places to visit and the hotel itself; pictographic signs indicating the main places or services (e.g., bathroom, space to calm down) and even expected rules or behaviours (e.g., use headphones, not go to the water without an adult).
- Include therapists specialised in child development and ASD in the staff (Anderson & Tuuri, 2020; Freund et al., 2019; Sak et al., 2020), mainly in implementing activities and supporting children and families when necessary. This is a measure that can make a difference in a tourist offer.
- Finally, a recommendation that is considered essential for the inclusion of families with children with ASD is to provide training to staff, including front-line employees, tour guides, and hospitality personnel, to help them understand the characteristics of ASD, how to communicate effectively, and how to provide appropriate support (Andersson & Tuuri, 2020; Freund et al., 2019; Kohl & Barnett, 2020).

Although the literature indicates many guidelines for measures and practices to be implemented, only some studies seek to assess the effectiveness of their implementation (Conde et al., 2023). No study addresses implementing and evaluating inclusive measures and conditions for all stages of a tourist trip. The "Azores - ALL IN BLUE" project was born in this context. It sought to develop inclusive tourism products for families with children with ASD, covering all stages and assessing their impact on the child and family's well-being.

3. Methodology

3.1. Objectives

This work has two main objectives: (i) describe the process of developing and preparing "Azores - ALL IN BLUE" inclusive tourism products for families with children with ASD in the Azores and (ii) validate the suitability of tourism products by assessing the tourist experience of families and children and its impact on the well-being of children.

3.1. Recruitment, instrument, and data collection procedure

The dissemination of inclusive tourist offers for families with children with ASD was carried out using institutions/associations that work with this population. As this is a pilot study, to assess the suitability of tourist offers, some compensation was given to families (discounts on accommodation or tourist activities). Five families were available to experience and evaluate the tourist offers, and the study took place in May 2023.

A questionnaire was developed specifically for the present study, focusing on the characterisation of the family and the child who participated in the tourist experience (number of family members, age and gender of the child, diagnosis and level of severity, school year, frequency with which child does leisure/tourism activities with the family), the assessment of each stage that made up the tourist experience (travel agency, plane travel, transport in the Azores, accommodation and catering, tourist activities) and the assessment of the overall tourist experience. Specifically, it seeks to assess the impact of each condition/practice on the child's well-being and comfort on a Likert scale (from negative to very positive) to assess the child's and family's experience at each stage of the tourist trip on a scale of 0 to 10 (0 being the worst possible experience and 10 being the best possible experience). For a more complete picture of the experience, open questions of a qualitative nature were asked for the family to justify their assessment and indicate the most positive aspects and suggestions for improvement. So, the questionnaire stimulated families to give personal details of their experiences and notice the positive and negative aspects of the tourist products and their impact on the child's well-being.

Data was collected online via Google Forms after the tour experience ended. An informed consent was signed before filling it out, safeguarding voluntary participation and anonymity. Those who agreed to participate marked the option "I agree to participate in the study". All families accepted and

completed the questionnaire on the adequacy and impact of tourism products.

3.2. Participants

Five families participated in the study (see Table 1) and had a two-day tourist experience. All respondents to the questionnaire were mothers aged between 26 and 48 years (Mean = 38 years; SD = 7,874), although the fathers had also participated in the tourist experience. All children with ASD are male, aged between 5 and 12 years (Mean= 7.60; SD= 2.702) and have a level of severity between mild and moderate. It should be noted that regarding the youngest child, the family does not yet have information about the severity level of ASD.

3.3. Data analysis

A mixed methodology was used, integrating quantitative and qualitative data. This methodology is particularly indicated when assessing the implementation of new practices (Wisdom & Creswell, 2013), so it is the most suitable for this study.

Descriptive statistics were used to analyse quantitative data using the software Statistical Package for the Social Sciences (SPSS, version 22).

The qualitative data (the answers obtained in the open questions about the tourist products and experience and their impact) were analysed using content analysis (Schreier, 2012). It is a data analysis technique that rigorously locates and explains the meanings found in textual data (Drisko & Maschi, 2016). Inductive content analysis (data-based coding), which generates all categories and conclusions from what was reported by the participants, was utilised to consider the descriptive and exploratory nature of this study's component (Bengtsson, 2016; Erlingsson & Brysiewicz, 2017). This analysis technique allows the systematic and rigorous identification and description of the main ideas/meanings in written data (Drisko & Maschi, 2016). The coding process followed the inductive process; that is, the categories were created from the data (data-driven), given the descriptive and exploratory dimension of the study (Bengtssson, 2016; Erlingsson & Brysiewicz, 2017). Therefore, all categories and conclusions are based on the written reports of the families, with no a priori codification framework.

Nvivo14 software was used to organise, code, and categorise the data. A co-coder was used to validate the analysis process and the results: the coding process was carried out jointly, discussing the adequacy, coherence and pertinence of each code and category.

3.4. The development and preparation of inclusive tourism products for families with children with ASD

The development and preparation of tourism products are integrated into five stages:

Stage 1 - A systematic research and literature review on tourism aimed at children with ASD was conducted. This review identified the primary needs of children and their families, their obstacles, and some guidelines to consider in tourist offers (see Conde et al., 2023).

Stage 2 - A study was implemented that sought to identify and characterise the tourist needs and preferences of families with children with ASD from various world regions (see Conde et al., forthcoming). The results obtained indicated that tourism companies should, in strategic terms, create and promote tourist offers that highlight what the family values most: create accommodation conditions that consider the child's sensory and behavioural needs, with more reserved spaces and without obstacles; create scripts and activities adapted to the characteristics of the child; provide activities that integrate a therapeutic aspect and contribute to the promotion of child development; and be assisted by professionals with training in inclusive tourism aimed at families with children with ASD, who know and use appropriate forms of communication and assistance.

Stage 3 – Training companies and tourism professionals from various sectors (transport, accommodation, catering, tourist activities) on inclusive tourism for families with children with ASD. The training lasted 42 hours, 28 hours of a theoretical-practical nature (characterisation and impact of ASD and its specificities; families with children with ASD as a target audience to be privileged in tourism; the tourist needs of children with ASD and their families; inclusive conditions and practices in the various tourism sectors for families with children with ASD) and 12 hours of practical application (customer journey, application/adaptation of inclusive conditions and practices in each tourism sector).

Table 1. Participants

Families	Family members on the tourist experience	Nationality	Child's age	Child's sex	ASD level	Number of days on the tourist experience
F1	Parents and child	Portuguese	5	Male	No information	2
F2	Parents and child	Portuguese	7	Male	Mild	2
F3	Parents, child, and brother	Portuguese	8	Male	Moderate	2
F4	Parents and child	Portuguese	12	Male	Moderate	2
F5	Parents and child	Portuguese	6	Male	Moderate	2

Source: The authors of this work.

Stage 4 - Based on the information collected in Stage 1 and the results of Stage 2, associating them with the scientific knowledge and clinical practice of professionals trained in ASD and child development, as well as considering the feedback and contributions of professionals and companies that participated in the training, the tourist offers were designed and prepared. The offers consider all stages of a tourist trip: travel agency, flight, transport at the destination, hotel, catering, and tourist activities.

During designing and preparing, visits were made to partner companies' locations/services (hotels, leisure and therapeutic activities, transfers, etc.) to map existing resources and conditions and propose any necessary changes or adjustments. In addition, permanent consultancy was provided to partners.

Stage 5 - Presentation of tourist offers/products (with the possibility of choosing and adjusting) according to the specificities of the child and family. At this stage, families' requests to experience the tourist offers were handled by the tourism agency that integrates "Azores - ALL IN BLUE". Each family was asked to fill out a previous questionnaire to obtain the profile of the child and the family, as well as gather information about their needs, interests, and tourist preferences. This procedure was crucial as it allowed for identifying and presenting options for each family's specificities and adjusting to the different sectors/tourist services involved. Specific inclusive practices and conditions were defined for each sector/service/company involved: the travel agency, the flight (airport and airline), transport in the Azores (transfer), the hotel and the hotel restaurant, and the tourist activities.

The tourist activities included in the "Azores - ALL IN BLUE" offer were the following:

- Ludic tourism activities - pedagogical farm with animals; horseback riding/equestrianism; dolphin and whale watching.
- Tourism activities with a therapeutic component - activities in an aquatic/hydrotherapy environment (beach, lagoons, pools and spas); ludic-therapeutic sessions in gardens/ natural parks; ludic-therapeutic sessions in indoor spaces (e.g., playroom).

4. Results and Discussion

The results will be presented according to each stage/service included in the tourist offer, integrating quantitative and qualitative results.

First, about the characterisation of the children with ASD who participated in the study, it should be noted that they are all male. This is because the prevalence of ASD is higher in boys compared to girls (Possurud et al., 2021; Salari et al., 2022). Prevalence studies indicate ratios between 3:1 (Loomes et al., 2017) and 4:1 (Fombonne, 2009) in male females.

About the travel agency, all families indicated that the questionnaire requested by the travel agency contributed "a lot" or "quite a lot" to greater confidence and less apprehension regarding tourist travel in the Azores. All also indicated that the travel agency planned the trip according to the family's information, answering "yes". In the qualitative assessment, they reported that their options met the children's needs and preferences. They highlighted the customer service ("empathy with the child and family"; "understanding and concern for the well-being of the child and family") and the particularity of considering the child's sensory specificities ("seeking to know the child's sensory sensitivities and providing activities according to their difficulties").

These results reveal the importance of adequately planning the trip and corroborate the literature that indicates the need to respond to families' concerns with the child's sensory specificities (e.g., Freund et al., 2019; Sak et al., 2020). On the other hand, they also confirm the importance of having professionals who know and understand the characteristics and needs of children with ASD (Conde et al., 2023; Sak et al., 2020).

Regarding the flight stage, only two families needed to travel by plane. In this context, both indicated that almost all present inclusive conditions/practices had a "positive" or "very positive" impact, except for one family that evaluated priority access to security procedures as "indifferent" (see Table 2). However, it is worth noting the identification of some non-existent conditions, namely having "a sensory room or more reserved space adjacent to the departure point" and having "professionals prepared to assist families with children with ASD and who knew how to deal with the child". Their qualitative assessment reported the need for "distraction for the children while waiting for boarding" and "faster service". These results draw attention to the need to create sensory rooms at airports, which aligns with other studies and the literature (e.g., Chiscano, 2021). In addition, it should be noted that not all airline professionals have been trained in inclusive tourism aimed at families with children with ASD, which may justify one of the families having indicated as a "non-existent condition" the preparation of professionals to care for children with ASD.

Regarding the transport used to move when they arrived in the Azores (the transfer), families indicated that most conditions/practices had a "positive" or "very positive" impact on the child's well-being (see Table 3). Only the family with the oldest child (aged 12) indicated the protection of the windows against sunlight, the sensory kit, and the vehicle being silent as "indifferent". This aspect may reveal the specificity of the child's age group – despite having a moderate level of ASD, he does not seem to need as many sensory requirements.

Table 2. Flight - the impact of each condition/practice on the child's well-being and comfort (N=2)

Condition/Practice	Impact on child well-being and comfort			Non-existent condition	Not applicable
	Negative	Indifferent	Positive or very positive		
Professional who helped them through the airport until boarding	__	__	2	__	__
Priority check-in access	__	__	2	__	__
Personal assistance at crucial points - check-in, security checks, boarding, arrival at destination airport	__	__	2	__	__
Priority check-in access	__	__	2	__	__
Priority access to security procedures	__	1	1	__	__
Priority boarding access	__	__	2	__	__
Special in-fight care and assistance, if needed	__	__	2	__	__
There was a sensory room or reserved space adjacent to the departure lounge.	__	__	__	2	__
Special permission for the child to board with a favorite toy or object	__	__	1	__	1
Professionals prepared to assist families with children with ASD and who knew how to deal with the child.	__	__	1	1	__
At the destination airport, there was priority and assistance with baggage collection.	__	__	2	__	__

Source: The authors of this work.

Table 3. Transport – the impact of each condition/practice on the child's well-being and comfort (N=5)

Condition/Practice	Impact on child well-being and comfort			Non-existent condition
	Negative	Indifferent	Positive or very positive	
The articulation of the transport service with all the services involved in the tourist experience (accommodation, activities/tours, travel agency), complying with the planned schedules.	__	__	5	__
A professional from the transport company duly identified who received us at the airport and accompanied us to the transport vehicle.	__	__	5	__
We received a message with the driver's identification indicating his/her location.	__	__	5	__
Appropriate and visible signage indicating the pick-up location.	__	__	5	__
Speed and priority in access to the vehicle	__	__	5	__
Silent vehicle	__	1	4	__
A vehicle with sun protection for the child on the windows but allowing visibility.	__	1	4	__
A vehicle with air conditioning and temperature adjustment to the needs of the child/ family	__	__	5	__
A vehicle with a Bluetooth system to allow the family to play the child's favourite songs during the trip	__	__	5	__
The vehicle was parked to facilitate the entry and exit of the child in a safe way (without the danger of other vehicles in circulation)	__	__	5	__
The vehicle was parked in suitable places (more reserved, away from passing places and with a lot of traffic and stimuli)	__	__	5	__
Child-appropriate interaction and communication (e.g., address the child by name, speak slowly and appropriately, use short, simple sentences, eye contact, etc.)	__	__	5	__
An "autism-friendly" kit is available in advance (by the travel agency) or delivered upon arrival.	__	1	4	__

Source: The authors of this work

In their qualitative assessment, they highlight more positively the driver's customer service and empathy skills ("empathy and concern for our well-being"; "the driver's sensitivity and attention") and indicate as a suggestion improvement the need for more chairs adjusted to the size and age of the child ("seats suitable for children").

Also here, the results indicate the importance of professionals knowing and understanding the characteristics and needs of these families (Conde et al., 2023; Sak et al., 2020) and, mainly, that they know how to deal with and communicate with the child (Chiscano et al., 2021; Freund et al., 2019).

Regarding accommodation, most families also evaluate the impact on the child's well-being as positive or very positive. Only the family of the older child indicated that conditions related to protection and sensory conditions, as well as signage and the provision of maps accessible to the child, were indifferent (see Table 4).

Concerning the inclusive conditions/practices of the hotel's restaurant, families rated them all as positive or very positive (see Table 5). Only the family of the oldest child indicated the "Provision of more reserved and quiet spaces in the cafeteria/restaurant" as being indifferent.

In their qualitative assessment of the hotel as a whole, including the restaurant, the families highlight the general conditions of the accommodation ("Existence of an activity room with the presence of a therapist; "Attention to specific needs at meals"; "The reserved spaces and location of the room") and, mainly, the appropriate care by the professionals ("All the attention and availability of the collaborators"; "The attention in the customer service with relevance to the comfort of the child"). All the families indicate that they have no suggestions for improvement, except for the family with the youngest child who mentions the need to "improve the floor around the indoor pool", considering it slippery for the child.

These results indicate that the inclusive measures implemented in the hotel and restaurant meet the needs of children with ASD, promoting their well-being. They also reveal, once again, the specificity of the older child, who does not seem to require as many conditions related to overstimulation and signalling with figures. In addition, the youngest child's

Table 4. Accommodation – the impact of each condition/practice on the child's well-being and comfort (N=5)

Condition/Practice	Impact on child well-being and comfort			Non-existent condition
	Negative	Indifferent	Positive or very positive	
Express or priority check-in and the possibility of using web check-in.	__	__	5	__
The accommodation has a quiet or more secluded area where the child can stabilise/calm down, if necessary.	__	1	4	__
The room is located in a quiet area, away from elevators or stairs.	__	1	4	__
Accommodation facilities (bedroom and other spaces) adjusted to the child's needs: less intense lights or removal of fluorescent lights; removal of accessory objects that could be obstacles and constitute danger.	__	1	4	__
Availability of the Map of the Hotel/accommodation in a format adapted for the child, with the indication of the central places/services (room, reception, restaurant, bathrooms, space to calm down, etc.) and the routes/itineraries within the hotel.	__	1	4	__
Express/prioritise access to the various hotel/accommodation services (restaurants, leisure facilities, etc.).	__	__	5	__
Signs in an accessible format (understandable) for children in different areas of the accommodation/hotel	__	1	4	__
Professionals prepared to assist families with children with ASD and who knew how to deal with the child.	__	__	5	__
Express or priority check-out.	__	1	4	__
Interaction and communication appropriate/adapted to the child by professionals (e.g., address the child by name, speak slowly and in an appropriate tone, use short and simple sentences, make eye contact, etc.)	__	__	5	__
Availability of control mechanisms for sensory stimuli (e.g., sunglasses, headphones, etc.) or kit made available in advance.	__	1	4	__

Source: The authors of this work.

family report about the floor around the pool calls attention to meeting additional safety conditions for younger children.

Also, here, the results indicate the importance of understanding the needs of these families and knowing how to deal with the child (Chiscano et al., 2021; Conde et al., 2023; Freund et al., 2019).

Finally, concerning tourist activities, families unanimously evaluate all-inclusive conditions/practices as positive or very positive (see Table 6). This result corroborates the literature that indicates the importance of providing diversified and structured activities that meet the child's preferences (Andersson & Tuuri, 2020; Freund et al., 2019; Sak et al., 2020). In their qualitative assessment, the families referred as particularly positive the presence of specialised professionals ("Existence of specialised professionals"), the adequacy of the activities to the child's preferences and needs ("The activities corresponded to my son's interests and needs") and, mainly, the service and interaction of professionals with the child ("Service and dynamisation of professionals"; "Excellent interaction between service providers and the child").

These results are in line with studies and literature that indicate the importance of having a team of occupational therapists or other health professionals specialised in child development and ASD to develop and implement recreational activities that promote the development and well-being of children (Anderson & Tuuri, 2020; Freund et al., 2019; Kim et al., 2018; Neo & Flaherty, 2019; Sak et al., 2020; Sedgley et al., 2017).

As for the evaluation of the child's and family's experience, parents evaluate the child's experience in each phase very positively. On a scale of 1 to 10, where one is the worst possible and ten is the best possible, the mean is nine or higher on all items (see Table 7). It should be noted that parents assess their own experience as being the best possible (10), which may indicate that caregivers, faced with inclusive practices and conditions and their positive impact on the child, ended up having leisure time to themselves and that they could better enjoy joint leisure time with the child (Freund et al., 2019; Sedgley et al., 2017).

The qualitative assessment of the trip as a whole corroborates this idea, given that the families reported the happiness and well-being of the children as the main justifications for their assessment ("His happiness"; "never had such a good experience, everything went very well") and the possibility for caregivers also to relax and, at the same time, enjoy leisure time with the family ("Good moments of relaxation for caregivers and quality time with the family"; "It allowed for some relaxation time for the household during the isolated activity and family interaction and sharing in joint activity").

Finally, all families indicated they would suggest "Azores - ALL IN BLUE" tourist offers to families with children with ASD.

Table 5. Hotel's catering service or restaurant – the impact of each condition/practice on the child's well-being and/or comfort (N=5)

Condition/Practice	Impact on child well-being and comfort			Non-existent condition
	Negative	Indifferent	Positive or very positive	
Provision of more reserved and quiet spaces in the cafeteria/restaurant.	—	—	5	—
Availability of pre-arranged priority seating in the cafeteria/ restaurant	—	1	4	—
Priority or faster service during meals.	—	—	5	—
Possibility of establishing specific times for meals (e.g., extending the hours, changing to less crowded times, etc.).	—	—	5	—
Possibility of ordering special meals adapted to the needs or preferences of the child.	—	—	5	—
Availability of diversified menus.	—	—	5	—
Availability of menus adapted to allergies, special dietary needs, etc.	—	—	5	—
Possibility to reheat the food/meal if necessary.	—	—	5	—
Interaction and communication appropriate/adapted to the child by professionals (e.g., address the child by name, speak slowly and in an appropriate tone, use short and simple sentences, make eye contact, etc.)	—	—	5	—

Source: The authors of this work.

Table 6. Rating the tourist experience on a scale of 0 (worst possible) to 10 (best possible)

	N	Mean	S.D.	Range
The child's experience on the flight and at the airport	2	8.50	2.121	7 – 10
Child's experience in transport (transfer)	5	9.60	.894	8 – 10
Child's experience in accommodation and restaurant	5	9.80	.447	9 – 10
Child's experience in tourist activities	5	9.80	.447	9 – 10
Child's experience of the tourist trip as a whole	5	9.80	.447	9 – 10
Parents' experience of the tourist trip as a whole	5	10	.000	10 – 10

Source: The authors of this work.

5. Conclusions

From the results obtained from the evaluation of "Azores – ALL IN BLUE" tourist products, it can be concluded that all the inclusive conditions and measures implemented had a positive impact on the well-being of children with ASD, meeting the needs of children and their families.

It should be noted that no conditions were considered to have a negative impact, although some were considered to have an "indifferent" impact in the case of the older child. This corroborates, on the one hand, the significant variability of the characteristics of children with ASD and, on the other hand, reveals the importance of assuming the universal design model in inclusive tourist offers (see Zajadacz, 2015).

Specifically, inclusive tourism for families with children with ASD does not mean developing exclusive and "special" products for these families - as this goes against the principle of inclusion. On the contrary, it implies the creation of products that offer the necessary conditions and resources so that children with ASD can access and fully participate in tourist services and activities like any other child (Buhalis & Darcy, 2011; Zajadacz, 2015). The assumption is to meet all possible needs present in society, including children with ASD with different needs and characteristics. The "indifferent" assessment reveals that, although such a condition is not particularly relevant for a given child, it includes and has a positive impact on children with more significant needs.

Analysing the results globally, it is possible to conclude that recreational and therapeutic tourist activities are essential for these families. All-inclusive conditions and practices were evaluated positively by all families. Given the lack of adequate and diversified activities reported in the literature, tourist offers that provide inclusive leisure activities (including therapeutic ones) for these children will be positively distinguished.

Another conclusion worth highlighting is the importance of training tourism professionals. It should be noted that the evaluation of the various stages of the tourist offer and the qualitative assessment highlight the customer service skills, understanding and expertise of professionals as particularly valued by families, with a positive impact on the child's well-being. This shows the need for and importance of tourist companies investing in the training of professionals so that they can know and understand the characteristics and needs of children with ASD and, in this way, be able to deal and communicate appropriately with children and families (Conde et al.., 2023; Freund et al., 2019; Sak at al., 2020).

The fact that all families assess their own experience as being "the best possible" and refer to the opportunity to relax and enjoy moments of leisure with the family indicates the importance of considering moments of leisure in tourist offers for caregivers and, simultaneously, joint activities with the child (Freund et al., 2019; Sedgley et al., 2017). Thus, tourist offers integrating different types of activities - aimed at children, parents/caregivers, and the whole family - will be positively distinguished.

Finally, it should be noted that this positive assessment and impact also shows the importance of designing products based on information from multiple sources and stakeholders - consider what the literature and research indicate, listen to the families themselves and consider the contributions of tourism professionals. It is essential to carry out the empirical validation of measures implemented in tourism products. This allows us to certify its adequacy and identify aspects to be improved, with a view to the continuous improvement of tourist offers.

The present work has relevant practical implications both for tourism companies and for families with children with ASD. For companies, it describes and evaluates the most appropriate inclusive conditions and practices that should be considered in tourist offers. For families with children with ASD, the study promotes their inclusion, demonstrating that tourism can create tourism offers that allow their full participation, with a positive impact on their well-being and quality of life.

Funding and acknowledgements (optional)

Projeto Turismo & Autismo, ACORES-01-0247-FEDER-000043

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DOI: 10.34620/978-83-67405-28-7 • 2024 • 148-161

sciendo

Proceedings of the International Tourism Congress 23

Nature-based tourism in the north-east of Portugal: an analysis from the perspective of demand

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Abstract

The purpose of this paper is to analyse the nature-based tourism in the northeast of Portugal from the perspective of demand. Therefore, it was intended to do the online research of the profile of visitors, focusing on their sociodemographic characteristics and primary motivations for visiting and their satisfaction. Empirical research was conducted on a convenience sample of 204 respondents who visited the protected areas within the districts of Vila Real and Bragança in the last 5 years. The research was conducted from April until June 2023 and data were analysed using the statistical software Jamovi 2.2.5, an open statistical software, employing both univariate and multivariate statistical methods. The results show that there are differences in the overall satisfaction between nature tourists and nature day visitors. The results also confirmed differences in the ratings of visit in relation to expectations between nature tourists and nature day visitors. The contribution of this paper is a refined understanding of nature-based visitors in the north-east of Portugal, a region with an extraordinary potential for nature tourism. Academics and destination managers can use the results to attract and retain different market segments at these protected areas in a more sustainably way.

Keywords

nature-based tourism • nature visitors • Portugal • protected areas • visitor satisfaction

1. Introduction

Tourism is an economic activity that is very vulnerable to disasters of natural or man-made origin, as happened with the recent COVID-19 pandemic. The unprecedented global impact led to a 74% drop in demand, resulting in export revenue losses of USD 1.3 trillion and the loss of 120 million direct jobs (UNWTO, 2021). In Portugal, the impact was also catastrophic having recorded in 2020, 63.2% fewer overnight stays, 61.6% fewer guests and a 66.3% decrease in overall revenue (Turismo de Portugal, 2021). However, the restrictions imposed on the international movement of tourists, the existence of a wide range of services focussed on nature tourism and the demand for places with low population density have resulted in an increase in the popularity of destinations located in natural areas (Sánchez-Sánchez & Sánchez-Sánchez, 2022).

This trend has also occurred in Portugal and with the increase in demand for the nature tourism product, the country and the north-east of Portugal in particular has to position itself in a very competitive international market. A well-run protected areas, "offering the tourist a well-managed natural environment coupled with well-designed infrastructure, is an important ecotourism product" (Kruger et al., 2017, p.312). With the increasing demand for nature tourism, the country and the north-east of Portugal in particular has to position itself in a very competitive market. Although the existing protected areas in Portugal are not large, they vary greatly in terms of fauna and flora and in the type of activities offered. Those responsible for the management of protected areas must therefore position themselves and capture the most appropriate segments for their territory in order to obtain competitive advantages. The adoption of sustainable development policies or strategies for protected areas requires an in-depth understanding of the socio-demographic characteristics of visitors and the main motivations for visiting. Therefore, this study aims to address this gap through a detailed analysis of visitors.

Using market segmentation based on demographic characteristics Kruger et al., (2017) analysed the international, domestic, and local nature tourists characteristics and how this can help ensure visitor satisfaction in Kruger National

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Park, South Africa. Literature reveal that independent and package nature tourists differed significantly in terms of gender, age, annual household income, trip length or in some travel activities and motivations (Mehmetoglu, 2006). Day visitors, i.e. those who don't stay overnight, also differ demographically from the overnight visitors (Kruger et al., 2017), therefore it was considered relevant to analyse possible differences between these two segments. The following questions arise: are there differences in age, area of residence, occupation or visit group, between day visitors and tourists visiting protected areas in north-eastern Portugal?; and regarding satisfaction, are there differences between these two groups of visitors?.

Studies on nature tourists in Portugal are very scarce, namely on visitors to protected areas in the north-east of the country. The results of this research could be used by the managers of protected areas and by the Destination Management Organisations (DMOs) of the different municipalities to attract and retain different market segments and for managing all the protected areas in a more sustainable way.

These and other topics will be analysed in this article which is structured as follows. After the introduction, there is a section dedicated to the literature review where some concepts are presented and discussed, and the nature tourism is framed in the legal framework of Portugal; followed by the methodology section where the study area and the data collection and analysis process are presented and described. Section 4 analyses and discusses the results, followed by the conclusion with the main theoretical and practical contributions of this research.

2. Literature review

2.1. Nature Tourism and Nature Tourists

There are a multitude of expressions that have been used by different authors to define nature tourism (Valentine, 1992). Mehmetoglu (2005, p.358) refers that Laarman and Durst (1987) were the first scholars to present a nature-based tourism definition describing it as a "type of tourism activity that combines three specific elements, namely education, recreation and adventure". Lucas (1984 cit. Valentine, 1992, p.108) defines nature tourism as "tourism which is based on the enjoyment of natural areas and the observation of nature" and Valentine (1992, p.108) mention that "nature-based tourism is primarily concerned with the direct enjoyment of some relatively undisturbed phenomenon of nature". More recently Texas Parks & Wildlife (2023) describe nature tourism as the "responsible travel to natural areas, which conserves the environment and improves the welfare of local people". It is based on the natural attractions and include activities such as birdwatching, photography, stargazing, camping, hiking, hunting, fishing, and visiting parks (Texas Parks & Wildlife, 2023).

In line with this perspective Sahebalzamani & Bertella (2018, p.1) referes that "nature tourism is understood in a broad way, comprising all forms of tourism centred on activities performed in wild nature". However, these authors also include activities performed in more domesticated nature such as adventure tourism or rural tourism, because the domestic outdoor recreation is strong enough to be the driving force of the commercial nature-based tourism provision (Margaryan & Fredman, 2017, p.85).

However, is interesting to note that Laarman and Durst (1987) nature-based tourism definition is aligned with Ceballos-Lascurain's (1987) definition of ecotourism which is related with "experiential and educational factors of the protected natural areas" (Diamantis, 1999, p.96). This means that ecotourism activities are performed in well-preserved or protected areas while nature tourism is more consumer-based and not ecologically sound (Ziffer, 1989, p.6, cit. by Diamantis (1999, p.97). For Lindberg and McKercher (1997, p.67 cit. by Diamantis, 1999, p.98) "Ecotourism is tourism and recreation that is both nature-based and sustainable".

The existence of poor definitions, the heterogeneousness of the nature tourism market, or the lack of researches on the characteristics, preferences, and motives of broad "origin" populations are highlighted by Kruger et al., (2017) as being responsible for the difficulty to get a clear profile of the nature tourist. However, the Portuguese tourism authorities recognises that there are two nature tourism markets in line with the Laarman and Durst (1987) proposal: the hard and soft tourists. Using the interest level and the degree of physical rigor, in the soft market the experiences are based on low-intensity outdoor activities such as walks, excursions, hiking, wildlife watching, among others; and in the hard market the experiences are related to the practice of nature sports such as rafting, kayaking, hiking, climbing, among others, and/or activities requiring a high degree of concentration or knowledge (birdwatching, among others) (THR - Asesores en Turismo Hotelería y Recreación, 2006). Mehmetoglu (2005) also distinguished nature-based tourists into specialists and generalists. Specialists travel mainly for nature reasons and generalists present other reasons than only nature for travelling. Specialist and generalist nature-based tourists also differed in terms of nationality, trip purpose, trip length and travel motives.

Several researches mention that nature tourists tend to be highly educated and high-income earning (Kruger et al., 2017) and the main motivations of those who seek nature tourism are to live experiences of great symbolic value, interact and enjoy nature (THR - Asesores en Turismo Hotelería y Recreación, 2006). In the present study, a nature tourist is an individual who makes a responsible travel to natural protected areas,

stay there for at least one night, engaging in some activities such as birdwatching, photography, stargazing, camping, hiking, hunting, fishing, among others. If an individual does not stay overnight in natural protected areas, he is classified as a nature day visitor.

2.2. Visitor satisfaction

Satisfaction is defined as a pleasurable feeling of fulfilment as a result of the customer's comparison of product or a service performance to some prepurchase standard (Oviedo-García et al., 2014; Muranga et al., 2017), it is an index measuring the gap between prior expectations and perceived performance after consumption (Oliver, 1980). When performance differs from expectations, dissatisfaction occurs (Oliver, 1980). Satisfaction is an indicator of the quality of leisure and education services provided to society, that's why many authors researched and analyzed it (de Oliveira et al., 2020).
Tourist satisfaction is an individual emotional state after experiencing the trip (Muranga et al., 2017). It has been defined as a function of pre-travel expectation and post-travel experience (Chen & Chen, 2010) and it is used in tourist behaviour researches to understand tourists' enjoyment and needs (Eagels and McCool, 2002; Pearce, 2005; Yoon and Uysal, 2006; Arnberger et al., 2018). There are three categories of tourist satisfaction: satisfaction with service and experience during the travel, satisfaction with the destination and satisfaction with the tourism experience (Chan et al., 2015). Tourist satisfaction is a guarantee of the destination's long-term sustainability (Gebreegziabher and Kumar, 2019). The higher the level of satisfaction with the tourism product, service or experience consumed or experienced in the tourist destination the better is the chance that tourist will revisit the destination again and recommended it to some else. In conclusion, the factors affecting tourist satisfaction are complex and multidimensional (Jiang et al., 2018). Hossain et al. (2021) research has proven that the standard of service and perceived value is precedent of tourism satisfaction with nature and the behavioural aspirations of potential visitors are positively linked to the visitors' satisfaction.
Therefore, two hypotheses were set:

H1: There are differences in the overall satisfaction between nature tourists and nature day visitors;
H2: There are differences in the ratings of visit in relation to expectations between nature tourists and nature day visitors.

2.3. Nature Tourism in Portugal

In Portugal, the concept of Nature Tourism was for the first time institutionally recognised as relevant in 1996, through the Council of Ministers Resolution 102/96 providing the support of recreational and leisure tourism practices that are not harmful to environment (Resolução Do Conselho de Ministros n.o 112/98, 1998). Two years later, the National Nature Tourism Plan (PNTN) is created through the Council of Ministers Resolution 112/98 which is then defined as an environmental tourism product exclusive to the National Network of Protected Areas and which aims "the promotion and affirmation of the values that these spaces contain by specializing a tourism activity, under the denomination of 'nature tourism', and propitiating the creation of adequate tourism products" (Resolução Do Conselho de Ministros n.o 112/98, 1998, p.4348). The National Network of Protected Areas include different types of protected areas: National Park, Nature Park; Nature Reserve; Protected Landscape; and Natural Monument. In all country there are one national park, thirteen nature parks, nine nature reserves, two protected landscapes and seven natural monuments (Martins, 2022).
Subsequently, the Decree-Law 47/99 regulates and establishes the basic principles that guide Nature Tourism, defining this type of tourism as: "the tourism product composed of accommodation establishments, activities and services and tourist and environmental animation carried out and provided in areas integrated in the national network of protected areas (...) it is developed according to various forms of accommodation, activities and complementary services of environmental animation, which allow to contemplate and enjoy the natural, architectural, landscape and cultural heritage" (Decreto-Lei Nº 47/99 de 16 de Fevereiro, 1999, p.806).
In the Council of Ministers Resolution 51/2015 a new National Programme for Nature Tourism is presented, adapted to current times and defining a strategy for the future, promoting greater dissemination of nature tourism in Portugal, in close articulation with the objectives of the *Natural.PT* brand that is then created. The Nature tourism, for the purposes of the PNTN, covers the exercise of tourist entertainment activities, throughout the national territory, which allow the contemplation and enjoyment of the natural, landscape and cultural heritage and the operation of tourist resorts in areas integrated in the national system of classified areas (SNAC) or in other areas with natural values (Resolução Do Conselho de Ministros n.º 51/2015, 2015). Unlike what happened before, when Nature Tourism was exclusive to protected areas, other areas with natural values are now included. Recognising the potential of Portuguese natural resources and the growing demand for nature tourism, the official tourism authorities have begun to include the Nature Tourism product in their tourism development strategy.
In 2007, in the National Strategic Tourism Plan (PENT), 10 strategic tourism products were identified taking into account Portugal's resources and distinctive factors. One of these strategic products was Nature Tourism (Portugal, 2007). According to this document, 21% of the Portuguese territory

is considered a protected area, however, Nature Tourism had clear deficits in infrastructure, services, experience and know-how and competitive capacity of companies operating in this field. In the PENT revision in 2013, is emphasised the need to structure the nature tourism supply through the contemplation and enjoyment of the countryside (rural tourism) and also more active segments, such as walks (on foot, by bicycle or on horseback), birdwatching or equestrian tourism, improving the conditions of visitation and the training of human resources (Turismo de Portugal, 2013). More recently, the Action Plan for the Development of Tourism in Portugal - *Estratégia 2027*, recognises nature as a differentiating asset, that is, as one of the anchor attributes that constitute the basis and substance of the national tourism offer (Turismo de Portugal, 2016, p.46). In this strategy, in the valuing the territory and communities axis, the line of action "Economically enhancing natural and rural heritage and ensuring its conservation", refers to the development of nature and rural tourism through economic valorisation projects and active management of natural and rural heritage, which includes the network of national protected areas, biosphere reserves and UNESCO-recognised Geoparks, namely in the context of promoting the Natural.PT brand; and to the infrastructures and support services for nature tourism and/or rural tourism, signposting and tourist-environmental interpretation elements (Turismo de Portugal, 2016, p.65).

As shown, despite legislative initiatives in recent decades and institutional recognition of the importance of nature tourism in Portugal, there is still no specific strategy for the creation and development of a nature tourism product. The institutional structures and interrelationships between the different levels of government and private sector in order to maximise the destination's potential still lacking. This means that all the elements with which the visitor comes into contact in nature-based tourism destinations are not arranged and the combination or blend of multiple nature-based experiences still does not exist (UNWTO, 2011).

3. Methodology

3.1. Study Area

The North-East of Portugal was selected as a study area due to its potential for nature tourism. In the districts of Vila Real and Bragança, there are 3 nature parks (Alvão, Montesinho and Douro Internacional), 1 Regional Nature Park (Vale do Tua) and 1 Protected Landscape (Azibo) where the UNESCO Geopark Terras de Cavaleiros is located. The vast majority of

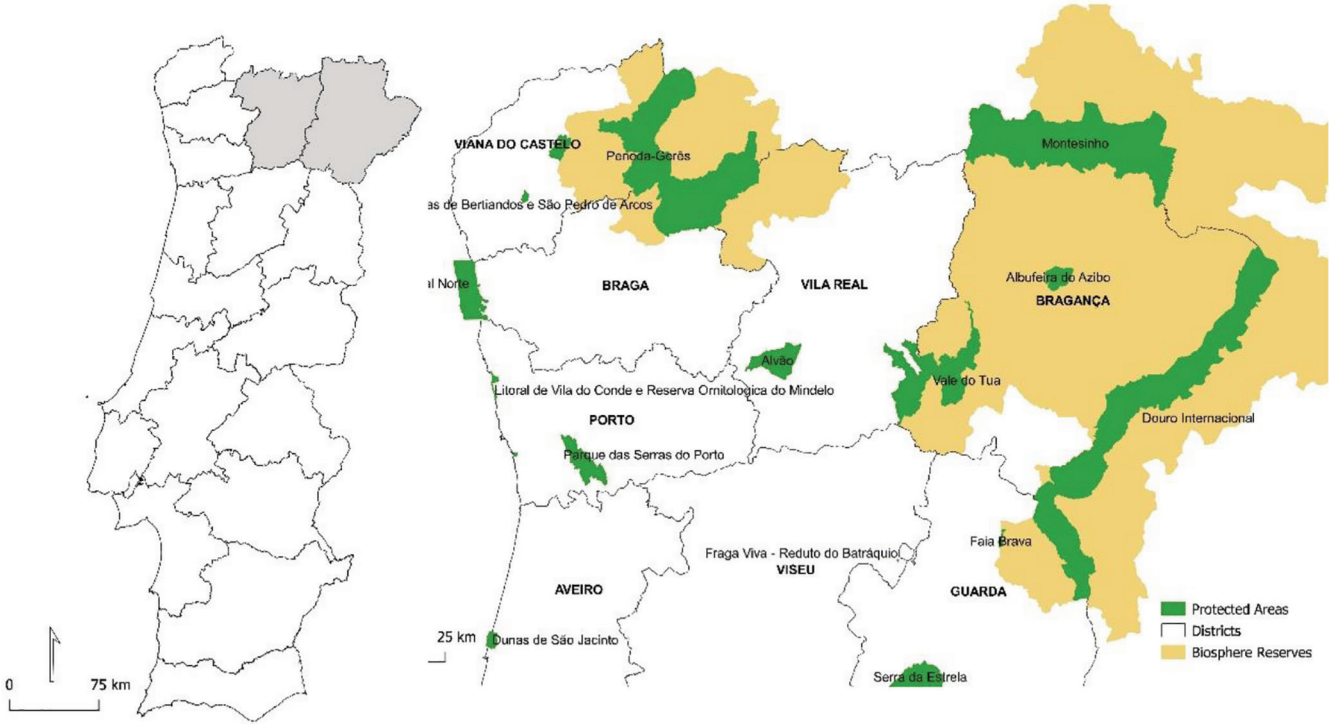


Figure 1. Protected Areas in the north of Portugal. *Source*: Authors.

the territory of the district of Bragança is also included in the Meseta Ibérica Transboundary Biosphere Reserve (Figure 1). In all these protected areas it is possible to find natural habitats with a floristic richness and an interesting and varied faunal communities, with some endemic species. In addition to its natural richness, it is important to emphasise the significant cultural treasures of all this territory, which results from the long human occupation that has transformed and adapted the landscape. In addition to its natural richness, it is important to emphasise the significant cultural heritage of all this territory, which results from the long human occupation that has transformed and adapted the landscape. The region's tangible and intangible cultural heritage deserves special mention due to its growing national and international recognition, such as the UNESCO intangible heritage classifications of the black pottery of Bisalhães (Vila Real) or the carnival of Podence (Macedo de Cavaleiros). In the limits of the Douro International Nature Park it is also possible to find the Palaeolithic Rock Carvings of the Côa valley, also classified as UNESCO World Heritage.

Although they have an important natural and cultural heritage, the municipalities located in the protected areas of north-eastern Portugal have experienced a substantial decrease in resident population (table 1). The continuous and strong reduction of the birth rate, the strong migratory flows abroad and to the main Portuguese cities and the progressive increase of the average life expectancy explain the depopulation and the increase of population ageing in the whole region.

Regarding the dynamics of tourism activity in all the municipalities included in the protected areas under study, there is an increase in the number of overnight stays between 2016 and 2019, with the exception of the municipalities of Freixo de Espada-à-Cinta and Vila Flor (table 2). During the pandemic period, there was a decrease in the number of overnight stays in all protected areas, although 2021 is already a year of recovery. In 2022, with the exception of the Montesinho Nature Park, all protected areas had already exceeded the values recorded in 2019. This rapid recovery may be justified by the increase in demand for low-density territories that occurred during the COVID-19 pandemic.

Regarding the number of visits to protected areas, there is only information for the Nature Parks of Alvão, Montesinho and Douro Internacional (Figure 2). The Institute for Nature Conservation and Forests (ICNF) collects the number of visitors, which includes the number of visitors in the reception structures of the parks, guided tours, participation in events, nature tourism activities and volunteer actions. All visitors who had no contact with the reception structures of the nature parks are therefore not included.

The most visited nature park is Alvão and the least popular is Montesinho. Between 2012 and 2022, 476 966 people visited these three nature parks: 236 453 in Alvão, 172 699 in Douro Internacional and 67 814 in Montesinho.

In order to understand if there's a relationship between the number of overnight stays in the municipalities included in the nature parks and the number of visitors counted by ICNF, the linear regression of these variables was calculated, obtaining a coefficient of determination of 0.64 for the Alvão Nature Park [P(F<=f)=0.0209]. For the remaining nature parks, the coefficients are very low (0.09 and 0.05 for Montesinho and Douro Internacional, respectively). The results obtained seem to indicate the absence of a relationship between the increasing demand in the region and the number of visitors to its natural protected areas. In other words, although the number of tourists in the territories under study has increased in recent years, the number of visitors to the natural parks has not accompanied this evolution. This may have been due to shortcomings in the quantification of visitors to each nature park or due to the diversification of the offer. However, it is curious that in an area which is so rich in natural resources, nature tourism is not the most popular product.

After describing the evolution of demand in the territories under analysis, the methods used to collect and process the data are described below.

3.2. Sampling procedure and data analysis

The present study aims to delineate the profile of visitors to protected areas in the districts of Vila Real and Bragança, focusing on their sociodemographic characteristics and primary motivations for visiting. Data collection used the

Table 1. Resident population and density population (1960-2021).

	Resident population					Population density (inhab./Km²)		
Protected Areas	**1960**	**2001**	**% (1960-2001)**	**2021**	**% (2011-2021)**	**1960**	**2001**	**2021**
PN Alvão	58 101	58 530	0,7	55 981	−4,4	93,4	91,2	84,1
PN Montesinho	64 130	45 396	−29,2	42 350	−6,7	35,1	22,5	20,4
PN Douro Internacional	59 068	30 625	−48,2	23 128	−24,5	30,1	15,6	11,9
PNRVT	89 961	62 446	−30,6	48 655	−22,1	55,0	36,0	27,6
Paisagem do Azibo/Geopark	26 199	17 449	−33,4	14 251	−18,3	37,5	25,0	20,4

Source: Pordata (2023a, 2023b). Authors.

Table 2. Number of overnight stays in the municipalities of the Protected Areas (2016-2022).

PROTECTED AREAS	MUNICIPALITIES	2016	%	2017	%	2018	%	2019	%	2020	%	2021	%	2022	%
PN Alvão	Vila Real	69495	6,1	71 293	2,6	73 714	3,4	74 012	0,4	34 089	−53,9	50 088	46,9	71 633	43,0
	Mondim de Basto	s/d	s/d	s/d	s/d	46 537	s/d	47 844	2,8	31 453	−34,3	38 593	22,7	51 816	34,26
	TOTAL	69 495	6,1	71 293	2,6	120 251	68,7	121 856	1,3	65 542	−46,2	88 681	35,3	123 449	39,21
PN Montesinho	Bragança	90 502	19,6	90 743	0,3	99 134	9,2	111 434	12,4	58 525	−47,5	68 642	17,3	106 644	55,36
	Vinhais	10 072	276	8 933	−11,3	9 483	6,2	10 633	12,1	8 866	−16,6	10 361	16,9	11 529	11,27
	TOTAL	100 574	28,4	99 676	−0,9	108 617	9	122 067	12,4	67 391	−44,8	79 003	17,2	118 173	49,58
PN Douro Internacional	Mogadouro	4 083	7,1	0	0	3 443	0	6 871	99,6	6 996	1,8	11 251	60,8	12 747	13,30
	Miranda do Douro	30 817	23,8	30 700	−0,4	35 216	14,7	38 640	9,7	16 685	−56,8	25 094	50,4	32 376	292
	Freixo de Espada à Cinta	5 423	49,9	4 946	−8,8	4 541	−8,2	5 177	14	2 854	−44,9	7 459	161,4	17 810	138,77
	Figueira de Castelo Rodrigo	8 514	−28,8	9 832	15,5	11 316	15,1	12 931	14,3	7 097	−45,1	9 922	39,8	10 862	9,47
	TOTAL	48 837	10,3	45 478	−6,9	54 516	19,9	63 619	16,7	33 632	−47,1	53 726	59,7	73 795	37,35
PNRVT	Alijó	41 170	−2,4	46 911	13,9	45 992	−2	49 519	7,7	25 186	−49,1	28 393	12,7	45 387	59,85
	Carrazeda de Ansiães	5 960	32,9	9 761	63,8	6 310	−35,4	6 883	9,1	5 120	−25,6	8 764	71,2	14 245	62,54
	Murça	s/d	s/d	s/d	s/d	s/d	s/d	1 440	s/d	1 036	−28,1	s/d	s/d	3 435	s/d
	Mirandela	30 427	−5,1	39 231	28,9	40 654	3,6	42 538	4,6	24 165	−43,2	34 081	41	52 531	54,14
	Vila Flor	8 658	51,4	4 721	−45,5	5 549	17,5	5 945	7,1	3 991	−32,9	6 091	52,6	7 850	28,88
	TOTAL	86 215	2,1	100 624	16,7	98 505	−2,1	106 325	7,9	59 498	−44	77 329	30	123 448	59,64
Paisagem do Azibo/Geopark	Macedo de Cavaleiros	8 123	−26,1	10 619	30,7	10 445	−1,6	14 061	34,6	11 363	−19,2	13 746	21	20 837	51,59
TOTAL		618 365	11,2	644 761	4,3	774 223	20,1	841 795	8,7	463 489	−44,9	611 224	31,9	898 567	471

Source: (Pordata, 2023b). Authors.

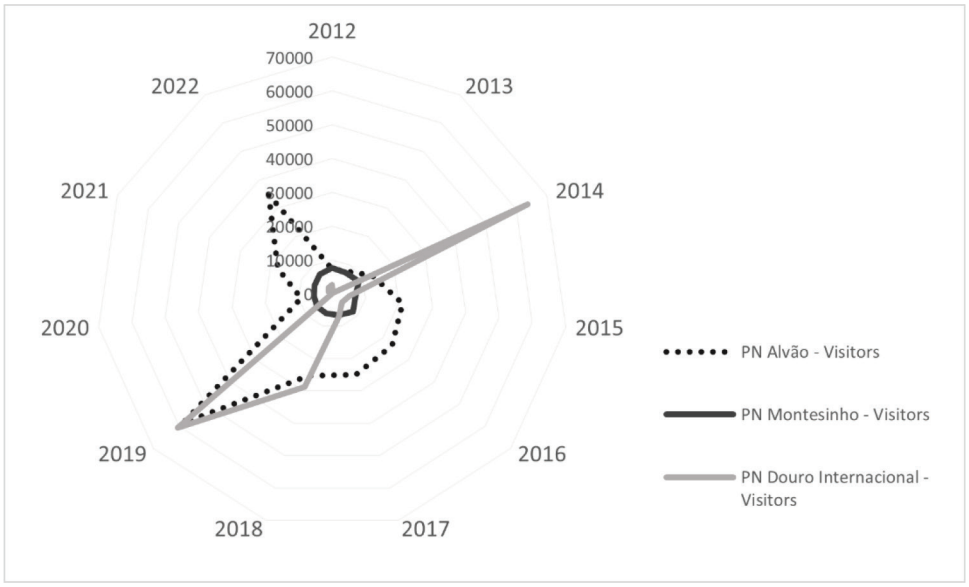


Figure 2. Number of visitors of National Parks (2012-2022). *Source*: Instituto da Conservação da Natureza e das Florestas, (2023). Authors.

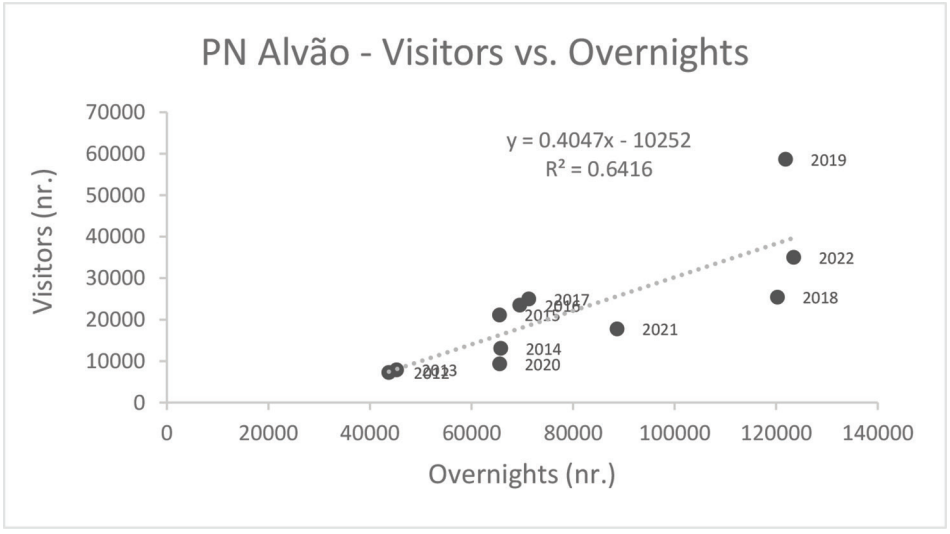


Figure 3. Linear regression – visitors and overnight stays (2012-2022). *Source*: Authors.

convenience sampling technique, with an online questionnaire survey (Sthapit et al., 2022), conducted on social networks (n=204) between April and June 2023. The unit of analysis was visitors to protected areas in the districts of Vila Real and Bragança in the last five years. The questionnaire was distributed through Google Forms, and a pre-test was carried out with a select group of individuals. The questionnaire's structure encompasses four main groups: sociodemographic, the visit, the stay, and destination preferences. To analyse the socio-demographic profile of visitors, the following variables were used: gender, age, occupation, and area of residence. The data were analysed using the statistical software Jamovi, employing both univariate and multivariate statistical methods.

4. Results and discussion

4.1. Sociodemographic profile

The obtained sample of 204 valid questionnaires were collected from Portuguese visitors of the protected areas (Table 3). The age range of the participants were mainly from 17 to 66 years, with an average age of 35 (35.1) years. Remarkably,

Table 3. Socio-demographic characteristics (N=204)

	Frequency	%
Gender		
Male	60	29.4
Female	144	70.6
Age		
17-24 years	60	29.4
25-34 years	49	24.0
35-44 years	39	19.1
45-54 years	42	20.6
55 or more years	14	6.9
Occupation		
Student	64	31.4
Employee	114	55.9
Self-employed	15	7.4
Other	11	5.4
District of residence (n=200)		
Aveiro	7	3.5
Braga	8	4.0
Bragança	57	28.5
Castelo Branco	2	1.0
Coimbra	3	1.5
Évora	3	1.5
Faro	2	1.0
Leiria	2	1.0
Lisboa	23	11.3
Madeira	1	0.5
Porto	29	14.2
Setúbal	4	2.0
Viana do Castelo	2	1.0
Vila Real	52	21.1
Viseu	5	2.5

Source: Authors.

53.4% of the respondents belong to the 17–34 year age group in contrast with the results of a research conducted by Controlinveste (2015) with international nature tourists visiting Portugal, where 33% of respondents were up to 35 years old. Females represented 56% of international nature tourists (Controlinveste, 2015) while in this research the majority of respondents are female (70.6%). The prevailing occupation is employee (55.9%), while a substantial part are students (31.4%). Regarding the area of residence, the participants predominantly inhabit the districts of Bragança (28.5%), Vila Real (21.1%), Porto (14.2%), and Lisbon (11.3%). In 2015, the most important international markets were United kingdom (14,4%), Germany (9.0%) and USA (7.7%) (Controlinveste, 2015).

4.2. The visit

This study includes individuals who have visited at least one of the following protected areas in the past 5 years: Montesinho Nature Park, Alvão Nature Park, Douro Internacional Nature Park, Vale do Tua Regional Nature Park, and Albufeira do Azibo Protected Landscape/Geopark Terras de Cavaleiros. Among them, the most visited protected area in the last 5 years, was Albufeira do Azibo Protected Landscape / Geopark Terras de Cavaleiros (N=109). Douro Internacional Nature Park follows with 95 visitors, while Vale do Tua Regional Nature Park had 83 visitors. Alvão Nature Park and Montesinho Nature Park were the least visited (N=70, N=53, respectively).

Most visitors (41.2%) made the visit together with their family members, 27.9% with their spouse/partner, 22.1% with a group of friends, 5.9% with a friend, and 2.9% alone, in line with the Controlinveste (2015) results. The main motivation for the visit was leisure, with 86.8% of respondents (N=177) indicating it, 5.9% mentioned health and well-being motivation and 3.9% indicated Business/Work.

To evaluate the statistical association between the visitor group and the main motivation for the visit, a contingency table was created, and a 100% stacked bar chart was utilized (Figure 4). The calculated Cramer's V value of 0.216 indicates a statistically significant association between these categorical variables. Among those who visited the nature parks with leisure as the main objective, 44% were accompanied by their family, and 29% visited with their spouse/partner. For those motivated by work/business, 75% travelled with a group of friends. When the primary motivation was health and well-being, 33% visited with family members, and an equal percentage visited with a group of friends. As for the main motivation of visiting family, 57.1% visited with their spouse/partner, and 42.9% visited with family members.

When asked to specify the motivation for their visit, nature-related activities, such as contemplation, hiking, photography, and birdwatching, were prominent among visitors (63.2%). Cultural interests, like exploring historical heritage and local traditions, were also significant (26.0%). Additionally, a small percentage of visitors were motivated by gastronomy and wines (5.4%), while an equal percentage engaged in sports activities in a natural setting, such as mountain biking, climbing, and canoeing (5.4%).

In the study area there is a large and diverse set of activities to carry out (figure 5). The most popular activities among visitors include hiking trails (65.1%), visits to river beaches (57.4%), and viewpoints (58.8%), indicating a strong preference for nature-related experiences. Cultural interests are also evident, with museum visits (18.6%) and architectural heritage visits (15.7%) being popular choices. Additionally, fauna observation (13.7%) and stars observation (2.9%) attract those interested in wildlife and astronomical experiences. Water activities (12.7%) and wine tasting (13.2%) are also

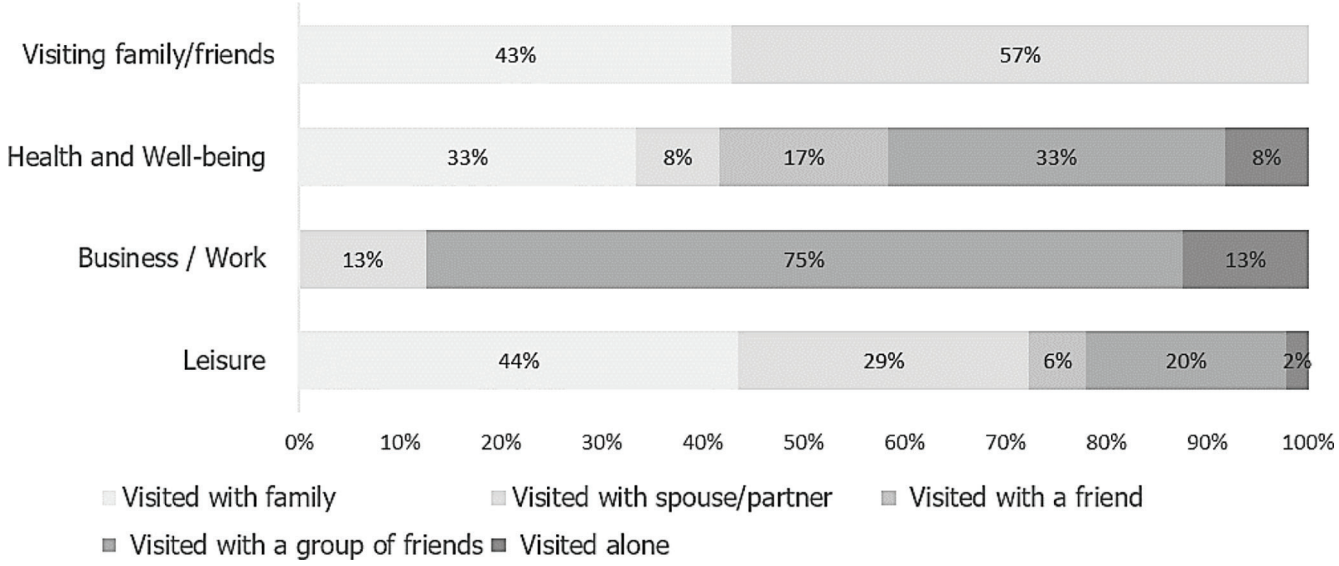


Figure 4. Group of visitors versus Motivations. *Source*: Authors.

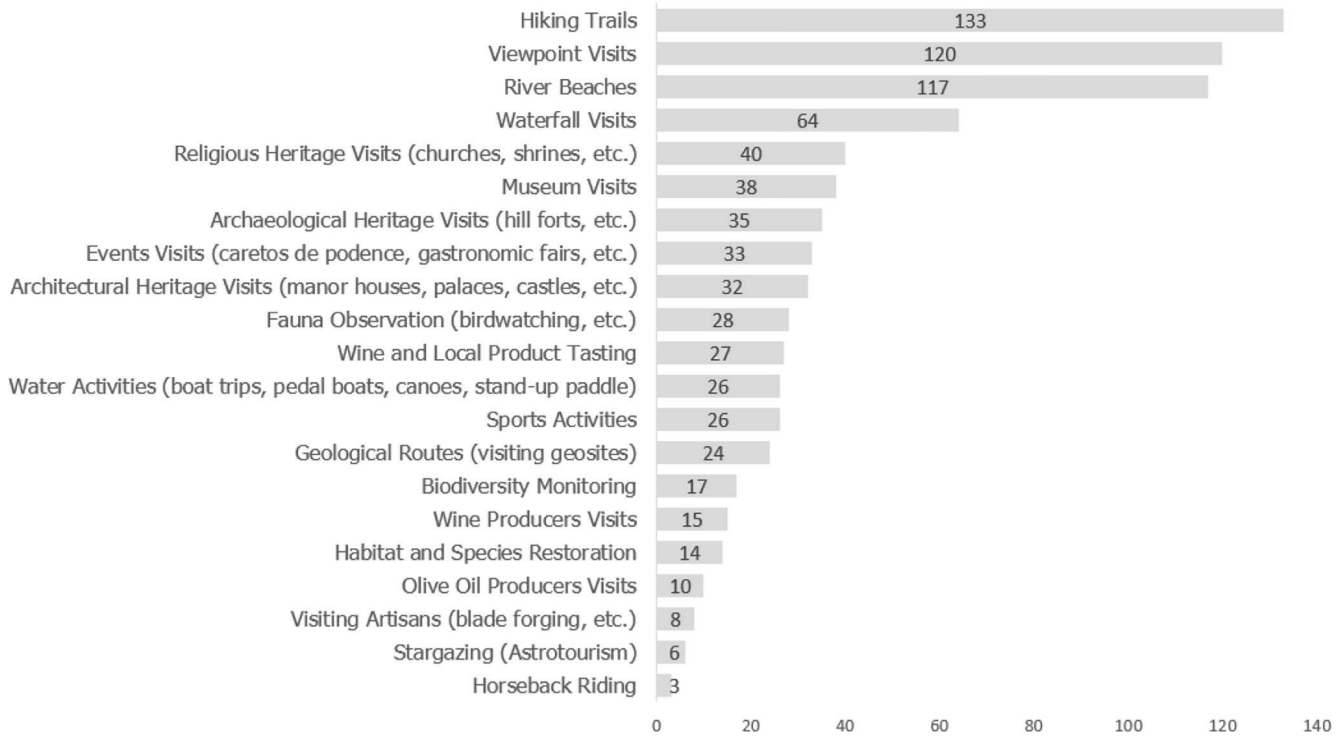


Figure 5. Activities in protected areas. *Source*: Authors.

well-received options, offering visitors diverse experiences to enjoy the protected areas.

Regarding the multiple-choice question "What factors influenced your decision to visit these protected areas?", the results show that the decision was primarily influenced by the captivating Landscape/Nature (83%) and the convenient Location (51%). Additionally, the Experiences/Available Activities (25%) offered in the area played a significant role in attracting visitors, along with positive Word-of-mouth (14%) and reasonable Prices (14%). Online Reviews/Social Media Reviews (3%) also contributed to the decision-making process.

Table 4. Visitors' preferences in the protected areas

	N	Mean	Mode	Median	SD
Discovering the natural and scenic heritage	199	4.42	5	5	0.79
Exploring the historical and cultural heritage	194	4.20	5	4	0.91
Friendliness of the Hospitality	187	4.18	4	4	0.87
Environmental concern and sustainable practices	190	4.16	3	4	0.85
Quality of restaurants in the region	190	3.96	4	4	1.0
Engaging in soft nature activities such as hiking, wildlife observation...	197	3.89	5	4	1.03
Exploring the local gastronomy and wines	188	3.89	4	4	1.05
Quality of support infrastructure (tourist information, signage...)	189	3.83	4	4	0.99
Availability of local products (food, crafts, others)	190	3.81	4	4	1.0
Interacting with local communities, learning about traditional arts and crafts	190	3.81	4	4	1.01
Engaging in authentic, genuine, and creative experiences	188	3.80	4	4	1.04
Quality of accommodations in the region	183	3.63	4	4	1.15
Utilization of digital tools in the destination	190	3.52	4	4	1.09
Participating in festivals and events	187	3.35	5	3	1.19
Enjoying wellness facilities (e.g., spas, thermal baths...)	187	3.19	5	3	1.22
Engaging in hard nature activities such as mountain biking, cycling, climbing...	190	2.86	4	3	1.35

Source: Authors.

4.3. Activities in protected areas: destination preferences

Regarding destination preferences (Table 4), the question corresponded to a Likert scale (from 1 to 5) where 1 means Not important at all; 2-Slightly important; 3-Neutral; 4-Somewhat important; and 5-Very important. On one hand, it is evident that the options "Enjoying wellness facilities (e.g., spas, thermal baths...)" and "Engaging in hard nature activities such as mountain biking, cycling, climbing..." are the least valued, having the lowest means of 2.86 and 3.19, respectively, and the highest standard deviations. Despite the excellent conditions for the practice of activities of a hard nature, i.e. activities with a degree of physical rigour such as hiking or cycling, or activities that require a great degree of concentration or knowledge such as birdwatching or starwatching, the visitors who participated in this study did not show interest in such activities.

Table 5. Tourists' preferences (n=61)

Protected area where visitors stayed overnight	**N**	**%**
Montesinho Nature Park	15	24.6
Alvão Nature Park	9	14.8
Vale do Tua Regional Nature Park	9	14.8
Douro Internacional Nature Park	24	39.3
Albufeira do Azibo Protected Landscape / Geopark Terras de Cavaleiros.	12	19.7
Accommodation	**N**	**%**
Local accommodation	17	23.6
Motorhome	4	5.6
Campsites	3	2.8
Friends'/family's House	8	11.1
Holiday home	1	1.4
Glamping	1	1.4
Hotels and other tourist establishments	25	34.7
Rural Tourism (Country house; agrotourism; rural hotel)	13	18.1
Accommodation reservation	**Frequency**	**%**
By phone	6	9.4
Online (booking website; e.g., Booking)	33	51.6
Online (accommodation website)	14	21.9
In person	1	1.6
By phone	10	15.6

Source: Authors.

On the other hand, the options "Discovering the natural and scenic heritage," "Exploring the historical and cultural heritage," "Friendliness of the hospitality," and "Environmental concern and sustainable practices" are the most valued, with means of 4.42, 4.20, 4.18, and 4.16, respectively. The data highlights the importance of nature and culture experiences to tourists while indicating lower interest in wellness and physically demanding activities.

4.4. The stay

Out of the 204 respondents, 61 indicated that they stayed overnight in the protected and/or classified areas they visited (table 5). The most popular protected areas for overnight stays were Douro International Nature Park with 24 responses and Montesinho Nature Park with 15 responses. As for the type of accommodation, hotels and other tourist establishments were the most popular choices with 25 respondents, followed by local accommodations with 17 responses. Online booking websites like Booking.com were the preferred method for making accommodation reservations, with 51.6% of participants using this option.

The distribution of socio-demographic characteristics among day visitors and tourists is presented in Table 6. The results reveal significant differences between the groups: the age

Table 6. Day visitors and tourists' sociodemographic (n=204)

	Day visitors (%)	Tourists (%)	Pearson chi-square Value; Degree of freedom; p-value
Sex			
Female	73.4	63.9	1.86; 1; 0.173
Male	26.6	36.1	
Age groups			
Less than 25 years	35.7	14.8	
25-34 years	23.8	24.6	
35-44 years	16.1	26.2	12.5; 4; 0,0104*
45-54 years	16.8	29.5	
55 or more years	7.7	4.9	
District of residence			
Aveiro	1.4	8.3	
Braga	4.3	3.3	
Bragança	28.6	28.3	
Castelo Branco	0.0	3.3	
Coimbra	0.7	3.3	
Évora	1.4	1.7	
Faro	0.7	1.7	
Leiria	1.4	0.0	
Lisboa	12.1	10.0	
Madeira	0.7	0.0	
Porto	12.1	20.0	
Setúbal	2.9	0.0	
Viana do Castelo	0.7	1.7	
Vila Real	30.7	15.0	
Viseu	2.1	3.3	
Occupation			
Student	35.7	21.3	
Employed	53.1	62.3	4.40; 3; 0.222
Self-employed	6.3	9.8	
Other	4.9	6.6	
Group of visit			
Visited with family	47.6	26.2	
Visited with spouse/partner	21.7	42.6	
Visited with a friend	4.9	8.2	12.5; 4; 0.014*
Visited with a group of friends	23.1	19.7	
Visited alone	2.8	3.3	

*significant at the 0.05 level
Source: Authors.

Table 7. Day visitors' and tourist levels of satisfaction

	Mean		Mann-Whitney U	Asymp. Sig. (1-tailed)
	Day visitors	Tourists		
What is your overall level of satisfaction with the visit you made?	4.49	4.59	3822	0.056**
Think about the expectations you had for your visit to the protected/classified area(s). How would you rate your visit in relation to your expectations?	4.18	4.38	3720	0.032*

Note. H_a $\mu_{Visitors} < \mu_{Tourists}$, *- significant at the 0.05 level, **- significant at the 0.10 level

Source: Authors.

distribution of day visitors shows a majority in the young adult range, with ages ranging from 18 to 34 years. On the other hand, tourists exhibit an older distribution, with higher percentages of respondents aged under 35 and over 54 years. In terms of employment, 53.1% of day visitors are employed, and 35.7% are students. In contrast, the tourist group has a lower proportion of students and a higher percentage of employed and self-employed individuals. As expected, 58.6% of day visitors lives in the districts of Bragança and Vila Real (the study area), while this percentage is lower for the tourist group (43.3%). Nearly half of the day visitors (47.6%) visited the protected areas with family, while the tourist group shows a slightly different distribution, with 42.6% visiting with their spouse/partner.

The visitors' level of satisfaction with the protected areas under analysis was also assessed. In general, the majority of visitors reported high levels of satisfaction with their visit, in line with other studies (Controlinveste, 2015; Cheng et al., 2022; Sthapit et al., 2022; Arnberger et al., 2023). The Mann-Whitney test, a non-parametric version of the independent samples t-test, was applied to investigate if overnight stay influences the overall level of satisfaction with the visit and the expectations visitors had regarding their visit. The day visitors had a mean satisfaction level of 4.49, while tourists had a slightly higher mean of 4.59. When rating their visit in relation to their expectations, day visitors had a mean score of 4.18, and tourists had a higher mean of 4.38. The Mann-Whitney U test results demonstrate that there is a statistically significant difference in overall satisfaction between "Visitors" and "Tourists" ($p = 0.056$, significant at the 0.1 level). When rating their visit in relation to expectations, there is also a statistically significant difference between the two groups ($p = 0.032$, significant at the 0.05 level).

The results confirmed differences in the overall satisfaction between nature tourists and nature day visitors (H1), in line with Hambro Dybsand et al. (2021) and Cheng et al. (2022). H2 hypothesis was also confirmed, i.e., there are differences in the ratings of visit in relation to expectations between nature tourists and nature day visitors, in line with a study by Arnberger et al. (2023).

These differences in satisfaction seem to indicate that overnight stays in protected areas positively influence visitor

satisfaction. This may indicate that longer stays allow visitors to experience the territory in more detail, participating in more enriching and meaningful activities.

Cheng et al. (2022) have proven that there were significant between group differences in satisfaction level depending on length of stay, main reason for visiting, age, educational level, employment status and annual income. Visitors who stayed for more than three days in Zhangjiajie National Forest Park were more satisfied with the price and the overall experience compared to those who stayed for two or three days because they had more time and opportunities to explore and enjoy (Cheng et al., 2022). Arnberger et al. (2023) result of research in the Bavarian Forest National Park showed that tourists with higher national-park affinity have more positive attitudes towards them and are more satisfied with specific park offers. Benz et al. (2016) compared the approach based on the expectancy theory and performance-only approach in whale watching and concluded that performance-only approach is easier to implement and provides better information for researches. In Hambro Dybsand et al. (2021) research in Hornøya island in Norwey authors suggested that other factors such as satisfaction with different part of the experience, age, weather visitors are tourist or Norwegian day visitors, and weather visitors were sufficiently motivated by general nature experiences were more important to loyalty then visitors degree of recreation specialization in birdwatching.

5. Conclusions

The purpose of this research is to analyse the nature-based tourism in the northeast of Portugal from the perspective of a demand, focusing on their sociodemographic characteristics, their motivations for visiting protected areas, and their satisfaction with protected areas. Regarding satisfaction, two hypotheses were tested and the results confirmed differences in the overall satisfaction between nature tourists and nature day visitors. The nature day visitors had a mean satisfaction level of 4.49, while tourists had a slightly higher mean of 4.59. The results are in compliance with research by Hambro Dybsand et al. (2021) and Cheng et al. (2022). Furthermore, when rating their visit of nature tourist and nature day visitors in relation to their expectations, there is a statistically significant difference between the two groups. The results indicate that longer stays allow tourists to experience the protected areas in more details and escape from their daily life, in line with a study by Arnberger et al. (2023).

The study has a theoretical and applicative contribution. In the theoretical sense, contribution lies in the literature review about nature tourism and nature tourists. The practical contribution of this paper is in information about nature-based visitors in the north-east of Portugal and their characteristics. Managers of protected areas can use the results to attract and retain different market segments at these protected areas. This is useful information for managing all the protected areas in the region more sustainably.

This study has certain limitations which should be mentioned. The main limitation refers to the study sample. Research was conducted online so respondents were mostly Portuguese younger visitors living in the study area.

However, future studies should be carried out on a larger sample of tourist staying in protected areas. Research could also be conducted in different protected areas in whole Portugal or in comparison with protected areas in different countries. In addition to the mentioned, future studies could investigate the influence of other constructs, such as loyalty, place attachment, tourist experience, environmental attitudes, and environmentally responsible behaviour. The studies should be conducted continuously to consistently monitor the visitors of protected areas and their satisfaction. The lack of a structured nature tourism product in Portugal and in the north-east region in particular will also deserve a detailed analysis in order to take advantage of its full potential.

Funding and acknowledgements

this work is financed by National Funds through FCT - Foundation for Science and Technology, I.P., under project Ref UIDB/04470/2020. Thanks to the Centre for Research, Development and Innovation in Tourism (CiTUR).

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DOI: 10.34620/978-83-67405-28-7-018 • 2024 • 162-167

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Proceedings of the International Tourism Congress 23

Molecular gastronomy in tourism

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Abstract

The fascinating field of molecular gastronomy is a culinary movement that stands out for its innovative approach in combining scientific principles with the art of cooking. The visionary pioneers of this field have explored new techniques and ingredients, applying fundamental concepts of chemistry, physics, and biology to create dishes that are astonishing in terms of textures, flavours, and presentations.
This work highlights the relevance of molecular gastronomy in gastronomic tourism, a sector of tourism that places cuisine at the forefront. Gastronomic tourism offers travellers the unique opportunity to explore authentic flavours, culinary traditions, and gastronomic secrets of a specific locality. Through tastings of local dishes, visits to food producers, restaurants, and traditional markets, tourists immerse themselves in the rich cultural histories and food customs of a region, understanding its unique identity through its culinary delights.
The deep connection between gastronomy and cultural heritage involves innovation and experimentation, which are essential in driving evolution and development in the culinary world. Molecular gastronomy thus plays an important role as a constantly evolving form of cultural heritage, enriching the tourist experience and elevating the status of gastronomy in different destinations.

Keywords

molecular cuisine • molecular gastronomy • nutrition • cultural heritage • gastronomic tourism

1. Introduction

Molecular gastronomy has a close relationship with tourism, particularly in recent years. This is due to the fact that molecular gastronomy offers travellers a unique and innovative experience that engages both the palate and the senses, making it a tourist attraction in its own right. (Agostina, 2017). Another form of gastronomic tourism related to molecular gastronomy is also known as “enogastronomic tourism,” which involves the tasting of wines and other local products in conjunction with molecular gastronomy (Road, n.d.).

This combination provides a complete and sophisticated experience for travellers, who can explore different flavours and aromas in a pleasant and refined setting.

In order to elucidate the relationship between tourism and molecular gastronomy, we have methodically compiled a list of exemplary examples of the latter:

Girona Gastronomic Festival (Girona, Spain): The Girona Gastronomic Festival holds a distinguished position within the realm of molecular gastronomy. This event assembles chefs from across the globe, converging for culinary demonstrations, scholarly lectures, and hands-on workshops that delve into the latest trends in molecular gastronomy. Importantly, this festival serves as a magnetic force, drawing visitors from around the world and significantly bolstering tourism in the region (Forum, 2023).

Food Ink: Food Ink represents a series of itinerant culinary journeys staged in various cities worldwide. These distinctive gatherings craft a holistic dining experience where every dish emerges from molecular gastronomy, and even the venue’s ambiance takes shape through the marvels of 3D printing. This harmonious fusion of avant-garde cuisine and cutting-edge technology exerts an irresistible allure, captivating inquisitive tourists from diverse corners of the globe (Ink, 2023).

Food Ink owes its inception to Antony Dobrzensky, a luminary whose association finds its roots within a collective known as the “Bullinianos.” This collective encompasses individuals whose professional trajectories have either intersected with the monumental culinary endeavors of Ferran Adrià, Albert Adrià, and Juli Soler, or who are presently engaged in such bold gastronomic enterprises, whether in the present or in

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future projections. It is this cadre that carries forth a profound reservoir of gastronomic passion and values, disseminating these essences throughout the global culinary landscape (El Bulli Foundation, 2023).

2. Literature review

Molecular gastronomy is a culinary movement that aims to explore the principles of science to create innovative and surprising dishes. It differentiates itself from traditional culinary approaches through the use of uncommon ingredients, innovative techniques, and new forms of presentation (Mota, 2018).

In contrast to traditional gastronomy, molecular gastronomy focuses not only on satisfying the palate but also on providing a complete sensory experience that engages sight, smell, and touch (Mota, 2018).

This culinary movement emerged in the 1990s and gained popularity due to the works of chefs Ferran Adrià, Heston Blumenthal, and Pierre Gagnaire. These chefs sought to experiment with new techniques and ingredients in the kitchen, applying principles of chemistry, physics, and biology to create textures, flavours, and presentations in their dishes. Molecular gastronomy is considered one of the most innovative trends in modern cuisine and has been attracting the attention of tourists from around the world (Ivanovic et al, 2011).

Molecular gastronomy can be seen as a subset of gastronomic tourism, which has been growing worldwide and has become an important source of income for many regions. Gastronomic tourism, in fact, has proven to be one of the most authentic ways to experience the culture and customs of a locality, allowing immersion in the local cuisine and eating habits (Road, n.d.).

In this regard, many tourist destinations have invested in molecular gastronomy as a differentiating factor to attract visitors, promoting festivals and events that highlight local cuisine and offer dishes created with molecular gastronomy techniques and ingredients. These restaurants often offer experimental menus that frequently evolve, providing a true molecular gastronomy experience (Bentz, 2020).

Therefore, molecular gastronomy can be viewed as a form of cultural heritage and a way to enrich the tourism offerings of a region. Exploring the relationship between molecular gastronomy and tourism can help us understand how cuisine can become an important factor in choosing a tourist destination (Road, n.d.).

2.1. Definition of Molecular Gastronomy

Molecular gastronomy is the science dedicated to studying the physical and chemical processes associated with cooking. It analyses the processes and transformations involved in ingredient preparation on a small scale, diverging from traditional cuisine (Ivanovic et al, 2011).

Furthermore, molecular gastronomy considers food as a whole, from ingredient selection to the way it is enjoyed by customers. Based on this, it encompasses a wide range of scientific fields, including physics, chemistry, biology, and biochemistry, as well as psychology, sociology, and physiology (Educação, n.d.).

Beyond being merely a subcategory within the realm of gastronomy, molecular gastronomy fulfills a role far grander than mere culinary innovation. It unfolds as a profound odyssey of self-discovery, a proposition elucidated by the celebrated chef Ferran Adrià during an interview with the publication 'Expresso' on the 19th of February, 2011. In his own words, *"Those who come accept to know new things (...). And then, the feeling of difference turns into a restlessness."* (Ell Bulli, 2011)

Although the term molecular gastronomy is recent as well as its techniques, if we pay special attention to the history of the cuisine, we notice that from very early on we have used other "most common" elements to change the physical composition of foods and improve the taste of them. Being the greatest example of all, the use of fire, which completely alters food through countless processes (Bernardo, 2018).

This example shows that molecular gastronomy, although it is a relatively recent concept, is something somewhat familiar, we are only finding new ways to change the food components beyond those we are already familiar with, such as the example of fire, spices or even the use of electromagnetic waves.

2.2. History of Molecular Gastronomy

- 1980s: French chemist Hervé This begins to explore the science behind cooking and becomes one of the main pioneers of molecular gastronomy (Educação, n.d.).
- 1990s: Spanish chef Ferran Adrià, of the restaurant El Bulli, starts experimenting with new techniques and ingredients in the kitchen, applying principles of chemistry, physics, and biology to create textures, flavours, and presentations in his dishes (Educação, n.d.).
- 2000s: Other influential chefs, such as Heston Blumenthal and Pierre Gagnaire, also adopt molecular gastronomy techniques in their restaurants (Mota, 2018).
- 2010s: Molecular gastronomy becomes even more popular and starts being used in gastronomic events and festivals worldwide, attracting the attention of tourists interested in experiencing new forms of cuisine (Spence, n.d.).

– Currently: Molecular gastronomy has become a tourist attraction in itself, with many tourist destinations investing in gastronomic events and festivals that highlight local cuisine and offer dishes elaborated with techniques and ingredients from molecular gastronomy (Bentz, 2020).

2.3. Techniques of Molecular Gastronomy

Molecular gastronomy uses, for the basis of research and creation of techniques, the science of food, these are extremely well studied, from its physical and biological aspects, biochemical composition and to the influences that the food causes at the physical and psychological level (Muñoz Camino & Tocagón Imbaquingo, 2023).

Since the beginning of the popularization of this gastronomic subcategory we have found it difficult to understand whether the experts understood in the area consider themselves cooks or scientists. But why should we make this distinction? Looking from the point of view of nutrition, it was through science that we were able to understand more about food, without this science of food we would not know how to manipulate them, and gastronomy would not be on the level that is today (Bernardo, 2018).

However, these professionals took the next step, in addition to understanding the principles of food science, they also studied the principle of cooking, combining the best of the two worlds so that new techniques can be created and later on improved.

2.3.1. Emulsification

The process of mixing two liquids that do not normally mix, such as oil and water, to create a stable emulsion is important in molecular gastronomy. Chefs use different emulsifiers, such as lecithin, to achieve this. (Verde, n.d.)

2.3.2. Gelification

Gelification is the transformation of a liquid into a gel and is often used in molecular gastronomy to create unique textures in desserts and dishes. Chefs use different gelling agents, such as agar-agar and gelatine, to create gels with different consistencies and textures. (Verde, n.d.)

2.3.3. Spherification

Spherification is a technique where liquids are transformed into spheres or small capsules using sodium alginate and calcium chloride. This allows chefs to create dishes with unique presentation and concentrated flavours. (Verde, n.d.)

2.3.4. Sous-vide

The sous-vide technique involves cooking food at a low temperature in a vacuum-sealed bag for an extended period. This enables chefs to have precise control over the texture and flavour of the food, surpassing traditional cooking methods. (Paiva, 2018)

2.3.5. Foams

Foams are created using emulsifiers and are often used to add texture and flavour to dishes. Chefs employ various techniques, such as siphons and mixers, to create foams with different densities and flavours. (Verde, n.d.)

2.3.6. Liquid nitrogen

Liquid nitrogen is frequently used in molecular gastronomy to rapidly freeze food and create desserts and dishes with unique textures. Chefs also use liquid nitrogen to create smoke and infuse flavours into ingredients. (Verde, n.d.)

2.4. Food Safety in Molecular Gastronomy

Food safety is a major concern in any type of cuisine, including molecular gastronomy. Since this culinary approach is innovative and experimental, it often involves the use of ingredients, techniques, and equipment that may be new or unusual. (Véjar Amarillas, 2012)

For this reason, it is crucial for chefs working with molecular gastronomy to practice food safety measures to ensure that the prepared food is safe for consumption. Some of the measures that can be taken to ensure food safety in molecular gastronomy include:

– Proper storage of ingredients: Some ingredients used in molecular gastronomy, such as food additives and gases used to create foams, can be perishable or sensitive to light and temperature. It is important to store them correctly to prevent spoilage or loss of their properties. (Safety, n.d.)
– Safe handling of ingredients: Frequently washing hands and using utensils properly to prevent cross-contamination.
– Temperature control: Temperature is a critical factor in food safety. Foods should be stored and cooked at safe temperatures to prevent the proliferation of bacteria and other microorganisms that can cause illness. (Véjar Amarillas, 2012)
– Implementation of good hygiene practices: Hygiene is fundamental in molecular gastronomy, and handlers should adopt good hygiene practices at all stages of food preparation. (Véjar Amarillas, 2012)
– Knowledge of ingredient properties: Since molecular gastronomy involves the use of uncommon ingredients and innovative techniques, it is important for practitioners to have a deep understanding of the properties of the ingredients they are using to avoid any risk of foodborne illness. (Véjar Amarillas, 2012)

Food safety is thus a crucial aspect of molecular gastronomy and should be considered paramount by all individuals involved in food preparation. Professionals working in this

field should stay updated on the necessary precautions to ensure that the prepared food is safe for consumption. (Safety, n.d.)

3. Methodology

The methodology of this work consisted of a literature review in national and international databases and analysis of case studies.

Initially, a comprehensive literature review was conducted to understand the theoretical foundations of molecular gastronomy and its relationship with tourism.

Next, successful examples were selected to illustrate the application of molecular gastronomy in the context of tourism. The successful examples were analysed in detail, considering aspects such as culinary innovation, impact on the local tourism offering, involvement of renowned chefs, and positive reception by tourists. Through this analysis, a clear connection between molecular gastronomy and tourism was established, highlighting its importance as a competitive differentiator and a driver of the industry.

Finally, the obtained results were interpreted and discussed, taking into consideration the contributions of molecular gastronomy to tourism, as well as the challenges and opportunities related to this interaction. Based on this analysis, evidence-based conclusions, and perspectives for future research in this field were presented.

4. Results and discussion

Molecular gastronomy began to be integrated into tourism in the 2010s, when it gained popularity and started being used in culinary events and festivals worldwide. Since then, many tourist destinations have embraced this culinary trend as a way to attract visitors seeking new gastronomic experiences (Spence, n.d.).

Some tourist destinations have already recognized the potential of molecular gastronomy in attracting visitors interested in innovative culinary experiences.

One of the destinations that has greatly benefited from molecular gastronomy in gastronomic tourism is the city of San Sebastián, in the Spanish Basque Country. The city is known for having one of the highest concentrations of Michelin stars per capita in the world, and many of its restaurants employ techniques and concepts of molecular gastronomy in their dishes (Turismo, n.d.).

San Sebastián has attracted gastronomic tourists from around the world who are interested in experiencing Basque cuisine and the creations of chefs such as Juan Mari Arzak, Andoni Aduriz, and Martin Berasategui, who are renowned in the field of molecular gastronomy (Turismo, n.d.).

Other tourist destinations that are excelling in molecular gastronomy and gastronomic tourism include Copenhagen, Denmark, home to the restaurant Noma, and Lima, Peru, which boasts a rich and diverse culinary scene that has gained international recognition. Many of its restaurants incorporate techniques and concepts of molecular gastronomy in their dishes (Ventos, 2013).

One of the major events that showcases the relationship between molecular gastronomy and tourism is the Culinary World Cup, organized by Expogast, which generates a significant influx of tourists and revenue to any destination where it is held (Expogast, 2013).

The Culinary World Cup is an internationally renowned competition that encompasses various aspects of gastronomy, including molecular gastronomy. In this event, chefs from around the world come together to showcase their skills and creativity in creating innovative and visually stunning dishes (Monde, n.d.).

In this competition, molecular gastronomy is celebrated as an advanced culinary form of expression, where participants have the freedom to experiment with new ingredients, utilize innovative techniques, and create visually artistic presentations. Through molecular gastronomy, chefs can transcend the boundaries of conventional cuisine, providing judges and the audience with a unique and exciting gastronomic experience (Monde, n.d.).

In other words, the Culinary World Cup serves as a stage for molecular gastronomy to shine, offering chefs the opportunity to demonstrate their talent, innovation, and mastery in creating dishes that go beyond the traditional. This competition highlights the power of molecular gastronomy in redefining and elevating the gastronomic experience, driving the evolution of cuisine worldwide (Expogast, 2013).

The relationship between molecular gastronomy and tourism has been increasingly explored in recent years. On one hand, molecular gastronomy offers a unique and distinctive gastronomic experience that can attract a more diverse and demanding audience. On the other hand, gastronomic tourism has grown significantly, with more people traveling to experience the culinary culture of different countries and regions (Bentz,2020).

Although molecular gastronomy can offer innovative and visually impressive dishes, there is a risk that the focus on technique and appearance may compromise the quality and safety of the food. Food safety is a critical concern in any type of cuisine, and molecular gastronomy is no exception (Mota, 2018).

Furthermore, molecular gastronomy can be seen as elitist due to the technical complexity and exotic ingredients used

in many dishes. This may limit access to this gastronomic experience to a more restricted audience, which can have implications for inclusion and diversity in the tourism industry (Mota, 2018).

Another important issue is sustainability. Molecular gastronomy can be viewed as a cuisine that consumes many resources, particularly in terms of energy and materials used in the processes of dish creation and presentation. This can be detrimental to the environment and contradict the concept of sustainable tourism, which focuses on preserving natural and cultural resources.

Concerns about food safety and environmental stewardship have developed over time. One is increasingly aware and concerned regarding the environment, and has realized that it is vital and necessary, as well as, in many respects, exhaustive. Improper use of earth's resources jeopardizes future generations well-being. Furthermore, customers are becoming more conscious of sustainability issues as well as the welfare of animals utilized in the process of producing food (Junior et al, 2021).

The topic regarding how sustainable molecular gastronomy truly is something that is currently hardly addressed among those with an understanding of the issue, since they address an even wider spectrum of cuisine. Even though, the component of the usage of chemical compounds like nitrogen is something criticized when we consider a sustainable point of view, the wide horizons in terms of creativity that molecular cuisine offers, along with the ability of manipulating ingredients, allows the consumption of seasonal ingredients reducing, therefore, the need to transport food across long distances, which reduces the emissions of greenhouse gases associated with exportation refrigerated storage.

Since we are looking at the issue of sustainability, another issue to highlight is the shutting of some internationally recognized restaurants of molecular cuisine. For example, el Bulli the establishment runned by the chef Ferran Adrià. It is essential to emphasize that, the restaurant merely closed to due to a different concept envisioned by this renowned chef. The launch of a culinary research foundation named elBullilab aiming to expand scope of research and technology applied to ingredients, techniques, environment, and advances in molecular gastronomy. This practice has gained substantial strength in recent years (Pinto, 2018).

We also feel the need to analyse the endurance and practicality of these projects. one could argue that this kind of establishment might not be profitable in terms of longevity, considering molecular gastronomy hasn't established (at this point) a clearly defined niche. Yet, research points to the development of this sector, this cuisine is a phenomena experienced since the emergence of the Nouvelle cuisine, which is in turn where molecular gastronomy emerged from, this indicates that innovation continues to occur up until now (Veronese, 2009).

The fact of the matter is that molecular gastronomy has an incredibly high adaptability given its concepts and principles. The opportunities have not yet reached the peak of their potential. Once one manages to take advantage of these principles to uphold a niche, while simultaneously considering all the compelling components mentioned throughout this article, and the undeniable popularity of this notion, the durability factor becomes an absolute certainty (Veronese, 2009).

Therefore, molecular gastronomy plays an important role in tourism, not only as an attraction itself but also as a way to promote local gastronomic culture and attract visitors interested in new culinary experiences. However, it is important to consider the potential risks and challenges involved in this relationship, ensuring that food quality and safety, inclusion and diversity, and sustainability are considered in the making and promotion of such gastronomic experiences.

5. Conclusions

With this work, it was possible to verify that the molecular gastronomy can be a major attraction for gastronomic tourism, as it is an innovative and experimental cuisine that can be seen as a spectacle or a unique experience. Furthermore, molecular gastronomy can help create unique and surprising dishes that can become a signature of a tourist destination, attracting more tourists interested in experiencing something new and different.

On the other hand, tourism can help drive molecular gastronomy by providing a broader audience to experience these innovative dishes. Gastronomic tourism can promote molecular gastronomy by offering opportunities for chefs and restaurants to explore new techniques and dishes, as well as providing a market for these culinary creations.

This study presents as a limitation the limited work that still exists on this topic, with the need for further studies to be developed, particularly on the economic impacts of this type of gastronomy and its effect on the growth of tourism in local areas. However, this research seems to bring good future perspectives on innovation and the appreciation of this cuisine.

So, molecular gastronomy can have a positive impact on gastronomic tourism and tourism activity in general, as it can offer a unique culinary experience while promoting local gastronomy and attracting more tourists interested in exploring new flavours and culinary techniques.

Funding
Funded by national funds through FCT – Portuguese Science and Technology Foundation, within the project reference UIDB/04470/2020.

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DOI: 10.34620/978-83-67405-28-7-019 • 71 • 2024 • 168-182

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Proceedings of the International Tourism Congress 23

The impact of the Madeira Airport expansion on tourism and sustainable development in the city of Machico

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Abstract

This study analyzes the impact of the expansion of the Madeira Airport on tourism and sustainable development in the city of Machico. The airport expansion has played a significant role in increasing the influx of tourists to the region, providing Machico with a unique opportunity to boost the tourism sector and promote local economic development. However, it is crucial to assess and understand the resulting impacts of this growth and ensure that sustainable measures are implemented to minimize negative effects on both the environment and the local community.

To promote sustainable tourism, it's essential to establish policies that value the preservation of the environment and cultural heritage, as well as promote active participation from the local community. Measures such as implementing environmental practices, creating protected areas, and promoting local businesses that value culture and tradition are essential to ensure a balance between tourism growth and long-term sustainability.

As highlighted in our study's conclusions, the expansion of Madeira Airport is a double-edged sword, offering both opportunities and challenges. In summation, this research underscores the urgent imperative of sustainable tourism development in Machico as the pathway to achieving a harmonious coexistence of economic growth, environmental conservation, cultural enrichment, and community involvement.

Keywords

Airport Expansion Impacts • Machico Tourism Development • Environmental Conservation • Local Community Involvement • Protected Areas

1. Introduction

The expansion of the Madeira International Airport, known as Cristiano Ronaldo Airport, has had a profound and multifaceted impact on the development of tourism in the picturesque region of Machico. This expansion, driven by the growing influx of tourists to Madeira Island, serves as a pivotal gateway connecting the autonomous region to the mainland and beyond. In response to the surging demand for air travel and the tourism sector, the airport has undergone a series of expansions and enhancements over the years. These infrastructural transformations, while aimed at facilitating tourism and economic growth, have precipitated various challenges and opportunities for Machico.

The ramifications of the airport's expansion reverberate throughout the Machico region, notably in the form of land occupation and expropriation. This resulted in the relocation of families, leaving indelible marks on the community's social fabric. Yet, amidst these challenges, Machico retains its inherent tourism potential (Alves, Lousada, Cabezas, & Gómez, 2023). Evidenced by the growth in the number of Local Lodging accommodations (AL) and a substantial uptick in overnight stays, tourists continue to be drawn to the allure of Machico.

However, achieving sustainable tourism in islands requires a multifaceted approach. Sustainable development projects

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in island destinations encompass a range of strategies aimed at preserving natural and cultural heritage, promoting environmental conservation, and fostering community engagement (Bramwell, 2013). These initiatives align with global efforts to ensure that tourism benefits local communities, minimizes environmental impacts, and provides authentic experiences (UNWTO, 2019).

This study analyzes the impact of the expansion of the Madeira Airport on tourism and sustainable development in the city of Machico. The airport expansion has played a significant role in increasing the influx of tourists to the region, providing Machico with a unique opportunity to boost the tourism sector and promote local economic development. However, it is crucial to assess and understand the resulting impacts of this growth and ensure that sustainable measures are implemented to minimize negative effects on both the environment and the local community.

2. Methodology

In this section, we outline the methodology employed to assess the impact of the expansion of Madeira Airport on tourism in the Machico region and to develop strategies for sustainable tourism development. The study combines various research methods and approaches to provide a comprehensive understanding of the complex relationship between airport expansion, tourism, and sustainability.

2.1. Data collection

A comprehensive review of academic literature, government reports, and relevant case studies was conducted to gather insights into sustainable tourism practices, the impacts of airport expansions on local communities, and best practices from similar island destinations like the Azores and Seychelles. Official documents, local government reports, and historical records were analyzed to understand the history of airport expansions, changes in land use, and the impact of these expansions on Machico's tourism industry.

2.2. Data analysis

GIS tools were utilized to assess the spatial aspects of land use, including changes in land allocation, proximity to protected areas, and the distribution of tourist accommodations.

2.3. Sustainable Tourism Strategies Development

Based on the findings from the literature review, interviews, and GIS analysis, a set of sustainable tourism strategies was developed. These strategies aim to address the challenges posed by airport expansion and promote sustainable tourism development in Machico.

2.4. Continuous Monitoring and Evaluation

The continuous monitoring and evaluation framework were established to track the impact of tourism development in Machico. Key indicators, such as tourist arrivals, accommodation occupancy rates, and environmental impact assessments, are monitored regularly to assess the effectiveness of the sustainable tourism strategies.

2.5. Limitations

It is essential to acknowledge the limitations of this study. One limitation is that the study relies on historical data and stakeholder opinions, which may be subject to recall bias and subjectivity. Additionally, while the research provides valuable insights, the strategies proposed are based on existing knowledge and require further testing and validation.

3. Tourism in Machico

3.1. Territorial, demographic, and tourist background

According to (Alves, Silva, & Lousada, 2022), Machico is a municipality located on the westernmost tip of the island of Madeira (Fig. 11). Its territorial area covers an extension that ranges from the sea to the northern mountains, encompassing a total of 68.31 km². The municipality shares borders with Santa Cruz to the southwest and with Funchal to the west, through a small strip north of Santa Cruz. Additionally, Machico also borders Santana to the northwest. The municipality is composed of five parishes: Porto da Cruz, Caniçal, Machico, Santo António da Serra, and Água de Pena.

Based on the information from (Alves, Silva, & Lousada, 2022), the resident population of Machico municipality has been decreasing over the years, with a reduction of 9.2% between 2009 and 2020 (Fig. 12). In 2020, the resident population was approximately 19,926 inhabitants. With a population density of around 287 inhabitants per km², Machico has the fourth highest population density in the Autonomous Region of Madeira (Fig. 13).

According to (Alves, Silva, & Lousada, 2022), in the tourism sector, the municipality of Machico has significant potential but has been losing tourist ventures over time. In 2020, there were 13 tourist accommodations in Machico (Fig. 14), which represented a decrease of 9 compared to 2019. Currently, according to the 2021 data from Turismo de Portugal, there are only 9 tourist accommodations in Machico, with 7 being hotels and the rest being Agrotourism and Country Houses. These establishments offer a total of 407 rooms, corresponding to a total number of beds of 813.

However, despite the reduction in the number of tourist ventures, the Local Accommodation (AL) sector has been increasing in Machico. Currently, there are about 191 AL registrations, distributed across the 5 parishes of the

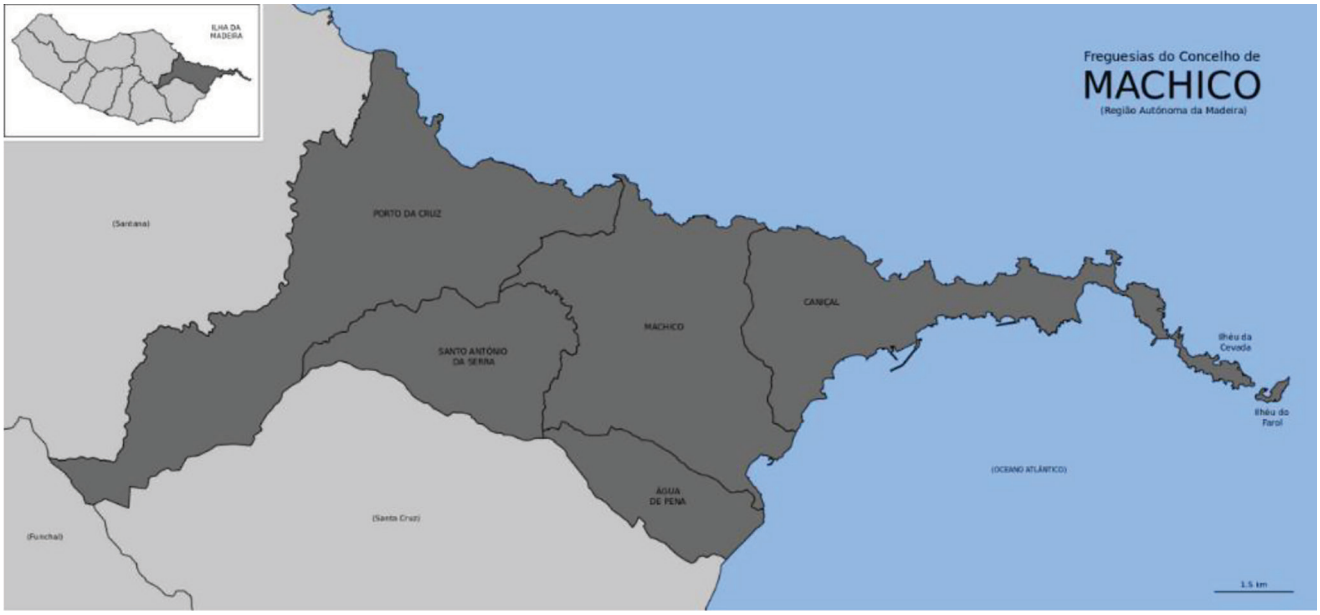


Figure 11. Municipality of Machico and its respective parishes. *Source*: (Alves, Lousada, Cabezas, & Gómez, The Importance of the Strategic Urban Rehabilitation Plan in the Sustainable Development of the Municipality of Machico, 2022).

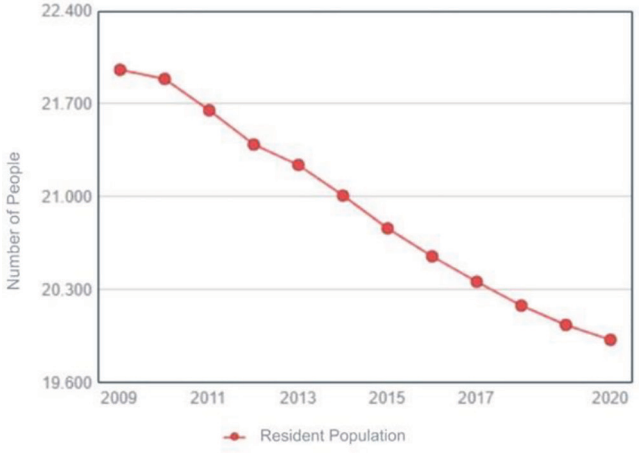


Figure 12. Resident Population in Machico Municipality. *Source*: Adapted from (Alves, Silva & Lousada 2022).

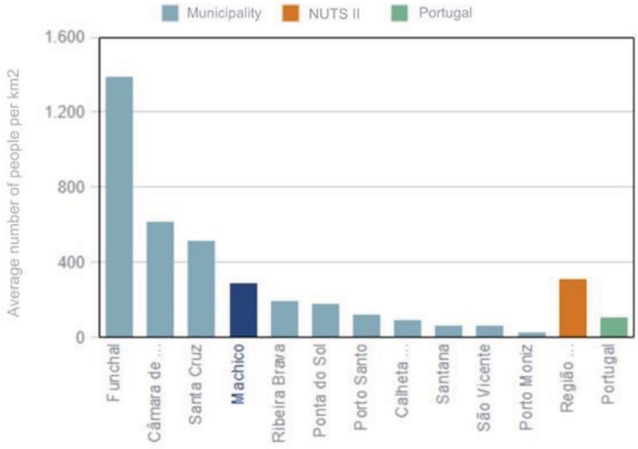


Figure 13. Average Number of Individuals per km^2. *Source*: Adapted from (Alves, Silva & Lousada, 2022).

municipality, with 57% of them located in the Machico parish. These AL registrations include a total of 418 rooms, corresponding to a total number of beds of 596 (Fig. 15). AL represents approximately 57% of the total available rooms and 47% of the total available beds in Machico (RNAL, 2023). In 2021, some specific municipalities stood out in this increase in overnight stays. Ribeira Brava registered an impressive annual growth of 170.8%, followed by Machico with 144.6%, Porto Santo with 128.3%, and São Vicente with 120.4%. Machico had 16 tourist accommodation establishments with 328 rooms and a capacity to accommodate 676 guests.

It is interesting to note that Machico continued to register significant increases in the number of overnight stays in 2022. The growth of 204.4% shows a considerable increase, although it is lower than the regional average of 235.0%.

In the first two months of 2023, all municipalities in the region saw significant increases in the number of overnight stays in tourist accommodations. In January 2023, Machico, Ribeira Brava, Santa Cruz, and Santana were the municipalities that registered the most significant increases, with percentages of 210.9%, 128.9%, 104.0%, and 90.5%, respectively.

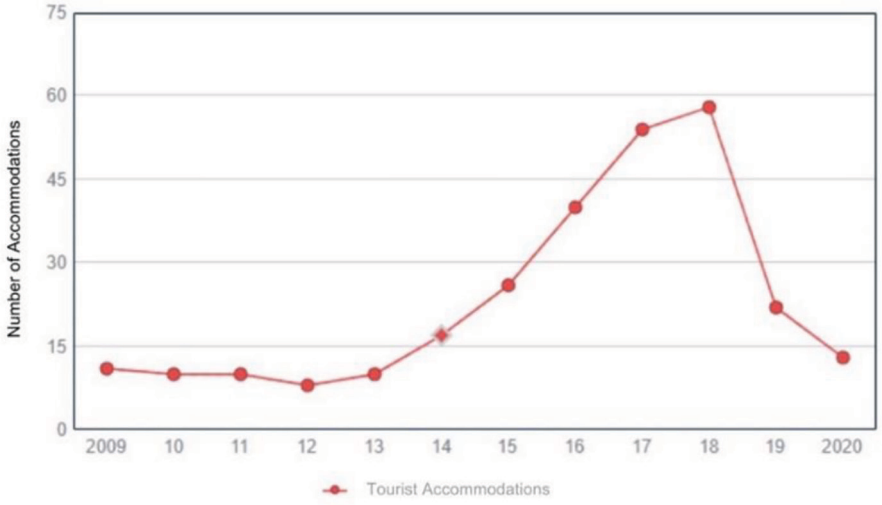


Figure 14. Tourist Accommodations in Machico. *Source*: Adapted from (Alves, Silva & Lousada, 2022).

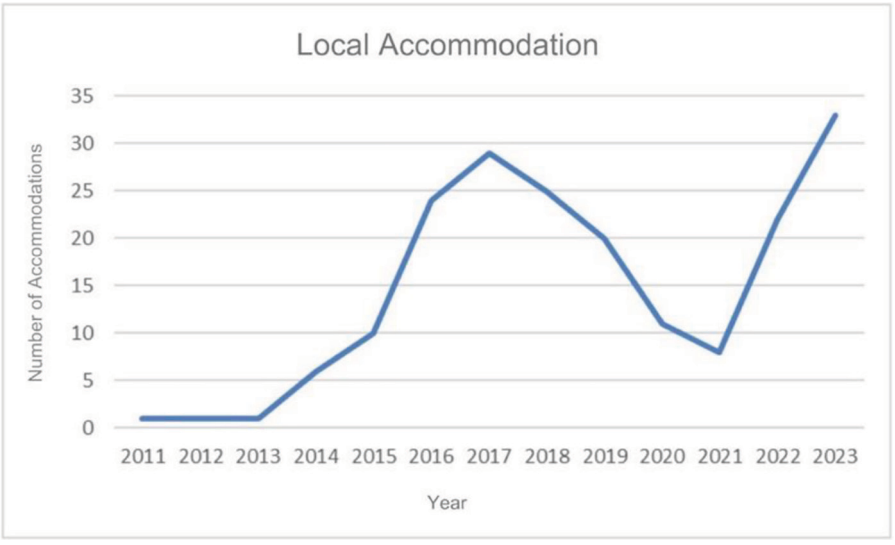


Figure 15. Growth of Local Accommodation in Machico. *Source*: Author.

After further analysis of the data provided by the Regional Directorate of Statistics of Madeira – DREM (DREM, 2023), we can observe a substantial increase in tourist flow in Machico during January 2023 compared to the same period of the previous year. These positive results can be attributed to several factors. Firstly, the implementation of sustainable development projects, such as initiatives aimed at conserving local ecosystems, promoting eco-friendly tourism practices, and enhancing infrastructure sustainability, have played a pivotal role in attracting environmentally conscious travelers. Additionally, efforts in the preservation and promotion of the region's rich natural and cultural heritage, including historical sites, traditional festivals, and local cuisine, have further contributed to Machico's appeal as a desirable destination for tourists seeking authentic experiences. The data are:

- Establishments: Machico has 18 tourist accommodation establishments.
- The accommodation capacity in Machico is 776 beds. The net bed occupancy rate in Machico was 50.5%, indicating that half of the available beds were occupied during January 2023. The net room occupancy rate in Machico was 55.7%, reflecting the average room occupancy in tourist accommodation establishments.
- Entered guests: Machico registered the entry of 4,619 guests, representing a significant increase of 285.9% compared to the same period of the previous year.

- Total guests: The total number of guests in Machico was 5,062, which corresponds to a 242.5% increase compared to the previous year.
- Overnight stays: There were a total of 16,421 overnight stays in Machico, showing a significant growth of 210.9% compared to January of the previous year. Of the 16,421 overnight stays in Machico, 9,346 were from guests residing in Portugal. In addition to Portugal, the countries that contributed significantly to overnight stays in Machico include Germany (26,902), the United Kingdom (6,605), Poland (7,900), France (2,970), and the Netherlands (2,261), among others.
- Average length of stay: The average length of stay of visitors in Machico was 3.24 nights per guest, indicating that tourists tend to spend more than three nights in the municipality.
- Revenues: The revenues in Machico totaled 482,785 euros during January 2023. Revenue Per Available Room (RevPAR): The RevPAR in Machico was 315.891 euros, calculated by dividing the revenues by the available rooms. Average Daily Rate (ADR): The ADR in Machico was 28.07 euros, calculated by dividing the revenues by the overnight stays. Personnel costs: Personnel costs in tourist accommodation establishments in Machico were 93,752 euros.

In February 2023, Machico, Ribeira Brava, Santana, Santa Cruz, and Câmara de Lobos were the municipalities that observed the most significant increases, with percentages of 295.2%, 158.2%, 122.1%, 120.2%, and 120.0%, respectively.

The municipality registered a total of 18,085 overnight stays in tourist accommodations. These overnight stays came from different countries of habitual residence of the guests. Among the guests who chose Machico as a destination, those from Portugal stand out, with a total of 3,345 overnight stays, followed by those from Poland, with 3,101 overnight stays. Additionally, there were overnight stays from other countries such as Germany, Austria, Belgium, Denmark, Spain, Finland, France, Italy, the Netherlands, Poland, the United Kingdom, Sweden, and Norway.

We can observe that the municipality has 18 tourist accommodation establishments, with a total capacity of 773 beds. In February 2023, the net bed occupancy rate in Machico was 61.4%, indicating good occupancy of the available spaces. Additionally, the net room occupancy rate was 55.6%, showing that most of the available rooms in the establishments were occupied.

Regarding revenues, the establishments in Machico recorded a total of 517,818 euros. The Revenue Per Available Room (RevPAR) was 34.77 euros, indicating the average revenue generated per available room. The Average Daily Rate (ADR), representing the average daily rate, was 31.25 euros in Machico.

It is also important to highlight the personnel costs in tourist accommodation establishments in Machico, which totaled 148,117 euros. These costs represent the expenses related to the employees responsible for customer service and services in the establishments.

Sustainable tourism development in island destinations is a topic of global significance, considering the unique challenges and opportunities they face (Buckley, 2009). The vulnerability of island ecosystems and the finite availability of resources necessitate a strategic approach to balance economic growth with environmental preservation and community involvement (Hall, 2001).

We delve into the fascinating demographic trend of a reduction in the resident population of Machico, which indeed is an intriguing facet of this study. The depopulation of an area often mirrors the complex interplay between tourism development and local communities. The influx of tourists and the subsequent growth of the tourism industry can exert both positive and negative influences on the resident population. While it can create employment opportunities and stimulate economic growth, it may also lead to higher living costs and a transformation of the local culture and lifestyle.

3.2. The Airport Expansion and the impact on Tourism in Machico

The expansion of Madeira Airport resulted in its establishment in the municipalities of Machico and Santa Cruz. This implementation led to the occupation and expropriation of several specific areas in the municipality of Machico, including:

- Bairro dos Pescadores: The airport expansion led to the occupation of this area, resulting in the need to relocate the displaced families. As a solution, a new neighborhood was built to accommodate these families.
- Machico Health Center: The airport's implementation also impacted the area where the Machico Health Center was previously located. To address this, a new Health Center was constructed in the Machico parish to continue providing healthcare services to the local population.
- Matur Tourist Complex: The airport expansion had a significant impact on the Matur Tourist Complex, resulting in its abandonment by the responsible authorities. Unfortunately, the area transformed from a renowned regional tourist development into an urban chaos, characterized by illegal constructions, expansions, and irregular appropriations of spaces.

The expansion of the airport resulted in the complete destruction of the largest tourist development in the region, the Matur Tourist Complex (Fig. 16). The Matur Complex



Figure 16. Matur Tourist Complex. *Source*: Retratos de Portugal.

was a landmark in Madeira's hotel industry. It also featured an extensive landscaped park, congress facilities, a bridge club, restaurants, an Olympic-sized swimming pool, and more (Carita, 2021).

The first tourist city in Madeira was built in the area of the former Quinta da Queimada in the early 1970s by Fernanda Pires da Silva. Throughout the years it was in operation, the Matur Tourist Complex contributed to the region's tourism development, offering an alternative accommodation option away from the center of Funchal. The hotel had about 301 rooms, 21 suites spread over its 14 floors, and two swimming pools, one heated indoor and the other outdoor.

On February 1, 1995, the closure of the Hotel Atlantis began. This hotel, with 22 years of history, closed its doors and initiated a collective layoff process for its 230 employees. The owners justified its closure due to the inadequate management of state intervention from 1975 to 1978, which led to capital reduction and a considerable existing liability. They also mentioned the expansion works of Funchal airport, foreseeing that its impact would suffocate any quality tourism activity in the region.

At the end of March 2000, approximately five years after the hotel's closure and almost 30 years after its construction began, Hotel Atlantis was demolished (Fig. 17) due to its incompatibility with the extension of Santa Catarina Airport's runway. Currently, the complex remains abandoned (Fig. 18). The loss of the Matur Tourist Complex had a significant impact on the local economy and resulted in the reduction of available lodging capacity in the municipality of Machico. An estimated 1300 beds in tourist accommodation were lost, and up to the present, these beds have not been replaced due to limitations imposed by the Regional Secretariat of Tourism, based on the Program of Tourism Planning for the Autonomous Region of Madeira – POT (DRE, 2002).

The POT (DRE, 2002), established in 2002, stipulated that until the year 2012, the maximum limit of tourist accommodation for the Autonomous Region of Madeira should be set at 35,000 beds on the island of Madeira and 4,000 beds on the island of Porto Santo. On the island of Madeira, these limits were distributed as follows:

- Funchal: 23,000 beds.
- Santa Cruz and Machico: 5,500 beds.
- Câmara de Lobos, Ribeira Brava, Ponta do Sol, and Calheta: 4,000 beds.
- Santana, São Vicente, and Porto Moniz: 2,500 beds.



Figure 17. Demolition of Hotel Atlantis. *Source*: Retratos de Portugal.



Figure 18. Abandoned Swimming Pool in the Matur Tourist Complex. *Source*: Retratos de Portugal.

With the destruction of the Matur Tourist Complex, Santa Cruz ended up absorbing practically all 4,000 beds initially allocated for the municipality. This resulted in an imbalance in the distribution of tourist accommodation beds in the region.

Currently, in the "abandoned" area of Matur, construction is impossible due to a series of restrictions and regulations related to airport activities and civil aviation safety. These restrictions are established by Law No. 2078, of July 11, 1955 (DG, 1955), and Decree-Laws No. 45986 and 45987, both of October 22, 1964 (DG, 1964a) and (DG, 1964b).

According to the requirements established in Annex 14 of the International Civil Aviation Convention, approved by the International Civil Aviation Organization – ICAO (ANAC, 1944), areas adjacent to civil aerodromes and civil aviation support facilities are subject to military and/or aeronautical easements.

The regionalization of airport activities in the Autonomous Region of Madeira, established by Decree-Law No. 294/80, of August 16 (DRE, 1980), transferred to the region the responsibility for planning, construction, and operation of airport infrastructures. The Regional Directorate of Airports, within its competencies, is responsible for creating and defining the easements related to airport activities and civil aviation support facilities.

Through Regional Legislative Decree No. 8/92/M, of April 21 (DRE, 1992), the planning and operation concession for public service support to civil aviation in the Autonomous Region of Madeira was granted to ANAM - Aeroportos e Navegação Aérea da Madeira, SA. The concessionaire assumed the obligation of conservation and defense of the established aeronautical easements.

Thus, an aeronautical easement is established for the area adjacent to Madeira Airport, as defined in Regional Regulatory Decree No. 1/2014/M (DRE, 2014) and the plan attached to it. These measures aim to ensure the safety and proper functioning of the airport and the corresponding airspace.

In the Caniçal parish, as a way to compensate for the number of lost beds due to the demolition of the Matur Tourist Complex, a new development emerged. However, the construction of this resort, known as Quinta do Lorde (Fig. 19), faces a series of legal and environmental challenges.

According to Público (2009), one of the main issues is that the resort was built in a protected area belonging to the Natura 2000 Network (IFCN, 2020), without the mandatory prior authorization from the Madeira Natural Park - PNM. The construction's licensing is currently under investigation by the Public Prosecutor's Office, which requested the Municipality of Machico to provide either the required prior authorization by law or, alternatively, a report from PNM justifying the lack of such authorization.

Additionally, according to Público (2009), the construction's licensing also violates the Municipal Master Plan - PDM (DRE, 2005) and faces legal obstacles related to the ownership of the land where the resort is being built since it is an area of maritime public domain. According to Decree-Law No. 218/94 (DRE, 1994), which establishes guidelines for the coastal



Figure 19. Panoramic View of Quinta do Lorde. *Source*: (Trip Advisor, 2023).

zone, no private uses involving new constructions and fixed and permanent facilities can be granted in this area without the approval of a Coastal Shore Planning Plan – POOC (DRE, 2002). However, so far, no POOC has been approved in Madeira.

The Quinta do Lorde project, presenting itself as developed within a protected natural reserve, represents a significant investment of 100 million euros. The resort includes infrastructure supporting the marina and nautical activities, dining and commercial areas, over 750 beds spread across apartments and villas, a luxury hotel, and a spa (Público, 2009).

The company 'Quinta do Lorde Resort Hotel,' currently undergoing insolvency proceedings, had the entire Caniçal development put up for sale for the minimum value of 54 million euros. The announcement of this sale reveals that the object of the sale includes the building of the development, 155 tourist housing units, and the concession right of the marina for 75 years, among other assets.

It is important to highlight that the expansion of Madeira Airport also had significant environmental impacts. Some of the negative environmental impacts associated with the airport expansion include:

1. Changes in the natural environment: The airport expansion required the removal of green areas and the alteration of Machico's natural environment. This may have led to the loss of natural habitats and a decrease in local biodiversity.
2. Greenhouse gas emissions and air pollution: The increased air and land traffic resulting from the airport expansion contributed to higher greenhouse gas emissions. Additionally, increased traffic can lead to higher air pollution, affecting the air quality in the region.
3. Pressure on natural resources: With the increase in tourist activities resulting from the airport expansion, there was a greater demand for natural resources such as water and energy.

Despite the negative aspects, the airport expansion also had positive impacts on tourism and the development of Machico city, which can be categorized into economic, social, and environmental aspects.

1. Economic:
   - The airport expansion resulted in a significant increase in the number of tourists visiting Machico, contributing to the growth of the tourism sector and the generation of jobs in the city.
   - The increased flow of tourists also stimulated the development of new businesses and tourist services, such as hotels, restaurants, and travel agencies, boosting the local economy.
   - The airport expansion attracted foreign direct investments to the region, benefiting the local economy and infrastructure.
2. Social:
   - The arrival of a higher number of tourists brought social benefits to Machico city, such as increased international visibility, cultural exchange, and diversification of leisure and entertainment activities available to residents.
   - However, the pressure caused by increased tourism also brought social challenges, such as the overload of infrastructure and public services, rising property prices, and the loss of local identity.

4. Strategies for sustainable development

Considering the identified impacts of the expansion of Madeira Airport on tourism and the development of Machico city, it is crucial to adopt strategies and measures to promote sustainable development in the region.

In the context of tourism, the visitor experience is recognized as a multifaceted and intricate phenomenon influenced by a wide array of tangible and intangible factors (Bideci, 2018). This experience often revolves around the extraordinary, memorable, and sometimes even peak encounters with products, services, and destinations (Maslow, 1964); (Arnould, 1993); (Pine, 1999). It is typically orchestrated in planned physical environments where service providers can exert control over the experience's formation and delivery. However, an exception to this rule emerges when tourists venture underwater, delving into an unplanned, dynamic, and unfamiliar realm distinct from their daily surroundings.

4.1. Land use planning

It is essential to develop appropriate land use planning to prevent the city's disfigurement and ensure the preservation of natural areas. This includes defining specific zones for tourism, protecting sensitive areas, and establishing construction limits.

With a total of 8 designations in the Natura 2000 Network (IFCN, 2020), Machico has the highest number of protected areas among Madeiran municipalities. The Natura 2000 Network (IFCN, 2020) is a network of protected areas in the European Union, aimed at preserving vulnerable habitats and rare or threatened species in Europe (Fig. 20).

Among the classifications in Machico, there are 3 Special Areas of Conservation under the Habitats Directive. They are: the SAC of Ponta de São Lourenço, known for its scenic

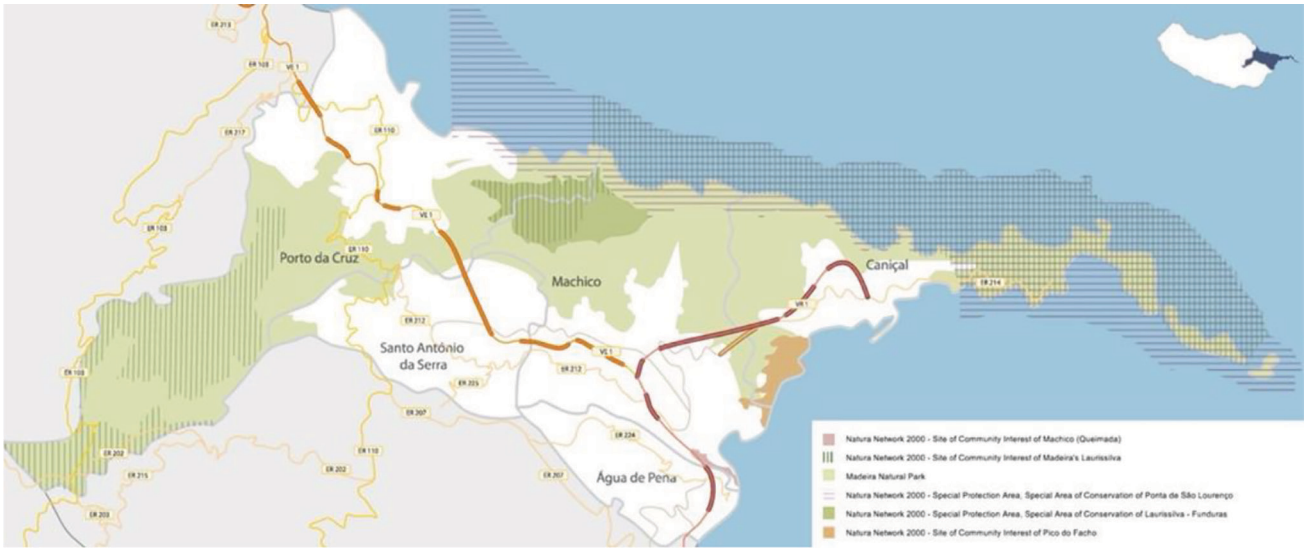


Figure 20. Natura 2000 Network in Machico. *Source*: Adapted from (Visit Machico, 2023).

beauty and for housing the Perpétua de São Lourenço (Helichrysum devium); the SAC of Laurissilva da Madeira, an ancient forest considered a UNESCO World Heritage Site; and the SAC of Maciço Montanhoso Central, characterized by its diversity of natural habitats.

In addition to the Special Areas of Conservation, Machico also has 3 Special Protection Areas under the Birds Directive, which are the SPA of Ponta de São Lourenço, the SPA of Laurissilva da Madeira, and the SPA of Maciço Montanhoso Oriental.

Two other sites of community importance are also part of Machico's biodiversity: the SCI Pico do Facho and the SCI Machico. These sites are recognized for housing natural habitats and species of flora and fauna listed in Annex B-II of the Habitats Directive.

The Madeira Natural Park, which covers about 50% of Machico's territory, and the Madeira Cetaceans SCI, which covers the marine areas of the islands of Madeira, Desertas, and Porto Santo, also contribute to biodiversity protection in Machico.

In order to promote sustainable tourism development in Machico, the Municipal Council will play a crucial role in creating Touristic Vocational Areas (AVT). These AVTs will be strategically defined zones in the territory, geared towards sustainable tourism. They will be operative units programmed within the framework of the implementation of the new Municipal Master Plan of Machico (PDMM).

The creation of AVTs aims to enhance Machico's tourism resources while ensuring appropriate control over the proliferation of Local Lodging (AL). This will favor tourism diversification and access to more affordable rental options. As an example, Figure 21 shows the AVT of the Água de Pena parish, coinciding with the current Matur area.

It is important to consider the evolution of short-term rental accommodations (AL) in cities around the world and the measures being taken to control their expansion. Therefore, the creation of at least seven Tourism Development Areas (AVTs) in Machico is recommended, considering the dispersion of AL in the municipality.

Establishing construction limits is essential to prevent the city's character from being altered and to maintain harmony between the natural environment and urban areas. The construction limits in Machico are established by the Municipal Master Plan (PDM) and other applicable urban regulations. Some of the main construction limits in Machico include:

1. Land use density: The PDM defines land use density indices that determine the maximum allowable built area in relation to the size of the land. These indices may vary according to urban and rural areas to control population density and preserve open spaces.
2. Maximum building height: To maintain visual harmony and avoid altering the urban landscape, there are height limits for buildings in certain areas of Machico. These limits may be established based on the building typology, the location's zone, and the surrounding characteristics.
3. Setbacks and separations: Requirements for setbacks and separations are established to ensure privacy, lighting, and proper ventilation for buildings. These measures can also contribute to preserving panoramic views and green areas.



Figure 21. Touristic Vocational Area (AVT) of Água de Pena, MATUR. *Source*: Adapted from (Alves, Silva & Lousada, 2022).

4. Preservation of historical heritage: Machico has areas of historical and architectural significance, such as the historic center. In these areas, there may be special restrictions to preserve the aesthetics and integrity of historical buildings, limiting construction and remodeling interventions.

The Historic Center of Machico is of great importance for preserving the region's historical and architectural heritage. It is in this area that settlement began after the discovery of Madeira Island in 1419, making it a place of significant historical value. The architectural characteristics of the Historic Center showcase a variety of styles and typologies. Figure 22 provides a glimpse of some of those architectural styles.

Successful sustainable tourism practices in island destinations offer valuable insights for Machico's development. Drawing on scientific evidence and case studies, we can identify best practices and lessons learned from other regions.

The Azores, another archipelago of Portugal in the North Atlantic Ocean, presents an exemplary case of sustainable tourism. Efforts to promote ecotourism and nature-based activities have been pivotal in conserving the region's unique biodiversity (Marques, 2020). The Azores have implemented strategies that engage local communities, such as the "Clean and Safe Azores" program, ensuring safety during the COVID-19 pandemic (Marques, 2020).

Seychelles, an island nation in the Indian Ocean, has prioritized marine conservation in its sustainable tourism approach. The establishment of marine protected areas (MPAs) and strict regulations on fishing and diving activities have contributed to preserving marine biodiversity (UNDP, 2021).

4.2. Environmental conservation and local community involvement

Active involvement of the local community in the sustainable development of tourism is essential. This can be achieved through the creation of discussion forums, public consultations, and participation in decision-making processes related to tourism. Involving the community ensures that the measures taken are tailored to local needs and desires.

In Machico, the ECOS MACHICO project is an example of combining knowledge and innovation to promote the sustainability of the territory. It encompasses environmental, social, and economic domains and aims to achieve several important objectives:

1. Sustainability-focused resources and services: The project aims to offer new resources and services that align with sustainability principles. This could involve implementing eco-efficient practices, using renewable energy sources, managing natural resources sustainably, and promoting sustainable lifestyles.



Figure 22. Buildings belonging to the Architectural Ensemble of the Historic Center of Machico, from top to bottom and from left to right, we have: Fort of Nossa Senhora do Amparo, Chapel of Nosso Senhor dos Milagres, Town Hall (Paços do Concelho), Church of Nossa Senhora da Conceição (Igreja Matriz de Machico), Solar do Ribeirinho, Chapel of São Roque. *Source*: (VisitMachico, 2023).

2. Territorial marketing strategy: ECOS MACHICO seeks to develop a territorial marketing strategy that highlights the natural and cultural heritage of the municipality. This may involve promoting nature-related tourist attractions, cultural events, outdoor activities, and showcasing the unique characteristics of Machico.
3. Ecossites: The concept of Ecossites is used to identify points of interest in the Machico municipality, emphasizing geodiversity, biodiversity, scenic viewpoints, and/or historical-cultural significance. These ecossites hold multidisciplinary value and can be used for scientific, educational, and/or socio-economic purposes.
4. Culture of participatory responsibility: The project aims to foster a culture of participatory responsibility within the community. This involves engaging local residents and encouraging active participation in sustainability initiatives, environmental education, and the preservation of cultural heritage.

In recent decades, there has been a profound transformation in human awareness, with an escalating understanding of the inextricable link between human activities and the environment (Dunlap, 1980); (Hussey, 2000). This growing environmental consciousness has shattered the illusion that humans operate in an environment-free vacuum and has given rise to a heightened appreciation of environmental constraints.

4.3. Sustainable tourism management, promotion of local culture and traditions

Valuing the local culture and traditions is crucial for sustainable development. This can be achieved by promoting cultural events, encouraging the production of local crafts, supporting local artists and musicians, and creating tourist itineraries that highlight the cultural heritage of the city of Machico.

In addition to its fascinating history, Machico also hosts a rich and vibrant culture and traditions. The art of hospitality is an essential part of the region's tourist offer, which combines tradition, heritage, nature, geology, adventure, sports, gastronomy, and business (VisitMachico, 2023). The municipality of Machico keeps alive the rich Madeiran cultural heritage through celebrations such as the "Mercado Quinhentista" (Fig. 23), the largest ethnographic and medieval festival in Madeira, and the religious traditions that take place throughout the year (VisitMachico, 2023).

4.4. Tourism diversification, education, and awareness

Machico, located on Madeira Island, is a popular tourist destination offering a variety of activities for visitors. In addition to mass tourism, the municipality aims to diversify its tourism activities by promoting rural, adventure, ecotourism, and cultural tourism, capitalizing on the region's unique natural and cultural resources.

One of the main attractions in Machico is the practice of adventure sports and outdoor activities. The municipality boasts various locations and facilities for activities such as trail running (Fig. 24), surfing, diving, paragliding, hiking, canyoning, boat trips, geocaching, among others.

The Água de Pena Sports Park is a sports area located below Madeira International Airport. This park offers various sports and leisure activities, such as squash, padel, climbing, futsal, and gym facilities.

Another tourist attraction in Machico is the Santo da Serra Golf. With 27 holes, the golf course provides a unique experience for players, with stunning views over the Ponta de São Lourenço peninsula. Besides golfing, Machico is also known for birdwatching, with several habitats where one can spot a variety of endemic and migratory species.

Geocaching enthusiasts will also find plenty of options in Machico. With over 500 caches spread throughout the



Figure 23. Fifteenth-Century Market. *Source*: (Visit Machico, 2023).



Figure 24. Trail Running near the Airport. *Source*: Author.

municipality, practitioners of this activity can explore nature while searching for hidden "treasures."

For mountain biking (BTT) and trail running enthusiasts, Machico offers a variety of trails with different difficulty levels, ranging from dense forest paths to open-air routes.

5. Conclusions

Madeira International Airport, also known as Cristiano Ronaldo Airport, plays a crucial role in the development of Madeira

Island, connecting the autonomous region to the mainland and facilitating the flow of tourists and air traffic. Over the years, the airport has undergone a series of expansions and improvements to meet the growing needs of tourism and the aviation sector.

These expansions have had significant impacts on regional tourism, particularly in the municipality of Machico. These changes required the relocation of affected families and led to the abandonment of the Matur Tourist Complex, the largest tourism project in the region, resulting in the loss of 1300 tourist accommodation beds.

In Chapter 3, we delve into the fascinating demographic trend of a reduction in the resident population of Machico. The influx of tourists and the subsequent growth of the tourism industry can exert both positive and negative influences on the resident population. While it can create employment opportunities and stimulate economic growth, it may also lead to higher living costs and a transformation of the local culture and lifestyle.

This loss had a significant impact on the local economy and created an imbalance in the distribution of tourist accommodation beds in Machico. Restrictions imposed by the Regional Tourism Department made it difficult to replace these lost beds. To compensate for this loss, the Quinta do Lorde project emerged in the Caniçal parish, but it faces legal and environmental challenges due to its construction in a protected zone within the Natura 2000 Network (IFCN, 2020), without authorization from the Madeira Natural Park.

Faced with these challenges, it is evident that adopting strategies and measures to promote sustainable tourism development in Machico is crucial. One essential strategy is proper land use planning, aiming to avoid the city's mischaracterization, preserve natural areas, and designate specific zones for tourism. This involves a detailed assessment of Machico's natural environment, identifying areas of ecological importance, biodiversity conservation zones, protected habitats, and aquifer recharge areas, among others.

In addition to land use planning, it is necessary to establish strategically delimited areas with tourism vocation (AVTs) in the territory, valuing tourism resources, controlling the proliferation of Local Lodging (AL), and promoting the development of adequate infrastructure, such as roads, parking lots, and tourist facilities.

Another crucial aspect of sustainable tourism development in Machico is the involvement of the local community. It is essential to include residents and local business owners in tourism-related decisions, listening to their opinions and needs.

Diversifying tourism is also an important measure to ensure sustainable development in Machico. In addition to sun and beach tourism, other segments such as cultural tourism, nature tourism, adventure tourism, and gastronomic tourism need to be explored.

However, to ensure the success of these strategies, continuous monitoring and evaluation systems must be established. The impact of tourism in Machico needs to be closely monitored, tracking indicators such as the number of visitors, hotel occupancy, natural resource consumption, and environmental impacts.

The research findings in this study offer significant theoretical implications for understanding the intricate relationship between airport expansions, tourism, and their socio-economic consequences. It sheds light on how airport infrastructure developments can lead to population changes, economic shifts, and the need for sustainable tourism practices. This theoretical insight can be incorporated in the final paragraph of the conclusion, providing an overarching perspective on the broader implications of the study.

From a practical standpoint, the research highlights several key takeaways for policymakers, local authorities, and tourism stakeholders in Machico and similar destinations. These practical implications revolve around the importance of strategic land use planning, community involvement, diversification of tourism offerings, and the establishment of monitoring and evaluation systems to ensure long-term sustainability. These recommendations for practical action can be introduced in a dedicated paragraph following the theoretical implications within the conclusion section.

As we conclude, it is evident that this research lays the groundwork for future investigations into sustainable tourism development in Machico and beyond. The implications of airport expansion on tourism and the environment are complex and multifaceted, offering ample opportunities for further in-depth research. Additionally, the strategies proposed in this study, such as land use planning, diversification of tourism offerings, and the establishment of monitoring systems, can serve as a blueprint for other destinations facing similar challenges.

Funding

Funded by national funds through FCT—Portuguese Science and Technology Foundation, within the project reference UIDB/04470/2020.

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DOI: 10.34620/978-83-67405-28-7-020 • 2024 • 183-191

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Proceedings of the International Tourism Congress 23

Community mapping as a tool for technological mediation: collaborative design in tourism communities

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Abstract

This research focuses on the study of territories that have community cartography platforms. Today, the term "Community" gains increasing significance, not only because of its definition but also due to the closeness of people during pandemic times when they must stay confined. This situation highlights the need to consider the value promises of the entire community, viewing individuals as part of a society in a participatory sense. Therefore, our investigation concentrates on real cases and the technological mediation tools applied concerning consumers in how information and communication are shared, generated, and disseminated. In other words, we explore how information "originates" from the population and returns to it, aiming to understand the purpose and functionalities of these tools and how they are implemented, starting from Big Data and refined into Open Data.

Communities that utilize community maps as tools take on a role of competitiveness and empowerment compared to similar destinations. This is because georeferencing systems allow information to be inputted by consumers at any time and from anywhere, transforming them into co-producers of content within the dynamics of collective intelligence and collaborative participation.

Keywords

collaborative participation • community cartography • design-based research • digital platforms • georeferencing

1. Introduction

Based on the tourism context, the community has the principle of preparing territories to be resilient and inclusive, aiming for a better convergence of interests among the groups that inhabit the area or those who visit as tourists, seeking to explore something new. In this research, we will delve into the concept of community as it is ingrained culturally in the northern regions of Europe, where generating a sense of community, trust, and social cohesion among citizens is arguably the most crucial factor. Building a trustworthy and efficient government and fostering community and unity among citizens are vital steps toward creating a happy society.

This research aims to conduct a literature review regarding tourist communities that offer unique value propositions compared to others by creating and implementing community maps. Considering the interaction paradigms, the objective is to analyse and comprehend the technological mediation tools applied and their effects. Such as comprehending how sound practices implemented in diverse regions can guide tourism towards sustainability and self-development through the collaboration of tourist communities and residents, uniting them with a common purpose through community mapping.

The focus is on understanding how these technological advancements impact consumers using such platforms, specifically mobile applications and georeferencing platforms. From the perspective of creating interactive community maps, the research seeks to compile a state-of-the-art review to identify functionalities, features, and how infocommunication is disseminated to both content receivers and creators across various segments of society.

This research is structured into five sections, with the first and last sections corresponding to the Introduction and Conclusion of the presented theme, respectively. The second section aims to provide a conceptual and theoretical framework by referencing authors who highlight the significance of the community in technological mediation and, consequently, in integrating concepts for the development of community maps. This research's methodology involves collecting and analysing secondary data through a design-based and community-centred research approach. The section "Results and Discussions" will investigate various instances of Community Cartography (CC) to mediate information and communication technology within the tourism

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context, specifically focusing on promoting and disseminating local products. In the post-pandemic era, environmentally friendly and sustainable offerings are gaining significance, both for the benefit of tourists and the communities they visit. Within this context, a comparative analysis of CC projects will be presented, focusing on their creation objectives, available tools, functionalities, typologies, and characteristics, all of which contribute to establishing a relationship with the community itself.

By doing so, we can propose a model focused on empowering tourist territories, making it applicable as a blueprint for other regions, and contributing to formulating effective public policies for any territorial destination.

2. Literature Review

The production of Community Cartography (CC) associated with interactions among residents, consumers, and tourists in small-scale communities is characterized by empowering and capacitating these communities. Additionally, it enhances literacy levels, not just in technology but also in creating and constructing a unique offering for a specific territory, benefiting residents and visitors.

CC projects are developed by various societal sectors, including healthcare, human resources, education, community development in economic, social, cultural, and environmental aspects, and public safety. However, this research will specifically emphasize the community's cultural development in the context of tourism. Cultural cartography emerges as an interdisciplinary field of research and a methodological tool in participatory planning and community development. Its primary goal is to make visible how local cultural assets, stories, practices, relationships, memories, and rituals contribute to the meaningfulness of places. It is also employed to engage a diverse range of stakeholders in discussions about these places' cultural dimensions and potentials (Duxbury, 2019).

According to Aliyah, Setioko, and Pradoto (2017), cultural cartography is regarded as a tool designed to systematically collect, search, and compile information on the distribution of cultural expression within a particular region. In the context of empowering the community, cultural cartography also facilitates a comprehensive representation of a location's cultural identity, importance, and functioning. Enabling communities to recognize, celebrate, and support cultural diversity for economic, social, cognitive, and regional development (Lima, 2011; Duxbury, 2019; UNESCO, 2021).

According to Freitas (2016) and Duxbury (2019), cultural cartography can be approached from two perspectives, both of which view it as an instrument of development. However, these perspectives differ in their approach: one follows a top-down approach, known as "cultural mapping for policy development". Refers to the use of mapping techniques and methodologies to gather and analyze cultural data and information to inform and shape policies related to cultural development, preservation, and promotion. It focuses on using cultural mapping to assist policymakers in making decisions that support and enhance cultural initiatives and tourism. The other approach, bottom-up, known as "cultural mapping for community development," supports the application of mapping methodologies to engage and involve local communities in identifying, documenting, and showcasing their cultural assets, practices, and heritage. The process involves collaborative efforts to understand and leverage the cultural resources within a community, fostering a sense of pride, ownership, and active participation in shaping their cultural landscape and overall development.

This article aims to develop the second approach, which emphasizes continuous collaborative design throughout the process. In this approach, collective initiatives and direct involvement with community residents become assets in generating new perspectives. As a result, mapping the outcomes and local development becomes the cognitive foundation for retrieving memories and shared stories, ultimately making communities unique and identity-rich places.

This underscores the need for meaningful interactions among people, moving beyond the evolution of cartography from a horizontal to a vertical and three-dimensional dimension, in line with technological interaction design. It presents an opportunity to engage residents and consumers as active and collaborative agents in exploring, analyzing, and creating Community Cartography (CC) as tools for technological mediation between what is known and new knowledge. This process facilitates a mechanism to foster democratic governance and citizen-led interventions, employing processes that encourage innovative participatory interactions with citizens, and leveraging new technologies (Ortega-Nuere, Bayón, 2015).

Regarding the interaction paradigms for this literature review, technological ubiquity envisions a world where computers seamlessly blend into the environment, integrated within various everyday objects, devices, and displays. Mark Weiser (1991) envisioned a future of tranquillity, convenience, and heightened awareness, where individuals would be continuously informed about their surroundings, upcoming events, and recent occurrences (Sharp, Rogers, Preece, 2019). Big Data is designed so software agents can comprehend, leading to the advancement of Web 3.0 and facilitating computer-to-computer interoperability. By connecting and integrating large datasets from various sources, Big Data enhances data management, promotes interoperability, fuels creativity and innovation, and fosters

collaboration across the social web (Gretzel, Sigala, Xiang, Koo, 2015; Buhalis, 2020; Cuomo, Tortora, Foroudi, Giodano, Festa, Giuseppe, Metallo, 2021). This concept pertains to the various ways humans create and communicate knowledge, experiences, and aspirations about the world through maps. Participatory mapping is described as the collaborative process of map creation involving local communities and is often supported by organizations such as governments, non-governmental organizations, universities, and other stakeholders engaged in development and land-related planning (Brown, Kyttä, 2018).

With the technological advancements of recent decades, it is now feasible to engage and analyze various types of Community Cartography (CC) by leveraging open data, forming partnerships with governmental entities and associations, and involving the resident population as active participants.

According to McNaughton, Rao, and Verma (2020), there are six levels of collaboration involving actors and partners in creating a smart community. These levels include: i) Institutions that position themselves as facilitators of mobility, working alongside communities and government partnerships while accessing georeferenced data; ii) Cartographers and technology enthusiasts proficient in geographic information techniques, utilizing data in cartography software such as OpenStreetMap; iii) Promoters, often students, with technical knowledge to transform data into programming tools; iv) Entrepreneurs who identify new opportunities to create specific human resources for prototype production; v) Data owners, which can include government agencies collecting Geographic Information data and contributing directly to the management of the geodata ecosystem; vi) Users, individuals who benefit from the entire process mentioned above, capable of globalizing the product through mobile devices and social networks. Soon, territories equipped with user-centric technological mediation tools will emerge as highly sought-after destinations known for their secure and transparent communities.

A community mapping project initiated to foster a more participatory development of the tourism sector aimed to blend open government data with crowdsourced mapping information, giving authentic activities form those who want to know more about local culture (Duxbury, Richards, 2019; Mayaka, Croy, Julie, 2019; Gonçalves, Guerra, Pinheiro, 2020). This initiative, supported by open tourism data and the collaborative efforts of government agencies, civil society organizations, developers, and enthusiastic community mappers, offers early glimpses of how data and collective intelligence can influence an industry that significantly contributes to the nation's prosperity (Marques, Borba, 2017; Young, Verhulst, 2017; Galvagno, Giaccone, 2019; Roxas, Rivera, Gutierrez, 2020).

Community cartography has become integral to various communities applied in diverse sectors, such as biology, agriculture, and urban planning, focusing on indicators related to housing types, services, and demographics.

3. Methodology

In this research, we adopted a methodology centred on the analysis of secondary data to explore the topic of community cartography in depth. Secondary data refers to existing data collected by other researchers or organizations for different purposes. By utilizing secondary data, we aimed to build a comprehensive understanding of community cartography, drawing on a wide range of sources and perspectives by different authors. Our methodology involved an extensive search of relevant secondary data from various academic journals, conference proceedings, reports, government publications, and online databases. We used keywords such as "community cartography," "participatory mapping," "georeferenced data," and "collaborative participation" to ensure a comprehensive search. Only data directly related to community cartography, its implementation, benefits, challenges, and best practices were analysed.

The analysed secondary data underwent a rigorous process of thematic analysis. We identified themes related to the impact of community cartography on sustainable development, residents' participation, local empowerment, and cultural preservation were explored.

While secondary data analysis offers numerous advantages, we acknowledge certain limitations in our methodology.

Despite these limitations, the utilization of secondary data allowed us to access vast information on community cartography from various geographical locations and contexts.

As a natural extension of this article, the main author intends to delve further into the subject through a thesis work focused on a rural community in northern Portugal characterized by low literacy rates. The primary objective of this thesis is to curate and document the community's heritage, encompassing cultural, natural, and historical elements, ensuring their preservation for future generations. Complemented by storytelling, community mapping will be the principal tool in achieving this objective.

The storytelling process will involve interviews with the parish's esteemed senior citizens, enabling them to share their invaluable knowledge, traditions, and memories. By incorporating these narratives, the thesis aims to enrich the community's collective identity and strengthen its cultural heritage.

Moreover, the thesis will also seek to enhance the community's services based on survey feedback. These surveys will be

made available to tourists passing through the parish along the route of the Camino de Santiago. Using QR Codes strategically placed in the vicinity, tourists will have easy access to the surveys, allowing them to offer their insights and experiences.

Through this thesis work, the principal author intends to create a meaningful and sustainable model of community mapping, fostering a sense of pride and ownership among the residents. The project's goal is to ensure the community's heritage is preserved actively celebrated, and shared with visitors, making it a truly immersive and engaging destination for all.

4. Results and Discussion

According to the literature review conducted on the subject, several authors (Beeton, 2006; Schroeder, Pennington-Gray, 2014; Burgos, Mertens, 2016; Almeida, 2017; Buhalis, 2019; Keskinen, Arvila, Winschiers-Theophilus, Nieminen, 2020; European Network for Rural Development, 2020; Gössling, 2020; Bethune, Buhalis, Miles, 2021; Borges-Tiago, Veríssimo, Tiago, 2022) assume that technological mediation such as collaboration mapping applied to destinations is an added advantage. Based on inter and intra-community collaborations involving destinations and people, social media and online digital information converge to create open data platforms that operate as interconnected elements, as advocated in the practice of Community Mapping.

One of the most representative examples for this study is the case of Community and Interactive Cartography implemented in Jamaica, as described by McNaughton, Rao, and Verma (2020, p. 346): "Treasure Beach is one of the premier community tourism destinations in Jamaica and the Caribbean and presents a suitable setting and context for implementing the 'smart community' Pilot project – the first of its kind in the Caribbean". It emerges as an open data project, sustained by academic knowledge, to ensure everyone can benefit from the Treasure Beach community. Its development is made possible through crowdsourcing, which, in turn, acts as a catalyst for the region's community-based tourism, showcasing its diversity and uniqueness. Geographic information systems enable the creation of open data databases that can be applied to other regions, mainly for training specialized human resources through digital and technological transition. Additionally, it facilitates the integration of cultural mapping into OpenStreetMap. They position themselves as a smart community (Figure 1), bringing together various civil society sectors with sustainability principles driven by responsible tourism that considers the well-being of society, the economy, and the environment.



Figure 1. Presentation of the image of the project and location.
Source: Authors

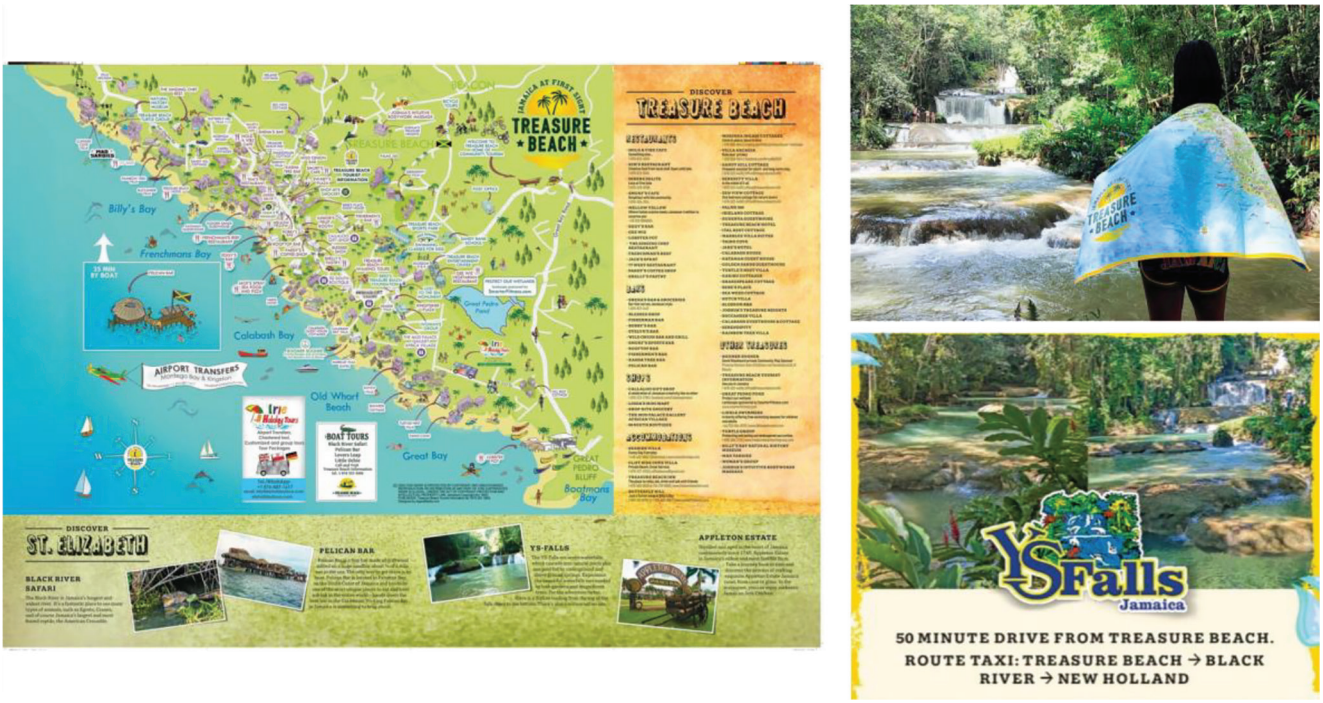


Figure 2. Community Mapping of 2021 with touristic activities.
Source: Treasure Beach Info[1]

They create a unique product that enhances the tourist experience to attract specific audiences; the community development is led by its people and the resources that define them today (Figure 2).

The community is transformed into an inclusive destination designed by and for people, embracing digital solutions such as an interactive community map accessible to residents and visitors through mobile applications.

Artmap.ma is a mapping inventory that lists structures, infrastructures, artists, operators, and professionals in the artistic and cultural field in Morocco and the diaspora (Figure 3).

It was developed by Racines – an association for culture, development, promotion of cultural and creative industries, and cooperation in Africa. It was born from the determination of Moroccan cultural actors who believe that the issue of culture is common to African countries.

The objectives of this database are as follows: to have a regularly updated inventory as a tool to support the cultural development of the territory, accessible to decision-makers for the formulation of local cultural policies; to network the actors operating in the artistic and cultural domain, fostering the development of local, regional, and international cooperation projects; to provide a statistical tool for the implementation and/or evaluation of cultural policies and to support the professionalization of the artistic and cultural sector. Artmap.ma is a database that brings together professionals from 18 artistic disciplines across the 12 regions of Morocco and the diaspora.

The Mappa Malta project (Figure 4), by GeoSYS and Eurisy, with the vision of "Acting Collectively to Bridge Space and Society," emerges in response to the increasingly active digital transformation in everyday life.

GeoSYS is pivotal in gathering and disseminating targeted data and information to all Malta residents. The project's inception saw the launch of a web platform in 2013, followed by the introduction of the Mappa Mobile app in 2014. Through this mobile application, Maltese residents can conveniently access details about entertainment, weather forecasts, and beach conditions. The app's foundation lies in georeferenced maps that can be instantly shared in real-time, and it leverages geo-fencing technology to aggregate location-based information, particularly concerning tourist offerings. There are diverse cases of community cartography besides the ones presented. As such, we have compiled a comparative table (Table 1) for the three projects (Jamaica, Morocco, and Malta) and their technological mediation instruments with communities.

In terms of objectives, the three projects aim to achieve specific goals related to developing human capital for community sustainability, providing education, training, and employment opportunities to create skilled individuals who can contribute to the tourism sector and improve community literacy. Additionally, they seek to establish a digital tool that enables informed decision-making about various locations.

[1] Facebook page for Treasure Beach, Jamaica: https://www.facebook.com/TreasureBeachInfo



Figure 3. Artmap.ma work and location.
Source: Authors.

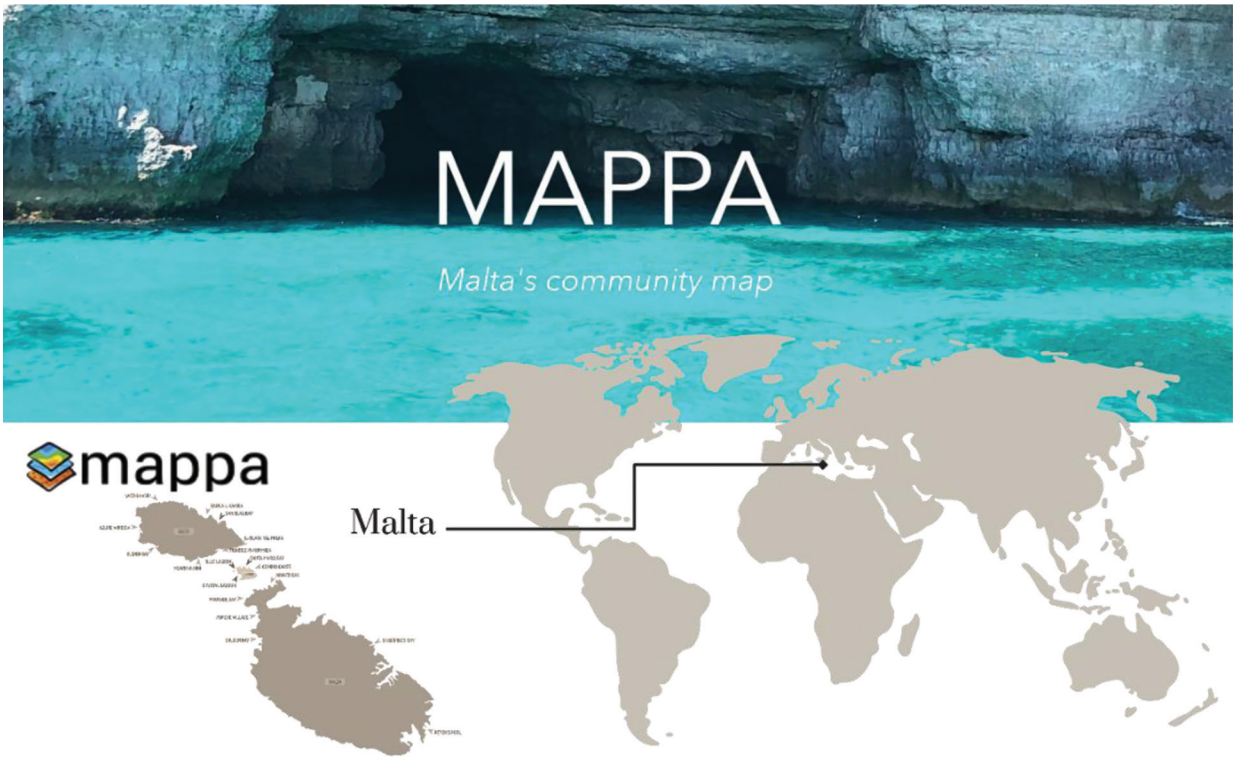


Figure 4. Mappa Malta Project location.
Source: Authors.

Table 1. Comparative analysis of projects with community cartography implementation

Project's Name	Smart Community Treasure Beach, Jamaica	Artmap.ma Morocco	Mappa Malta
Instruments			
Web Platform/Touristic	X	X	X
Open Street Map/GIS	X	X	X
Mobile App	X		X
Open Data	X	X	X
Crowdsourcing	X		
Training	X	X	
Digital Marketing	X	X	
Functionalities - WEB	1	1	1
Registration	X		X
Hackathon*	X		
Documents		X	X
Data	X	X	X
Maps	X	X	X
Cultural Activities	X		X
Artistic Activities			X
Events	X		X
Calendar	X		
Functionalities - APP	3	1	1
Digital Map	X	X	X
Digital Board	X		
Traffic Alerts			X
Beaches State	X		X
Stay/Sleeps	X		X
Cultural Activities	X	X	X
Artistic Activities		X	X
Partnerships			
Associations	X	X	X
Groupings		X	
Private Companies	X	X	X
Public Companies	X	X	X
Political Structure	X	X	X
Organisations	X	X	X
Universities	X		X

Source: Authors.

5. Conclusions

This article has revealed that community cartographies are prevalent in many communities, but interactive platforms beyond computer-based systems are scarce. Within current parameters like sustainability and inclusivity for all, cultural cartographies empower communities and their cultural assets to become authentic and identity-driven products shaped by the place and its participants, residents, and visitors. Community mapping has emerged as a powerful tool for technological mediation and collaborative design in tourism communities. Integrating geospatial data, participatory mapping, and interactive platforms has revolutionised how communities interact with technology and utilize their collective knowledge to shape their destinations.

Synergies created between governmental and associational partners further enhance these outcomes. Residents become

central actors in the community, facilitating the connection with tourists through content created and acquired using development, collaboration, participation, and interaction tools that interweave stories, people, and the territory. One of the key findings was the importance of collaboration and co-creation between various stakeholders, including government agencies, non-governmental organizations, developers, and enthusiastic community mappers. Such partnerships enable the development of innovative projects and promote the sustainable growth of tourism communities.

This interaction bridges technology and human beings, particularly through community-centred design. Cultural cartography, supported by compelling narratives, sparks interest and fosters cognitive engagement, a sense of belonging, and memories, motivating visitors to become protagonists and contributors as consumers and content producers. The research explored various cases of community mapping implementations in different territories, ranging from urban to rural and culturally diverse regions. The adoption of community mapping empowers residents and tourists alike, fostering a sense of belonging and ownership in the destination.

The implementation of storytelling in community mapping proved to be a powerful means of preserving cultural heritage and traditions. By incorporating narratives from senior citizens and residents, the work emphasizes the richness and authenticity of the community's identity. It also relied on its inclusivity and ability to engage all community members, irrespective of their literacy levels. It became evident that community cartography can bridge gaps and create a cohesive, digitally connected environment catering to residents and visitors.

As the research unfolded, it became apparent that community cartography is not merely a technological tool but a catalyst for socio-economic development. It empowers communities to shape their destinations, driving sustainable growth and responsible tourism practices.

In conclusion, community cartography is a transformative force that unites technology, culture, and people in a collaborative journey towards a better future. Its integration into tourism communities enhances the visitor experience, strengthens the sense of community, and fosters local pride. Moving forward, further research and implementation of community cartography will undoubtedly contribute to advancing tourism and community development, paving the way for more inclusive and sustainable destinations worldwide.

As a result, we can connect, understand, use, and recreate the places within communities and identify resources and attractions in different aggregated scenarios across the territory. The process of mediating technology for individuals within communities, considering heritage and cultural resources for community cartography, leverages preservation and future maintenance through collaborative design using multidimensional and interactive maps. It articulates cultural assets with meaningful stories, embracing plural perspectives and participatory approaches.

The utilization of community maps in regions rich in cultural and historical offerings, whether urban or rural, fosters collaboration among all community members, serving a shared purpose: tourism by and for the community. The potential for replicating these successful cases is becoming evident, as it enables a conscious and organized territorial approach to tourism, leading to empowerment and sustainable growth for everyone involved.

Funding and Acknowledgements

This work is financially supported by national funds through FCT – Foundation for Science and Technology, I.P., under the project UIDB/05460/2020.

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DOI: 10.34620/978-83-67405-28-7-021 • 2024 • 192-199

sciendo

Proceedings of the International Tourism Congress 23

How have hotels performed in the covid-19 pandemic?

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Abstract

Nowadays, tourism has a strong influence on the economic development of the world. The year 2020 was marked by the emergence of COVID-19 which, in addition to all the impacts felt in health and social terms, has had a strong impact on tourism, conditioning the entire economic and financial development of companies in this area. This research aims to analyze the financial impact that COVID-19 has had on the tourism sector, specifically in the municipality of Braga, in Portugal. To understand the economic and financial impact of COVID-19 on hotel units in Braga, an economic and financial analysis of four hotel units was carried out. By analyzing the economic and financial ratios, we can conclude that the economic and financial stability of the hotels analyzed has been affected, with special emphasis on the profitability and solvency of the hotels. The efficiency with which these companies manage their assets and their financial autonomy have also been penalized. In 2021, there is already some recovery in the stability of the hotels, but it is still a long way from reaching the values of previous years in certain points analyzed.

Keywords

Braga (Portugal) • COVID-19 • financial impact • hotels

1. Introduction

The tourism sector is a global phenomenon that is highly relevant not only to this sector, but also to those around it. Tourism, if well planned, has many advantages for the regions in which it operates, from a territorial, economic, and social point of view. It thus contributes to the evolution and development of the territory. In other words, the economy of the regions is developed through the tourism industry, which encourages the expansion of infrastructures and facilities available to the public (WTTC, 2002; Ferreira, 2012; Daniel & Fernandes, 2020).

As a tertiary sector activity, tourism is essential for many countries due to the important source of income it generates through the consumption of products and services associated with it, namely transportation, hotels, restaurants, local businesses, and tourist entertainment companies. The increase in the number of jobs and the growing income from this activity once again demonstrates a strong component for the world economy.

In this study, we first developed a theoretical analysis of the influence of tourism on the development of the world, as well as the impact that COVID-19 has had on this development and how it has conditioned it. After this analysis, we moved on to the main objective of this study: to understand the financial impact of COVID-19 on the tourism sector.

A quantitative methodology was used to develop this theme, by carrying out economic and financial calculations for four hotel units in Braga, by exporting accounting data from the SABI database, to understand the impact that COVID-19 has had on the economic and financial stability of hotels. Each hotel company in the sample is operating just one hotel and the SABI data relates exclusively to that hotel.

In the first part of this study, a brief introduction is given to the research topic, as well as the objectives to be achieved. The literature review begins with a general analysis of the impact of COVID-19 on the tourism sector, followed by an economic and financial contextualization of companies - the method of financial ratios or indicators. The next section presents and analyzes the results of the research carried out. Finally, the final conclusions of this research study are presented.

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2. Literature Review

2.1. Impact of COVID-19 on the tourism sector

The first case of COVID-19 was reported in December 2019, in Wuhan, China, and since then, several restrictions have been applied internationally. These restrictions have affected the tourism sector and its development. With the international travel ban, there has been an impact on international travel, affecting more than 90% of the world's population, from generalized restrictions, public meetings to social mobility. As a result, tourism came to a standstill in much of the world in March 2020 (Amaral, 2021).

According to Limbado (2021), the main changes felt with the emergence of COVID-19 have been an increase in the domestic market, a decrease in the foreign market and a change in the profile and behavior of tourists.

In the study carried out by PricewaterhouseCoopers (PwC) (2020), which aimed to analyze the impacts of COVID-19 from a sectoral perspective, the accommodation sector is presented at the beginning of the table as a sector that has suffered an impact described as "very negative", in that almost all the players in the sector have suspended activity. According to the Hotel Association of Portugal, quoted by PwC (2020), around 95% of hotels have closed and 90% of hotels intended to join the lay-off scheme. Regarding medium and long-term uncertainties, accommodation is one of the sectors that has had the greatest need to adjust its activities during this period, in order to provide its customers with guarantees of security. With the reopening of doors, the domestic market has expanded to Portugal and Spain, but this has not been enough (PwC, 2020).

A study carried out by Gomes (2021) aimed to analyze the impact of COVID-19 on the hotel industry from the perspective of employees. This study had a sample of 258 respondents. It found that the main impacts were loss of income (37%) or employment (11%). Around 75% of employees are working on lay-off, which in many situations is a factor that contributes to lower monthly income and changes in working hours. Around 45% said that their workplace had closed temporarily, with only 3% of the sample continuing to work as normal. The author states that the pandemic has totally changed the reality of the hotel industry, in that the impacts have caused major disruption, as it has meant losing customers, changing physical spaces to adapt to the requirements imposed by the government and the DGS.

To sum up, it emerged from all the reports made in this research that the tourism sector has been strongly affected by the outbreak of the COVID-19 pandemic.

We were able to ascertain that several countries, on all continents, have had to face the effects of this pandemic. The COVID-19 crisis has had an overwhelming impact on the world economy and employment. After the virus spread through Asia, COVID-19 spread rapidly around the world. This made it necessary to implement measures to reduce the spread of this new virus. These measures have drastically affected tourism. This situation is evidenced by studies carried out around the world, where international tourism has come to a partial halt (Carr, 2020; Foo *et al.,* 2020; Hoque et al.,2020; Ranasinghe *et al.,*2020; Susilawati *et al.,* 2020; Ulak, 2020; Arbulú *et al.,* 2021; Jaipuria *et al.* 2021; Limbado, 2021).

Measures such as travel restrictions, flight cancellations and the closure of many companies in the tourism sector have also led to a decrease in demand for and supply of tourism services, thus having an instant impact on the economy. The lack of demand has led to a loss of revenue for companies, which directly affects and stimulates reductions in international tourism revenue. The isolation and social distancing measures have led to wider impacts on countries. Businesses are no longer able to meet their daily expenses, so they choose to stop their activities or even close. The paralysis of the sector leads to an increase in unemployment (Limbado, 2021; Vitória & Meireles, 2021). The sectors most affected are essentially the accommodation sector, where there has been a sharp drop in occupancy rates. The restaurant sector, with all the measures imposed by governments, has had a strong impact on its revenues and there have been numerous closures in this sector.

This whole scenario shows a strong stagnation in the tourism industry. As this industry is fundamental to generating wealth in the world, the reduction in countries' GDP has led to a very sharp constraint on global economic growth since 2020.

2.2. Economic and financial analysis in companies - method of financial ratios or indicators

It is essential to begin with a brief description of what a financial ratio is. A ratio is a significant relationship between two items in a balance sheet or income statement (Vieira, 2020). In line with Poldrugovac, Tekavcic and Jankovic (2016), the analysis of information from financial statements should be used as a basis for decision-making by company managers. However, information alone is not sufficient for effective decision-making. In this sense, it is necessary to calculate ratios that will allow a more in-depth analysis of the company's economic and financial situation (Vieira, 2020).

Therefore, the method most used to assess company performance is the analysis of financial ratios and indicators (Vieira, 2020). Schmidgall and Damitio (2006) point out that the ratio alone cannot be classified as good or bad, acceptable or not, because for this value to be useful to the manager, it must be compared with a standard value. It can therefore be compared against three different standards (Schmidgall & Damitio, 2006):

- Compare the ratio from the previous year to gauge changes.
- Compare the ratio with a similar company in the same market.
- Compare the ratio with the sector average to evaluate the company's competitiveness in its market.

During this study, two types of ratios will be analysed, economic and financial (Table 1). According to Encarnação (2010), economic ratios analyse a company's profitability, as they determine the extent to which the resources made available to entities are used efficiently to achieve their objectives, disregarding the level of debt. As far as financial ratios are concerned, they analyse the company's financial structure, debt capacity, solvency and liquidity (Encarnação, 2010, Matarazzo, 2009).

According to Encarnação (2010), Silva (2011) and Fernandes et al. (2012), general liquidity translates into the company's ability to dilute its current obligations; it thus assesses short-term solvency. For financial equilibrium, this ratio must be greater than or equal to 1. Quick liquidity is the company's ability to dilute its short-term commitments by transferring assets into cash. Immediate liquidity is the company's ability to dilute its short-term commitments with existing cash and cash equivalents (sum of cash, deposits, and short-term investments).

According to Carreira et al. (2012), the receivables turnover reflects the degree of efficiency with which the company manages its customer credit policy. The longer the collection period, the less efficient the credit policy. The payables turnover reflects the company's ability to negotiate with suppliers. It is a policy that has an influence on the company's cash position, the longer it is, the better it will be at managing its daily expenses. The inventory turnover is an expression that measures how long goods or finished products remain in the warehouse. If it is too high, i.e., too long in storage, the company may have to make some treasury efforts. However, if it's too low, it could mean a loss of sales because you don't have enough stock to meet your customers' daily demands.

Table 1. Economic and Financial Ratios

Ratios	Formula
General Liquidity	GL = Current Assets / Current Liabilities
Quick Liquidity	QL = (Current Assets - Inventories) / Current Liabilities
Immediate Liquidity	IL = Cash and Cash Equivalents / Current Liabilities
Receivables Turnover	RT = ((Accounts Receivable + Notes Receivable) /Net Sales) *12
Payables Turnover	PT = ((Accounts Payables + Notes Payables) / Net Sales) *12
Inventory Turnover	IT = (Inventory /Costo f Goods Sold) * 12
Solvency Ratio	SR = Owner's Equity / Total Liabilities
Asset Financing Ratio	AFR = Owner's Equity / Total Assets
Return on Equity	ROE = (Net Income / Owner's Equity)
Return on Asset	ROA = (Net Income + Interest Expenses) / Total Investiment
Return on Sales	ROS= Net Income / Net Sales

Source: Own elaboration based on Encarnação (2010); Silva (2011); Carreira et al. (2012); Fernandes et al. (2012) and Castro (2020).

According to Encarnação (2010), solvency ratio is an expression that allows us to understand the company's capacity to meet its medium and long-term commitments. It is highly dependent on the degree to which assets are covered by equity, the company's ability to generate profits and the level of its liabilities. The higher the solvency ratio, the greater the company's independence from its liabilities, thus creating greater security for its creditors. Financial autonomy is the expression that indicates what percentage of equity is used to finance the company in its activity. It must guarantee the continued sustainability of the business, so as not to jeopardise solvency and bankruptcy in the medium and long term. A low value indicates the company's strong dependence on its creditors, which can put it at a disadvantage when negotiating new financing. The opposite situation shows low financial charges.

According to Castro (2020), the financial profitability of a company expresses the way in which the company remunerates the assets invested by the shareholders. It also makes it possible to understand the company's self-financing capacity. The higher it is, the better the company's solvency. In other words, financial profitability refers to the return on equity. The higher the value, the better paid the shareholders will be and the more attractive the company will be to possible future investors. The economic profitability of a company, also known as return on total investment or return on assets, expresses the way in which the company remunerates the capital invested. It is the capacity of the company's assets to generate profit. This ratio can be useful in defining the capital structure or the company's indebtedness (Castro, 2020). Return on sales expresses the final margin obtained through sales and services rendered, i.e., the profit obtained for each euro sold. The higher this ratio, the better it is for the company. You can't increase the other profitability ratios mentioned above if you don't increase this one. If there is no profit on sales, the financial and economic situation will be completely different. Productivity is the decisive factor here.(2011); Carreira et al. (2012); Fernandes et al. (2012) and Castro (2020).

3. Methodology

According to the Braga City Council's official website, Braga has a set of research and business infrastructures

that guarantee an environment conducive to research, innovation, and business, and which help to boost different economic activities. The wide range of tourist attractions, Braga's excellent location, its rich heritage, together with the city's lively events make it possible to attract and reach many visitors. In recent years, Braga has shown undeniable progress and development. The evolution of the tourist flow is extremely noticeable. Evidence of this is the award given to Braga in 2019 by European Best Destinations for being the second-best European tourist destination (Mota, 2019). In this sense, due to all the remarkable expansion potential, it was considered pertinent to understand how Braga behaved during the pandemic period and how the tourist activity of this destination was affected in economic and financial terms.

This study aims to analyze the financial impact that COVID-19 has had on the tourism sector, specifically in the municipality of Braga. To this end, financial information was collected from some of the region's hotel units so that the economic and financial ratios of these companies could be calculated. Through this analysis, it will be possible to understand the financial changes that will take place in 2020, compared to previous years in these companies.

In order to understand the economic and financial impact of COVID-19 on companies' financial statements, the research questions are:

(1) How has COVID-19 affected companies' short-, medium- and long-term financial balance?
(2) What impact has COVID-19 had on companies' profitability?

Financial information was collected from the hotel units using the SABI - Sistema de Análise de Balanços Ibéricos (Iberian Balance Sheet Analysis System) database, in order to calculate the financial ratios for the years 2017, 2018, 2019 and 2020, and thus demonstrate the financial impact that these companies have had with the emergence of COVID-19. The database in question presents all the accounting and operational information of Portuguese and Spanish companies, thus containing the financial statements (Costa, 2015; Mestre, 2021). It contains current and historical information on many companies (Silva, 2011), which makes it possible to achieve the objectives proposed in this study. We extracted data from four hotels, in Braga: Bom Jesus Hotels, Hotel Meliã, Ibis Hotel and Ibis Budget Hotel. After calculating the values of the economic and financial ratios individually for each hotel, a comparison was made with the average values for the sector and between the four hotels. This made it possible to understand the position of each hotel in the market, how attractive it is to new investors and which hotel has a weakened position.

4. Results and Discussion

4.1. Liquidity ratios

In Table2, results show that in terms of liquidity, the hotel with the greatest capacity to secure its short-term debts in 2017 and 2018 is Bom Jesus Hotels, as it has the highest liquidity figures. In 2019, Hotel Ibis takes first place as the hotel with the best general and quick liquidity values, but the

Table 2. Liquidity Ratios of Hotels in the Municipality of Braga

Year	Liquidity Ratios	Meliã Hotel	Bom Jesus Hotels	Ibis Hotel	Ibis Budget Hotel
2017	General Liquidity	0,26	**2,45**	1,04	0,61
	Quick Liquidity	0,24	**2,40**	1,04	0,61
	Immediate Liquidity	0,06	**0,99**	0,02	0,04
2018	General Liquidity	0,28	**1,95**	1,40	0,83
	Quick Liquidity	0,26	**1,91**	1,39	0,83
	Immediate Liquidity	0,01	**0,69**	0,12	0,07
2019	General Liquidity	0,36	1,89	**2,01**	1,28
	Quick Liquidity	0,34	1,86	**2,01**	1,28
	Immediate Liquidity	0,04	**0,69**	0,12	0,18
2020	General Liquidity	1,08	1,12	**2,05**	1,55
	Quick Liquidity	1,04	1,10	**2,05**	1,55
	Immediate Liquidity	**0,63**	0,14	0,03	0,16
	General Liquidity	1,09	1,37	**1,89**	1,84
2021	Quick Liquidity	1,06	1,35	**1,89**	1,84
	Immediate Liquidity	**0,72**	0,41	0,34	0,68

Source: Data calculated using the SABI database.
Note: Values in bold represent the highest values observed for each ratio.

Table 3. Operating Ratios for Hotels in the Municipality of Braga

Year	Operating Ratios	Meliã Hotel	Bom Jesus Hotels	Ibis Hotel	Ibis Budget Hotel
2017	Receivables turnover	0,50	**0,52**	0,12	0,03
	Payables turnover	22,48	**6,99**	40,46	44,59
	Inventory turnover	0,66	**0,88**	0,71	0,19
2018	Receivables turnover	0,61	0,43	0,10	**0,07**
	Payables turnover	23,09	**7,04**	18,65	43,91
	Inventory turnover	0,79	0,95	0,91	**0,30**
2019	Receivables turnover	5,72	0,44	0,14	**0,04**
	Payables turnover	14,84	**8,18**	19,41	16,18
	Inventory turnover	0,77	0,87	0,55	**0,21**
2020	Receivables turnover	5,55	0,48	0,13	**0,13**
	Payables turnover	24,48	**15,06**	48,01	29,21
	Inventory turnover	1,54	1,70	0,37	**0,35**
	Receivables turnover	6,53	0,65	0,27	**0,01**
2021	Payables turnover	20,86	**7,14**	66,38	43,46
	Inventory turnover	1,35	1,25	0,96	**0,69**

Source: Data calculated using the SABI database
Note: Values in bold represent the highest values observed for each ratio

hotel with the highest immediate liquidity value and the most cash on hand is Bom Jesus Hotels. In 2020, the year in which COVID-19 strikes, and in 2021, the Ibis Hotel continues to have the best levels of general and quick liquidity, while the Meliã Hotel is the hotel with the most cash available in times of pandemic.

It was essential to compare the liquidity values of these hotels with the average values for the sector, obtained from the Portuguese Balance Sheet Centre, considering the CAE (Classification of Economic Activity) of each hotel. All the hotels, except for Hotel Meliã, are above the sector average.

4.2. Operating ratios

In what regards efficiency, in 2017 it was the Bom Jesus Hotels that were most efficient in managing their assets (Table 3). In the other years, in terms of receipts from customers, the Ibis Budget Hotel is the one with the quickest collection time and the most efficient stock management, while the Bom Jesus Hotels take the least time to pay all their debts to suppliers. Despite this, the year in which COVID-19 struck meant that these hotels lost efficiency in their asset management (Table 3). However, they all have a longer payables turnover than receipts, which shows that all the hotels analyzed do not condition the companies' treasury through their payment management.

When we compare the operating ratios with the average values for the sector, we see that only the payable turnover of the Bom Jesus Hotels and the average receipt period of the Meliã Hotel are below the sector average. The other figures show that the hotels are more efficient in managing their assets than the sector.

4.3. Solvency ratios

Looking at the results from the perspective of the hotel's ability to cover its medium and long-term expenses, in 2017 and 2018 the Ibis Hotel was in first place, with the highest figures for that year. In 2019, 2020 and 2021, the Ibis Budget Hotel takes over, making it the hotel most likely to be able to cover its medium and long-term debts (Table 4). We can also see that only in 2021, the year following the onset of COVID-19, did all the hotels, except for Hotel Meliã, show a lower capacity to fulfil their medium and long-term commitments.

Regarding financial autonomy, Table 4 shows that in 2017 and 2018 the hotel with the highest percentage of equity financing its business is Hotel Ibis, with 67 per cent and 73 per cent respectively. In 2019, 2020 and 2021, the Ibis Budget Hotel has the highest capacity, with 82%, 86% and 84% respectively. All the hotels have lost financial autonomy, which could be explained by the effects of COVID-19, as there has been a greater need for borrowed capital in hotel companies. Another possible reason for this loss of financial autonomy is that the negative net results obtained during the pandemic years led to a slight drop in equity (Table 4).

In 2017, the Meliã Hotel was the hotel with the highest financial return, meaning that it was the hotel where shareholders saw the highest return on their invested capital, while the Ibis Budget Hotel had the lowest. In 2018 and 2019, the Ibis Hotel shows the best shareholder return figures, while the Bom Jesus Hotels show the worst figures. In 2020 and 2021, the Meliã Hotel, although with negative figures in 2020, is the hotel with the best financial return. This means that COVID-19 has had a strong impact on the hotels' financial capacity, with shareholders losing money on the investments made to finance the company's activity.

Table 4. Solvency Ratios of Hotels in the Municipality of Braga

Year	Solvency Ratios	Meliã Hotel	Bom Jesus Hotels	Ibis Hotel	Ibis Budget Hotel
2017	Solvency Ratio	0,72	1,82	**2,03**	1,04
	Asset Financing Ratio	0,42	0,65	**0,67**	0,51
2018	Solvency Ratio	0,86	2,03	**2,69**	1,16
	Asset Financing Ratio	0,46	0,67	**0,73**	0,54
2019	Solvency Ratio	1,03	2,01	2,91	**4,71**
	Asset Financing Ratio	0,51	0,67	0,74	**0,82**
2020	Solvency Ratio	0,90	1,34	3,37	**6,11**
	Asset Financing Ratio	0,47	0,57	0,77	**0,86**
	Solvency Ratio	0,93	1,29	3,21	**5,34**
2021	Asset Financing Ratio	0,48	0,56	0,76	**0,84**

Source: Data calculated using the SABI database.
Note: Values in bold represent the highest values observed for each ratio.

Table 5. Economic Ratios for Hotels in the Municipality of Braga

Year	Economic Ratios	Meliã Hotel	Bom Jesus Hotels	Ibis Hotel	Ibis Budget Hotel
2017	Return on Equity	**0,11**	0,07	0,10	0,06
	Return on Asset	0,06	**0,13**	0,06	0,03
	Return on Sales	**0,15**	0,12	0,13	0,11
2018	Return on Equity	0,10	0,02	**0,12**	0,09
	Return on Asset	0,06	0,04	**0,08**	0,05
	Return on Sales	0,15	0,03	0,15	**0,16**
2019	Return on Equity	0,12	0,01	**0,17**	0,10
	Return on Asset	0,07	0,03	**0,13**	0,08
	Return on Sales	0,16	0,02	**0,24**	0,18
2020	Return on Equity	**-0,03**	-0,25	-0,08	-0,06
	Return on Asset	**-0,01**	-1,21	-0,06	-0,05
	Return on Sales	**-0,09**	-1,21	-0,30	-0,25
	Return on Equity	**0,03**	-0,04	0,00	-0,02
2021	Return on Asset	**0,02**	-0,07	0,00	-0,02
	Return on Sales	**0,06**	-0,10	0,01	-0,07

Source: Data calculated using the SABI database.
Note: Values in bold represent the highest values observed for each ratio.

In terms of comparing the solvency ratios (solvency ratio and asset financial ratio) with the average values for the sector, we can see that all the hotels are above the sector average.

4.4. Economic ratios

Regarding economic profitability, the company's ability to remunerate all the capital invested in it, Table 5 shows that in 2017 Bom Jesus Hotels had the highest capacity, while Ibis Budget Hotel had the lowest. In 2018 and 2019, the Ibis Hotel takes first place and the Bom Jesus Hotels last. In 2020 and 2021, it will be the Meliã Hotel with the best values and once again the Bom Jesus Hotels with the worst.

Finally, in terms of sales profitability, the company's ability to make more profit per value sold, in 2017 Hotel Meliã took the best position and Ibis Budget the worst. In 2018, it became Ibis Budget with the greatest capacity and Bom Jesus Hotels with the worst. In 2019, it was Ibis that had the best results and Bom Jesus Hotels at the bottom of the table. In 2020 and 2021, Hotel Meliã takes the best position and Bom Jesus Hotels again the worst.

From a general perspective, the impacts of COVID-19 have been felt in these hotels not only from a financial perspective but also in economic terms. The focus is on negative sales results, which will lead to a conditioning of all the other factors analyzed, leading to the conclusion that the impact of COVID-19 on the hotels analyzed has been more significant in terms of medium and long-term balance.

However, to better assess the behavior of these ratios, it was considered pertinent to compare them with the sector average. The Ibis Budget Hotel is below the sector average in terms of return on total investment, and the Bom Jesus Hotels are below the sector average when analyzing return on equity and return on sales. The Ibis Hotel is also below the sector average in terms of return on equity and the Meliã Hotel in terms of return on total investment. The rest of the hotels' figures are higher than the sector average.

5. Conclusions

About the impact of the pandemic, it was possible to observe the lack of demand and the loss of revenue on the part of companies. There was a real emphasis on cutting costs and reducing the number of employees, and some companies took the opportunity to invest in small works, since there was less traffic in their services (Ataíde, 2020; Vale et al., 2020; Vitória & Meireles, 2021). As a reaction to all these changes, companies were forced to take certain measures to safeguard against the negative effects that the pandemic was having on their businesses. With the WHO's declaration of the COVID-19 pandemic, tourism activities were paralysed, as they are not considered essential services and are activities with a high flow of people. This situation has had a major economic and social impact on the tourism sector (Siston & Câmara, 2020). The sector's turnover fell to close to zero in the months during which the state of emergency was declared. It is one of the industries that would find it most difficult to meet its current operating costs (Associação dos Profissionais de Turismo do Minho, 2020).

In order to answer the questions raised above, the economic and financial ratios of four hotels in Braga were calculated and analysed. Through this study, it was possible to see that in terms of liquidity, the hotels did not show very different values. Although they have lost efficiency in the management of their assets, through the receivables, payables and inventory turnover, these do not affect the companies' cash flow, as none of the cases has a longer time taken for receipts than payments. We found that in 2021, the year following the onset of COVID-19, all the hotels, except for Hotel Meliã, had a lower capacity to meet their medium and long-term commitments. All the hotels have lost financial autonomy and there is now more borrowed capital in the hotel companies. It can also be seen that all the hotels have worse financial profitability figures in the years 2020 and 2021, the shareholders of these hotels in this year lose money invested to finance the hotels' activities. The hotels' sales have been drastically affected, with Hotel Meliã having the best position in terms of sales profitability in 2020 and 2021.

If this factor remains static, all the other foundations of a company are subject to severe instability. To the extent that there is no longer any cash coming in, the cash flow situation of companies is conditioned. There are still fixed costs that must be met and at that point there is a greater need for capital. When this capital is not available, there is a loss of financial autonomy, as is the case with these hotels. If there are no more sales, the return to shareholders becomes negative and they end up losing the money they invested. In times of COVID-19, hotels have lost value and become less attractive to new investors. There is now a strong need to take measures to ensure survival and a defined position in the market.

In this context, it is essential that the financial managers of companies and local government bodies are aware of the results of this type of study. This information can be useful for implementing future development strategies for companies in this sector, seeking to maximise the positive impacts and mitigate the negative ones, thus leading to greater development in the municipality.

Regarding suggestions and future research, we think it would be interesting to expand the sample to include the catering sector and other smaller hotels.

Funding and Acknowledgements (Optional)

UNIAG, Research and Development Unit funded by FCT - Foundation for Science and Technology, Ministry of Science, Technology, and Higher Education, under the scope of project UIDB/04752/2020 and UIDP/04752/2020

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DOI: 10.34620/978-83-67405-28-7-022 • 2024 • 200-209

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Proceedings of the International Tourism Congress 23

Tourism planning in low-density territories: the case of the municipality of Vila de Rei

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Abstract

This article highlights the importance of tourism planning in low-density territories, focusing on the municipality of Vila de Rei, Portugal. To boost socioeconomic development, the tourism planning process becomes essential to maximize tourism potential and preserve local resources. Tourism planning in LDTs has particularities that require specific approaches to enrol territorial actors in defining a strategy. The research analyses the stages of the tourism planning process adopted in the municipality. Through document research, data analysis, forums and strategic analysis of actors, the characteristics of the municipality were identified, as well as its potentialities and challenges. The strategic options adopted in Vila de Rei are presented to encourage the diversification of the tourism system and guarantee the preservation of resources. The results achieved show that the process in Vila de Rei should contribute to an increase in the visitors' number and to the tourist supply diversification, focusing outdoor activities, rural and cultural tourism. In addition, actions were implemented to involve territorial agents, aiming their participation in the development of tourism. However, some challenges persist, such as training these agents and structuring the tourist supply. These aspects must be considered in the next stages of the tourism planning process in the municipality.

Keywords

socioeconomic development • municipality of Vila de Rei • tourism planning • low density territories • tourism

1. Introduction

Low density territories (LDT) constantly face the need to deal with the various global transformations of contemporary societies. These challenges led to the consideration of tourism as a revitalizing element in these territories, which also entails various socio-spatial changes, both in terms of diversification and personalization of spaces, and in the creation of new relationships between those involved. It is crucial that this premise results in an advantageous relationship, both for visitors and for the local community, to prevent territories from becoming artificial scenarios of an inert identity, subject to the trends and temporalities of a crystallized tourist vision. Considering that tourism is an open system, influenced by internal and external contexts, the integration of the perception of the different stakeholders will allow destinations to assert themselves globally, associated with multicultural values, preserving identity.

The municipality of Vila de Rei, located in the Centro Region of Portugal, faces the same challenges as other LDTs: decrease and aging of the population (Almonte & Pazos-Garcia, 2022; Reis, Balão, Marques, Olímpio, Baltazar, Ramos, & Rodrigues, 2020; Santos & Ferreira, 2010), inertia in various valences such as displacement of infrastructure, equipment and basic services essential for the well-being of populations (Azevedo, 2011; Johansson & Rauhut, 2002; Reis, et al., 2020) and high levels of social and economic maladjustment that are difficult to reverse, associated with lower levels of development (Almonte & Pazos-Garcia, 2022; Domingos, 2009). The planning of the tourism sector is one of the forms of public intervention that allows finding a strategic vision for the territory capable of promoting economic and social development, valuing natural and cultural resources, and guaranteeing its sustainability. This paper focuses on the construction process of tourism planning in Vila de Rei, involving the methodological questions pursued and the results obtained through this process, before the beginning of its implementation.

The objectives of the paper focus on the analysis of the various planning steps necessary to obtain the strategic vision and which involve carrying out a prospective diagnosis integrated into the tourist system of Vila de Rei, identifying

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the strategic challenges and objectives of the actors in the tourist system and in the definition of intervention strategies and a tourism development model for the municipality of Vila de Rei, with a time horizon of 2030. It is intended to share the methodology used in the planning process in the territory under analysis, as well as the results that derived from its application.

To address the stated objectives, the paper is organized into four distinct sections: i) theoretical framework on the use of planning in the tourism development of low-density rural territories; ii) brief characterization of the municipality of Vila de Rei; iii) methodology (presentation of the planning process' phases and methodological instruments); iv) presentation and discussion of the results of the tourism planning process in the case study.

2. Tourism development and planning in low-density territories

In a contemporary context in which the problem of low density is discussed so much, however much debated, the issue is not an easy one. Although the concept of low-density territory is supposedly simple and intuitive, referring to a rural territory with a population density below a previously set threshold (Bento, Ramos & Azevedo, 2013), its application it is much more complex, producing several questions and discourses.

Due to the lack of a universal definition for LDT's and the methodological challenges without definitive answers, these territories are generally considered those that have a population density or per capita income lower than the national average, as observed by the Interministerial Coordination Commission of Portugal 2020. Deliberation 55/2015 of that Commission (CIC, 2015) determines a multicriteria approach that considers population density, demography, population, physical characteristics of the territory, socioeconomic characteristics, and accessibility, classifying most municipalities in mainland Portugal as low density. This reality creates a vicious cycle that limits development potential (Camarero, 2020; Almeida & Daniel, 2022), aggravating territorial disparities related to income levels, social and digital exclusion, isolation (ESPON ETRF, 2019; Ruíz- Martinez & Esparcia, 2020) and social fragmentation and political polarization (European Commission, 2020).

Population distribution in each territory has implications for several aspects, including land structure, functional organization, profile, and location of economic activities; it also affects the morphology of transport and communication infrastructures, the choice of location and coverage of public facilities, the ability to manage vulnerability and the spatial spread of specific geographic phenomena, such as Covid-19 (Carmo & Rêgo, 2020).

Rural territories often have a series of characteristics that hinder the development of economic activities. Among these characteristics, the relocation and aging of the population, low levels of educational training, lack of adequate infrastructure and lack of support services for citizens and companies, weak mobility, weak levels of cooperation, among others, stand out, amongst other challenges. These characteristics shape the concept of LTD, previously referred, which reflects a reality of low density on three levels: demographic, institutional and relational (Magalhães, Neves & Relvas, 2001).

The geographical delimitation of low-density Portugal covers, in large part, the same territory described by Ferrão (2002), resulting mainly from the process of social and economic modernization initiated in the 60s and from a hegemonic development model, generally diffuse, hybrid, asymmetrical and invertebrate, based on a vertical and hierarchical system of power (Covas & Covas, 2014; Reis, 2018b). At the turn of the century, it was expected that a post-modern Portugal would emerge, which Ferrão (2002) dubbed as "network archipelago". However, two decades later, it became clear that this apparently polycentric and/or networked structure, one of the main objectives of the National Plan for Spatial Planning Policy in the original 2007 edition, had not been achieved. Although there are some exceptions, such as the presence of medium-sized cities with polarization capacity, the signs of rebalancing, still uncertain and incipient, could compensate for the mass movement of Portuguese to the coast" (Mattoso, Daveau & Belo, 2010) as is evident in the framework of the Centro Region, but they never went beyond that.

The austerity measures implemented in Portugal during the Troika years (2011-2014) played a significant role in the general setback and had a profound impact on the territorial distribution of society (Rodrigues & Silva, 2015). During this period, according to Reis (2018a), there was a sharp increase in mobility flows of people and qualifications in a single direction: from peripheral areas towards the centre. The country, which had achieved some decentralized cohesion, is now affected not only by the stagnation of the regional convergence process, but also by the original imbalance. This change made it impossible, or at least delayed, the deepening of regional development paths, aggravating the socioeconomic decline and depopulation of the interior, which contributed to strengthen the relative importance of LTDs on the continent.

In recent years, there have been important changes in the thematic orientation and scope of the tourism sector with the promotion of integrated development strategies between urban and rural spaces, valuing their specificities within the framework of their articulation and complementarity, driven by the evolution of European and national public policies and by the needs and motivations of tourists, which result in changes in behaviour and consumption habits. These transformations are reflected in the structure of the tourist supply and in the

arrival of more diversified and personalized tourist destinations, including low-density rural territories/areas, which have a significant potential for evolution and relevance in relation to urban territories, thanks to the differentiating territorial elements (Ramos & Fernandes, 2016; Reis, 2018a; Reis & Baltazar, 2019). In these regions, there is a growing trend of new tourist interested on local resources, with the aim of interrupting or reversing the cycle of territorial abandonment, in addition to stimulating and diversifying local economies, also benefiting from public policies aimed at their recovery and revitalization (Reis & Baltazar, 2019). In this context, several public policies have been implemented, such as intervention projects and conversion of rural spaces (Historical Villages of Portugal, Schist Villages, Wine Production Villages, Mountain Villages, Coastal Villages, among others), which play a fundamental role in structuring of the tourist system in alternative tourism destinations. These policies are based on a new model of alternative, endogenous and participatory development, which aims to promote the development of the territory through the enhancement of local resources, such as the built, cultural, and natural heritage, traditions and production systems linked to the rural economy, considering new tourism consumers (Middleton, Fyall, Morgan & Ranchhod, 2009; Diez, 2020).

Tourism is gaining evidence as an instrument capable of revitalizing the social and economic structures of the most disadvantaged areas, including rural areas in the interior of the country (Silva, 2013). European public policies are encouraging the adoption of a new rural development paradigm, based on valuing local resources and potential (neo-endogenous development), that is, it is necessary to discover and invest in the virtuous side of low density. This involves not only agricultural activities, but also activities related to tourism, leisure, agro-industries, among others, to satisfy the new demands of society. In this way, the rural environment becomes a product and a commodity for tourists (Pereiro, 2018; Silva, Sousa & Albuquerque, 2022), which will allow safeguarding biodiversity, natural resources, landscapes and keep heritage and cultural values alive.

The growth of tourism as an economic activity and the emergence of new commercial, leisure and tourism spaces allow it to assume a double dimension: (i) it is a strategy to boost and transform the territory, by introducing new attitudes and social behaviour, by changing consumption patterns and the generation of multiple impacts; (ii) represents an economic activity that builds and distributes significant benefits, by taking advantage of the natural, heritage and cultural potential locally (Abella, 2007).

In this sense, the LTDs can be analysed in two essential levels of importance: the built territory, which refers to the territory as a resource, which includes the productive system and the agents involved in the dynamics of the landscape; the established territory, as a social and natural framework, which involves the integration of resources, life structures and all the biophysical functions of nature (Galvão & Vareta, 2010). They are, thus, physical space and figurative space, where the real and the symbolic, the material and the immaterial, the commercial and the non-commercial meet. This multifunctionality implies an economic diversification based on the valuation of material and immaterial resources, which are currently in great demand, which is especially notorious in the case of tourism.

Territories play an important role by using existing endogenous resources, which have been explored, as facilitators and boosters of renewed dynamics, leading to the visibility of regional awakening (Ferrão, 2003). Viard (1997) already mentioned that the rural space gained a new legitimacy, based on the understanding of rurality as a symbol of freedom, landscape, health and well-being, thus building a renewed identity.

The relationship between the development of tourism and the use of local or regional resources is becoming more and more crucial to spread the appreciation and diversification of the development processes of territories. According to Cristóvão (1999) and Cavaco (1993), these resources have intrinsic characteristics (such as the natural environment, the built heritage, cultures, traditions, and traditional values, as well as craft production) that attract mainly “urbanites” due to informality of using these resources. This informality is reflected in the landscape, in the sense of freedom, in the opportunity to rest and in the existence of conditions for the practice of nature activities, in contrast to the heavy order that prevails in urban environments.

Even though natural and cultural assets are the main motivations for traveling to a territory for tourism purposes and the basis of its competitive advantage and (neo)endogenous growth, it is essential that these resources are incorporated into a qualified supply to meet the needs and visitor expectations (Ribeiro & Borges, 2017; Silva, Sousa & Albuquerque, 2022). It is, in this sense, fundamental to plan the tourism future(s) in a LDT as a window of opportunity that should not be overlooked, but which, on the other hand, will have to be correctly framed in the multiple interests of the territorial agents that live there, through relationships of commitment, dialogue, negotiation and reconfiguration of relational dynamics. In this perspective, tourism cannot fail to evolve without planning (Marujo & Carvalho, 2010), nor be planned in isolation, since it is an instrument of development in any society and the lack of monitoring, not only its evolution but also the effects it causes, can root irreversible damage to the territory and the economic and social fabric of a region or place.

The growing competitiveness of tourism, as well as the growing awareness of the various actors involved in development processes, make planning an essential and indispensable instrument for a more sustainable and more integrated

tourism, that is, a balanced tourism in harmony with the physical, social and cultural resources of the receiving regions and, in this way, avoid negative effects and destruction of the tourist resources that are the attractiveness of any destination (Ruschmann, 2007).

In this context, the last two decades have witnessed an awareness of the (national and local) public sector in planning its development, according to previously defined strategies and objectives and which derives from the conviction that in this way it will be possible to achieve a better balance of growth and avoid or minimize some of its negative impacts.

Like what happened in the field of urban planning, sustainability issues also influenced the new paradigms of tourism planning, in a more global planning process, capable of responding to new realities and involving the various actors in the tourism phenomenon - development of creative and participatory strategic planning (Reis, 2018b), going against the normative path of previous paradigms (physical planning).

In this way, planning ceases to be just a technical process with the aim of producing material things, to become a form of mutual learning - decentralization and democratization of planning -, involving a diversity of civil society actors (private/public sector, organizations, community, etc.) at the level of collective decision-making (bottom-up and horizontal models), because everyone is interested and everyone is dependent on each other, whether in identifying existing problems or those that can be foreseen, or either in problem-solving proposals or in implementation and/or action processes, focusing on strategic planning instruments (Costa, 2001; Faludi, 2000; Reis, 2018b).

This approach refers to the participatory and integrated tourism planning models of Murphy (1985) and Inskeep (1991), which argue that the direct involvement of individuals in the planning process is encouraged to give it legitimacy and broaden the range of possible choices (objectives/targets, human and financial resources), recognizing that there are decisions that no one has the capacity or wisdom to take on society behalf and, in this way, improve the results of this process.

The articulation between the different actors in the territories, with emphasis on the local authorities, is becoming an important issue once these local authorities became more interested in facilitating than in carrying out, especially regarding tourism (Baptista, 2010). Initially, these actors became the main responsible for infrastructure, but more recently they have developed strategies related to social issues, focusing on promoting economic development and valuing the singular as a source of comparative advantage, that is, local authorities have adopted a posture of animator.

Current planning is, for the reasons mentioned, a laborious process that involves many public and private actors at different scales (international, national, regional, and local), with diverse interests and unequal relations. Hence, it is essential to promote cooperation and participation between the different actors in the planning process, both in terms of solving problems and as a means of promoting the integrated and sustainable development of local communities (Hall, 2002; Reis, 2018b).

Unravelling these elements is a complex task in a world where cultural reproduction is increasingly present. In the tourism sector, emphasis is placed on the communicational component, but the task becomes even more difficult in the absence of involvement of tourist agents and populations, and in the lack social capital and existing characteristics in LDTs (Mandl, Oberholzner & Dörflinger, 2007), ant this is an uncontroversial reason for the development of tourism planning and monitoring its implementation, in a flexible logic.

3. The municipality of Vila de Rei

The Geodesic Centre of Mainland Portugal is in the municipality of Vila de Rei, belonging to the Centro Region (NUTII) of the Portuguese territory, the Médio Tejo sub-region (NUTIII) and the district of Castelo Branco. Vila de Rei has an area of 191.55 km², and shelters 94 locations that make up the three parishes: Vila de Rei (74.1% of the municipality's area), Fundada (19.1%) and São João do Peso (6.8%) (Figure 1).

From another perspective, it is important to highlight the location and centrality of the municipality of Vila de Rei, surrounded by water, limited to the west by the Zêzere river, to the north by the Isna stream and to the south by the Codes stream, giving it characteristics of a peninsula. The surrounding territory is marked by four medium-sized cities



Figure 1. Geographic location of the municipality of Vila de Rei. *Source: Reis, et al., 2020.*

(Abrantes, Tomar, Castelo Branco and Coimbra), evenly distributed throughout the urban system in the interior of the Centro Region, which configures its importance for territorial cohesion. In terms of geographical distances, the municipality of Vila de Rei is 29 km from Abrantes, 36 km from Tomar, 90 km from Castelo Branco and 96 km from Coimbra. In terms of road accessibility, Vila de Rei is served by a network of motorways, main routes and complementary routes that cross the nearby urban centres. In terms of the municipal road network, the territory is also served by a set of municipal roads (municipal roads and municipal paths), which allow access to different locations and tourist attractions (Reis, et al., 2020).

Regarding demographic aspects, the municipality of Vila de Rei follows the trends of its regional surroundings. Vila de Rei is the NUTIII municipality that has the smallest number of inhabitants, although its area is not one of the smallest. Circumstance that is reinforced when observing the population density of the municipality in relation to its regional surroundings (about 17.7 inhab/Km² vs 69.1 inhab/Km² for NUTIII), referring to 2021.

The littoralization of Portuguese territory, with a special incidence of population concentration in the Metropolitan Areas of Lisbon and Porto, has contributed towards lower population densities in the interior areas of the country, such as the Médio Tejo sub-region and the municipality of Vila de Rei. Population rarefaction has become more acute in recent decades, and which is also the trend found in the NUT III sub-region.

In relative terms, the municipality of Vila de Rei between the years 1991 to 2021 lost about 8.0% of its total population. The population distribution illustrates the dual aging of the municipality with the lower and higher population strata showing opposite trends, revealing high figures for the population over 65 and very low figures for the first age groups. In general, it can be said that the loss of population is related to several factors, which can either be seen in isolation or in a mixed way, and in which one or more factors may have a greater explanatory contribution to the understanding of this phenomenon:

- economic nature: an increase in coastalization, translated into greater investments in productive sectors and services and which have been reflected in a greater capacity of coastal territories to attract populations from the interior, contributing to the increase in the existing discrepancies between coastal territories and the interior ones;
- demographic nature: the natural balance between births and deaths, with a deficit of births that does not cover the high number of deaths; migration processes resulting from bankruptcy and company closures and/or for other reasons;
- symbolic nature: the migratory processes to the urban centres of the region or outside the region, traditionally centres that engender jobs and ways of life that differ from rural environments, as well as the acquisition of a new social status resulting from these migratory processes (living in the countryside vs. live in the city).

The tertiary activity sector is the one that concentrates most of the active population. This distribution of the active population in the municipality of Vila de Rei reveals agreement with the type of economic activity in which it operates, whose corresponds predominantly to public facilities and social economy.

It is important to underline that in terms of qualifications of the population employed, the majority has reduced qualifications, as the majority obtained degrees lower than secondary education, a degree which, together with the 3rd cycle of basic education, predominates in the municipality.

Despite the effort in the context of (European and national) public policies and the existence of educational facilities, public and private, the municipality of Vila de Rei still presents some unsatisfactory results in the main education indicators, as, for example, illiteracy affects around 10% of the total population. And, when analysing the data on the population that has no level of education, it appears that this situation is more frequent in age groups that include older individuals (for example, more than half of the population aged 75 or over does not have any level of schooling) in 2011. As for schooling, the highest level of schooling completed by the municipality's population is basic education (1st, 2nd and 3rd cycle), which limits entry into the working market and the competitiveness of the territory. The younger population (20-29 years) has a higher level of education than most of the population.

The municipality's cultural investment, which corresponds to €134.8 per inhabitant, is substantially higher than the expenses of the municipalities that are part of the Médio Tejo sub-region, Centro region or nationwide. The same trend can be observed in the municipality's investment in sports activities and equipment, expenses totalling €80.7 per inhabitant.

The municipality promotes a series of events, a significant part of which is related to cultural tourism. These events are in line with the characteristics of event tourism, dispersed throughout the year, covering different audiences, and involving a variety of agents. The collaboration between the actors involved to achieve specific objectives, such as reaching new audiences or creating tourism products, stands out.

With regard to tourist assets, the municipality of Vila de Rei holds a significant natural heritage, providing a variety of tourist products and activities that can be enjoyed individually or in groups. Among these stand out walking and cycling, visiting waterfalls and river beaches, viewpoints, nautical activities in the Castelo de Bode dam, as well as exploring museum spaces and local culture. Vila de Rei has the capacity to position itself as an adventure and competition destination, especially associated with activities such as trail running,

mountain biking, orienteering, canoeing/stand up paddle, among others, attracting national and international events. In this territory, material (archaeological and religious heritage, built environment and vernacular architecture) and immaterial (gastronomy, Água Formosa Schist Village, the 'conheiras' sites, local traditions, arts and crafts, etc.) cultural heritage also stand out.

Lastly, it should be noted that the municipality of Vila de Rei has sought to insert itself into a participatory logic of development, encouraging the establishment of partnership networks that allow the creation and enhancement of value with less risk, with reference to the Nautical Station of Castelo do Bode, the Schist Villages Network, the National Road 2 Municipalities Association and the Olive Growing Municipalities Section of the Portuguese Wine Municipalities Association.

4. Methodologies

As already mentioned, the purpose of this paper is to analyse the main stages of the planning process in Vila de Rei with the elaboration of an adequate methodological framework. To subsidize this objective, three steps were outlined: i) Integrated Prospective Diagnosis to the Tourism System; ii) Strategic Foresight of System Actors; iii) Intervention Strategies and Tourism Development Model.

To carry out the 1st stage - an integrated prospective diagnosis into the tourist system of Vila de Rei - the adopted methodology focused on the generic characterization of the territory (location, geostrategic positioning, and accessibility; demography and population; education and qualification; employment and productive structure; and socio-cultural dynamics) and the tourism system (characterization of supply and demand). This consisted of a documentary analysis that focused on primary sources, complemented with a bibliographical analysis that focused on sources made up of already existing material. Its elaboration involved two phases: (1) collection, treatment and analysis of available information [official websites and other pages available on the internet, minutes of the Municipal Assembly and the Municipal Chamber, statistical data from the National Institute of Statistics, PORDATA, Directorate-General of Education and Science Statistics, Institute of Employment and Vocational Training, unpublished official data (reports on museum spaces and diverse information on equipment and support services for tourism and communication channels) and other materials made available in spaces and channels of municipal communication (leaflets, guides, newsletter, social networks, among others)]; (2) collection, treatment and analysis of provoked information (questionnaire surveys to agents of accommodation and catering establishments, construction and completion of observation grids for museum spaces and inventory sheets of material and immaterial natural and cultural heritage, events, pedestrian routes). This first objective aimed to characterize the territory, its supply and demand for tourism and identify the main intrinsic and exogenous factors of the territory - SWOC Analysis (Strengths, Weaknesses, Opportunities and Challenges), regarding the development of tourism in Vila de Rei.

Regarding the 2nd stage of the planning process, Strategic Foresight of the System Actors, which had as its main assumption the identification of the strategic challenges and objectives of the actors in the tourism system, the elaboration of this exercise of territorial foresight comprised three phases: (1) implementation of Structural Analysis (use of the MICMAC method - Matrix of Crossed Impacts of Multiplication Applied to a Classification), to reduce the complexity of the state of the system, and identification, characterization and hierarchization of the most important variables in its operation based on the prospective diagnosis and SWOC analysis; (2) performance of the strategic analysis of actors (ARS - Analysis of Social Networks) and strategic analysis of actors, looking for the key actors of the system, the strategic objectives, the means of action, the projects and ambitions of each actor, the alliances and/or eventual conflicts between actors in function of the objectives and evaluation of the relations of force (power) between them, with support to the MACTOR method (Method Actors, Objectives, Force Relations) using the results of a survey by questionnaire to the main system actors; (3) definition of lines/axes of strategic orientation [definition of scenarios (Godet, 1993), in the short and medium term]. This stage sought to identify and prioritize the key variables in the functioning of the tourism system, to census and characterize the key actors in the system, to identify the strategic challenges and objectives, projects and ambitions and the means of action of the actors, alliances and/or conflicts between actors and elaborate strategic scenarios for 2030.

The 3rd stage of the methodological process of construction of the tourism development model for the municipality of Vila de Rei was based on the results obtained previously, complemented with consultation sessions with territorial agents (conduction of two focus groups with local, regional and national agents and meetings with the municipal executive), with the aim of stimulating debate and joint reflection on the strategic assumptions for the destination, and with the analysis of the main European, national and regional strategic documents of relevance to the sector and the territory.

This methodological path allowed the definition of the mission, vision, and guiding principles for the destination of Vila de Rei, the definition of strategic objectives for tourism development and the construction of an action plan.

It can be affirmed that there are no studies in Portugal that have applied the recommended methodology to LDTs in the field of Tourism. The most significant prospective

studies have been primarily conducted by the Department of Prospective and Planning of the Ministry of the Environment, Spatial Planning, and Regional Development, and subsequently by the Ministry of Education, the Ministry of Labor, as well as various scientific research centres dedicated to this field, including the Centre for Territorial Studies (CET) and the Centre for Studies on Socioeconomic Change (Dinâmia). Additionally, noteworthy is the National Plan for Economic and Social Development (PNDES) undertaken in 1995, along with some planning studies associated with the utilization of structural funds, among other initiatives (Amaral, 2017). The closest study identified pertains to the application of the methodology to the Network of Historical Villages of Portugal, which encompasses multiple municipalities (Amaral, 2017).

This represents an innovative approach within the field, as it puts into practice a methodology that previously existed only in theoretical research.

5. Results of the tourism planning process

The anchor elements identified in the tourism system diagnosis phase (water, nature, river beaches, fresh air, cultural heritage, people, centrality and interior) are pivotal elements in structuring the tourism product, having been designated strategic assets.

Related to those elements, there are attributes and resources that enrich them, as they are intrinsic and distinctive characteristics of the territory. They cannot be easily transferred or imitated, contributing to complement the tourist experience and/or add value to the territory's tourism system. In addition, these attributes have growth potential, which can generate added value in the future and expand the multiplier effect of tourism in the local economy. The elements considered as the most important attributes and resources in Vila de Rei are interconnected with the anchor elements.

In this sense, nature and nautical activities are considered central products in planning, complemented by different products, such as active tourism. The definition and structuring of strategic, complementary, and emerging tourism products point to the integrated use of this territory's resources. This integration encompasses different dimensions, including the appreciation of differentiated endogenous resources, such as cultural heritage and gastronomy, while nature and nautical activities are considered aggregating elements of this development. Both in products related to nature and in nautical activities, there are physical and organizational infrastructures, including formal and informal networks. In addition, there is a promotion of specific products and tourist activities that emphasize the importance and relevance of these products. Recent trends that have emerged in the tourism industry further reinforce the positioning of those products as strategic in the tourism supply.

The territory has other products that also play an important role in the development and sustainability of the tourism sector. Cultural tourism, in its various aspects, has a significant capacity to build an integrated tourism product, which can contribute to increase staying and provide unique experiences.

During the implementation of the instruments that led to the building up of intervention strategies and/or strategic assumptions for the destination, it was relevant to associate Vila de Rei with concepts such as fresh air, peace, tranquillity, and well-being, which allows considering the emergence of lifestyle, inspirational and new trends products. In addition to existing products, considering current tourism trends and the fact that the territory is sought after by foreign tourists who want to change their lives, it is also proposed to explore rural tourism as an emerging tourism product. It is important to highlight that tourists looking for this type of product have as their main objective contact with nature and local culture.

By establishing the products that make up its identity, it can be said that this destination is preparing to face civilizational challenges, such as sustainability, accessibility, and inclusion; at the same time, these products are intrinsically linked to the local community. In this way, tourism plays a fundamental role in promoting new activities (or reformulating existing ones), while guaranteeing the preservation and enhancement of traditional products, methods, and techniques, and strengthening the territory's identity.

It is essential to operationalize and experience the territory's resources, transforming them into memorable and engaging experiences for visitors. Nature tourism and nautical tourism have resources capable of producing experiences that consider the expectations of contemporary tourists, who want to enjoy nature in less massified destinations, located in inland territories. To achieve this goal, it is crucial that the community fully participate in this process. The community plays an essential role in the operationalization of tangible resources, but also for being the guardian of intangible resources, such as hospitality and immaterial culture.

Based on the presented elements, in the third stage of the planning process, the vision for tourism in Vila de Rei until 2030 was developed, created with the objective of being inspiring, imaginative, and aligned with the aspirations of the territorial stakeholders, while at the same time it is achievable and consistent, formulated using participatory methods. The vision intends to promote the creation of quality experiences, taking advantage of the territory's singularities and materializing them in an integrated and inclusive tourism product, available all year round for the different markets that choose Vila de Rei as a destination. In addition, the vision emphasizes networking, in a multidimensional way, based on cooperation between public and private agents and the local community.

Implicit in its formulation is the destination preservation, enhancement and training of human, material and immaterial resources, with the objective of developing tourism in a sustainable way, so that becomes possible to: (i) organize the tourism system, reinforcing tourism products and develop new ones in the municipality; (ii) combat the phenomenon of seasonality and retain demand, through the creation of an integrated tourism product, and; (iii) improve the territory's communicational performance based on qualifying attributes (quietness, well-being, accessibility, sustainability).

The articulation between the vision and the mission allows the systematization of a set of objectives to be achieved with the plan, which were separated into 7 general/strategic objectives and 22 specific objectives to achieve what the destination intends to be in 2030.

In the next phase, the territory's target markets were selected, based on historical information, and these markets were segmented according to the characteristics of the audiences that seek the different types of products, for products defined as strategic, complementary, and emerging. The definition of the positioning of the territory was based on some future trends related to tourism, namely: tourists are increasingly opting for experiences that protect the environment and are socially responsible; greater empowerment of tourists, who resort to the use of information and communication technologies, also benefiting from the increased potential and accessibility of geographic information systems for common users; the existence of a higher educational level, mainly in Europe and North America, which increases the interest in cultural products and experiences; new tourist flows from new markets are emerging (China and Russia, for example); high motivation to participate in major events (exhibitions, concerts and other cultural events) in certain tourism destinations; purpose of practicing a more interactive tourism, in which it is possible to actively participate in cultural activities (local dances, gastronomy, crafts), in the search for a unique and exciting experience; accelerated growth of motorhome tourism; gastronomic tourism involves visitors who seek to know more about the reality of the places they visit; accessibility and inclusion.

To respond to the strategic objectives and respective elements of strategic formulation, it was proposed the development of four action programs (Territorial Qualification, Protection and Use of Resources, Promotion and Communication of the Destination and Monitoring and Evaluation) constituted by a set of (55) specific actions (short, medium, and long term) that are organized by (9) intervention axes. The proposed actions result from the strategic diagnosis and the actors' strategy (stage 1 and 2 of the planning process), but also result from a process of listening to territorial agents with a direct and indirect connection to the tourist destination. At the same time, the alignment of the programs' actions was built in accordance with the Centro's Regional Tourism Strategy, the National Strategy, and the Action Plan "Reativar o Turismo | Construir o Turismo", as well as the 2021-2027 programming period of the Centro Region, which emphasizes tourism as one of the intervention priorities from the point of view of promoting competitive specializations.

The management and monitoring of planning play a fundamental role in ensuring the creation of dynamics that collaborate to achieve the established objectives, to guarantee the functioning of the governance model, to achieve the success of the defined strategy (Strategic Plan for Tourism Development for the Municipality of Vila de Rei - 2030). Based on the objectives defined for Vila de Rei, the model and structure adopted for the implementation, regular follow-up and strategic monitoring of the actions planned in the programs must be integrated and cover several levels of governance. In this way, effective and useful monitoring will be possible in the decision-making process and in the regular measurement of results, ensuring that any deviations are identified and corrected in a timely manner, to ensure the achievement of strategic objectives.

The global and multilevel governance approach aims to turn easier the coordination between the various (internal and external) agents involved, public, private and community, ensuring a more efficient and synergistic management of tourism activities and promoting the sustainability and success of the tourist destination.

More specifically, it will be up to the Plan's Coordination (Municipality of Vila de Rei and Monitoring Team) to initiate the Plan through the implementation of a set of interventions at the level of development and monitoring of programs/ actions, such as, for example, articulation between internal and external entities of the system in the execution of the Plan.

6. Conclusions

The planning of a low-density territory is a complex and challenging task, but fundamental to promote the sustainable development and enhancement of these territories. Throughout the text, an attempt was made to demonstrate the relevance of tourism planning in LTDs and to convey the importance of an integrated, participatory, and strategic approach to face the unique challenges that a TBD must deal with.

From the construction of the diagnosis, the perception of tourist potential and the main characteristics of the territory, it becomes evident that planning must cover the multiple dimensions involved, from the strengthening of traditional activities to the diversification of the economy through tourism and other emerging opportunities.

The involvement of the local community, public and private sectors, as well as stakeholders, using participatory

methodologies, is essential to build successful strategies. The collaboration between these actors allows for the exchange of knowledge, the appropriate allocation of resources and the creation of synergies that drive the holistic and sustainable development of the territory.

Furthermore, planning must consider the preservation and enhancement of natural, cultural and heritage resources, seeking to harmonize economic development and environmental conservation. Thus, it is possible to create authentic and attractive tourist products, which explore the singularities of the territory and stimulate demand throughout the year, minimizing the negative impacts of seasonality.

In summary, upon concluding this tourism planning process, it can be asserted that employing the described methodology made it feasible to attain:

- Community Empowerment: participatory planning empowers local communities by giving them a voice in shaping the direction of tourism development, fostering a sense of ownership and pride in their region's tourism assets.
- Sustainable Development: in LDTs, uncontrolled overdevelopment risks are mitigated through participatory planning, which promotes sustainable tourism growth by balancing economic gains with environmental and social factors, with local input fostering more responsible development.
- Cultural Preservation: engaging local communities in planning safeguards the unique cultural assets often found in LDTs, ensuring their preservation, and preventing their commodification or dilution.
- Increased Tourism Authenticity: participatory planning can result in tourism experiences that authentically capture the area's character, enhancing visitor satisfaction with a more genuine and fulfilling experience.
- Economic Diversification: Tourism serves as a valuable income source for LDTs, contributing to economic diversification, and involving the local community in planning can identify prospects for tourism-related businesses and job generation.
- Conflict Resolution: In certain instances, tourism may generate tensions among diverse stakeholders like residents and businesses, but participatory planning processes can assist in recognizing and resolving conflicts through transparent dialogues and negotiations.
- Resilience: low-density regions, susceptible to economic downturns and external shocks, can enhance resilience by diversifying their economy through tourism, incorporating local input.
- Long-Term Planning: Involving local stakeholders fosters a forward-looking approach to tourism development, enabling the community to prioritize sustainable growth that benefits future generations, rather than solely focusing on short-term gains.

LDT tourism planning requires a proactive, inclusive, and sustainable approach, aligned with community aspirations and taking advantage of local potential. Well-conceived strategies, based on cooperation and the enhancement of heritage, allow for the triggering of an equitable and lasting development process, transforming these regions into prosperous and resilient destinations, which enhance their identity and contribute to the creation of value.

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DOI: 10.34620/978-83-67405-28-7-023 • 2024 • 210-219

sciendo

Proceedings of the International Tourism Congress 23

Leveraging place branding in smart tourism destinations: an exploratory analysis

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Abstract

In a digitally interconnected world, the evolution of tourism has transcended its traditional confines. The rise of smart tourism destinations introduces a paradigm shift, blending digital innovation, connectivity, and visitor engagement while embracing sustainable principles. These destinations wield technology not only to mould their identity, image, and reputation but also to champion enduring environmental, social, and economic sustainability. The convergence of place branding, smart tourism, and sustainable development sparks thought-provoking discussions in academia and industry. Place branding encompasses crafting a destination's multifaceted identity and associations, while smart tourism destinations leverage advanced technologies like the Internet of Things and data analytics to enhance visitor experiences and resource management, all underpinned by a dedication to sustainable growth. By comprehensively reviewing the literature, this study aims to provide a holistic comprehension of how Smart Tourism Destinations navigate place branding while upholding sustainable ideals. Unveiling the mechanisms through which these destinations shape their identities, images, and reputations sustainably offers insights for academics and practitioners in tourism, marketing, urban planning, and sustainable development. As the world embraces digital advancements, understanding the synergy between technology, place branding, sustainable development, and tourism is pivotal for the balanced evolution of 21st-century destinations.

Keywords

place brand • smart city • smart tourism destination • smartness • sustainability

1. Introduction

In an increasingly interconnected and technologically driven world, the concept of tourism has evolved beyond its traditional boundaries. The emergence of smart tourism destinations (STD) has ushered in a new era of travel experiences that intertwine digital innovation, seamless connectivity, and enhanced visitor engagement (Gretzel et al., 2015; Habeeb & Weli, 2020; Jasrotia & Gangotia, 2018), while simultaneously safeguarding the intricate balance between environmental preservation, societal well-being, and economic prosperity. As STDs redefine the contours of destination management, they have captured the attention of both academia and the industry, sparking discussions that explore the intersections of intelligence and sustainability in tourism (González-Reverté, 2019; Perles Ribes et al., 2018; Revilla et al., 2022a).

Central to this emerging paradigm lies the concept of place branding, a multifaceted endeavour encompassing a destination's identity, image, and reputation. In an era of unparalleled interconnectedness, the significance of place branding has risen astronomically. Destinations no longer compete solely for tourist footfall; they also vie for investments, talents, and global recognition. What was once a promotional endeavour has transformed into a strategic necessity, moulding perceptions, magnetising diverse stakeholders, and yielding a tapestry of economic, cultural, and social benefits (Grebosz-Krawczyk, 2021; Kavaratzis & Hatch, 2013; Ma et al., 2019).

The intelligent and sustainable attributes woven into STDs hold the potential to intricately influence a destination's brand identity, image, and reputation across the spectrum of environmental, social, and economic dimensions. However, despite the heightened focus on both STDs and place branding, a comprehensive investigation of their intricate interplay remains largely uncharted territory (Duque Oliva et al.,

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2022; Grebosz-Krawczyk, 2021; Huertas et al., 2021; Mandić & Garbin Praničević, 2019).

This research paper aims to bridge this void by conducting a comprehensive review of existing literature, delving into the intricate relationship between STDs and place branding. By illuminating how the attributes of smartness and sustainability can synergistically elevate a destination's brand identity, image, and reputation, this study seeks to uncover a domain still in its nascent stages of exploration within academic discourse. This inquiry holds not only theoretical relevance but also practical implications for destination managers, policymakers, and industry practitioners.

Hence, the principal objective of this research is to unravel the mechanisms through which Smart Tourism Destinations can strategically mould their place brands, weaving narratives that resonate with contemporary travellers while contributing to the holistic vitality of the destination. By bridging the evolving paradigms of intelligence and sustainability in tourism with the intricate concept of place branding, this study aspires to furnish insights that can shape the strategic decisions of destination managers, marketers, and policymakers. Ultimately, this research endeavours to contribute to both theoretical discourse and practical applications within the realms of smart tourism, sustainability, and destination branding.

This paper follows a structured approach. The study begins by establishing a theoretical foundation for sustainability and smart cities. The subsequent section explores the existing body of research pertaining to smart tourism destinations, with a particular emphasis on their interconnectedness with sustainable development. The following section delves into the topic of place branding, drawing upon the notions of identity, and image. The article investigates the connection between smart tourism destinations and place branding, with a particular emphasis on how these destinations leverage branding. The paper concludes by presenting the main findings, identifying several limitations, and recommending potential areas for future research.

2. Literature review

2.1. Sustainability and smart cities

Towards the end of the 20th century, the idea of sustainability expanded and began to be referred to as "Sustainable Development," a subject that gained greater visibility when the United Nations Organisation established the World Commission on Environment and Development in 1983." (Lourenço & Carvalho, 2013, p. 12).

Sustainability, often referred to as the Triple Bottom Line model, aims for enduring prosperity by addressing current needs without undermining future ones (Lourenço & Carvalho, 2013). It's a holistic framework that encompasses three core dimensions: the social underscores the importance of human rights, inclusivity, and cultural diversity; the economic, focuses on the wealth and efficiency of economic undertakings; the environmental, emphasizes preserving the environment, ensuring fair employment, and mitigating negative impacts (BCSD PORTUGAL, 2021).

Building on achievements from 2000-2015, the Sustainable Development Goals (SDGs), adopted in 2015 by over 190 nations, outline global objectives for the 2030 Agenda and require coordinated action from governments, corporations, and civil society. (United Nations, 2019; UNRIC, 2016).

The worldwide discussions, the implementation of the New Urban Agenda, the Paris Agreement, and the 2030 Agenda for Sustainable Development are all indications that we are heading towards resilient urban development. Urbanisation is beneficial from an economic, social, and environmental standpoint. The opportunities provided by cities also give urbanisation a social value (European Union, 2020b; United Nations, 2019; UNRIC, 2016).

Considering the projected development in the urban population and how it is organised in cities, it is crucial to remember that urban life encompasses a variety of cultural, recreational, social, and economic activities in addition to an increase in energy consumption. So that they may be transformed into sustainable smart cities through carefully thought-out policies, it is vital to identify the needs and issues unique to each city rather than relying on a pre-existing model (Ferreira et al., 2015).

Global initiatives like the New Urban Agenda, the Paris Agreement, and the 2030 Agenda for Sustainable Development signal a shift towards resilient urban growth (European Union, 2020b; United Nations, 2019; UNRIC, 2016). Urbanization is advantageous not just economically, but also socially and environmentally. As urban populations grow and diversify, cities become hubs for various cultural, recreational, and economic activities, alongside rising energy demands. To evolve into sustainable smart cities, it's essential to address each city's distinct needs and challenges rather than adopting a one-size-fits-all model (Ferreira et al., 2015).

Emerging globally as the new urban paradigm, smart cities (SC) strive to tackle challenges like climate change, economic crises, and social exclusion by developing comprehensive strategies that encompass environmental, urban, social, and economic aspects (Fernandes, 2017; Selada & Silva, 2014; UNHABITAT, 2020).

Although the idea of the SC has been often fuzzy and overly focused on technology, there is now widespread consensus and the most frequent definition in the literature defines it as a technology-driven urban area that can generate sustainable development and high quality of life (Castro Neto, 2020; Maček et al., 2019).

Accordingly, a smart and sustainable city should make use of innovative technologies such as information and technology communication (ITC), big data, artificial intelligence, internet of things (IoT) to increase inhabitants' quality of life, the effectiveness of municipal operations and services, and competitiveness while also meeting the needs of the present and future generations (Fernandes, 2017; Huovila et al., 2019).

The core components of a SC, approved by the European Union in 2017, are organised around six primary pillars (Fernandes, 2017). These pillars encapsulate smart economy, which focuses on bolstering economic competitiveness, highlighting areas like innovation and entrepreneurship; smart people, supporting an inclusive society that nurtures creativity and encourages citizen participation; smart mobility, emphasising both local and international accessibility of cities, bolstered by a robust ICT network; smart environment underscoring the significance of environmental protection, resource management, green urban development, and the allure of natural conditions; smart governance demanding carefully crafted policies that encourage public participation and ensure effective public administration and services; smart living, aiming to cultivate a healthy and safe urban lifestyle by addressing culture, health, safety, tourism, and housing.

2.2. Smart tourism destination and sustainability

The tourism industry has experienced significant growth fuelled by the Fourth Industrial Revolution, leading to a remarkable increase in the use of smart tourism destinations (STD), which are essentially an extension of SC (Gretzel et al., 2015; Habeeb & Weli, 2020; Jasrotia & Gangotia, 2018). Many cities are now boosting their tourism competitiveness by leveraging smart tourism (ST) ecosystems on top of their already-established SC digital technology infrastructures (Boes et al., 2016; Lee et al., 2020).

The initial exploration of STDs was undertaken by Buhalis & Amaranggana, (2013), who established that these destinations are propelled by smart cities' innovative strategies, making intensive use of ICTs (e.g., cloud services, IoT, and online services), transforming into an innovative tourist territory that elevates the overall tourist experience (Buhalis & Amaranggana, 2013).

Since then, the popularity of STDs has been on a consistent rise, garnering attention as a novel approach to managing tourism regions (González-Reverté, 2019; Perles Ribes et al., 2018; Revilla et al., 2022a), that guarantees sustainable development improves the quality of the tourist experience and increases the quality of life of residents (González-Reverté, 2019; Gretzel & Koo, 2021; Habeeb & Weli, 2020; Lee et al., 2020; Revilla et al., 2022a, 2022b; Santos-Júnior et al., 2020).

According to Gretzel et al. (2015), the term STD is gaining prominence due to the growing reliance on Information and Communication Technologies (ICTs) in the tourism industry. ICTs have become the backbone of contemporary tourism by enabling the flow of vast data among business stakeholders, making STD a key concept in this data-driven resurgence, blending cutting-edge technologies, intelligent data analysis, and creativity to enhance the tourist experience by suiting the shifting travellers' demand.

Buhalis & Amaranggana (2015) introduce a visionary perspective that underscores the paramount importance of interconnecting multiple stakeholders within the realm of STD. Governments can leverage digital platforms to disseminate policies and regulations, fostering sustainable development. Local communities can share their cultural heritage and aspirations, forging authentic and immersive experiences. Businesses can collaborate on innovative offerings that cater precisely to visitor preferences. Travelers themselves become integral participants, engaging in real-time interactions that shape their journey in novel and exciting ways.

In the same vein, Boes et al. (2016) aptly illustrate how destinations, in their pursuit of smartness, capitalize on the array of available tools that bridge the gap between tourist demands and the supply of enriching experiences. STD empowers both tourists and stakeholders to collaborate through a dynamic process of meaningful interactions, that results in a reciprocal dialogue enriching the experiences of both visitors and the host destination.

The idea of STD is inextricably linked with the dynamic process of information transfer, claim Liburd et al. (2017). Through innovative technologies and interactive platforms, travelers actively shape their understanding and perception of the cultural, historical, and ecological characteristics of the destinations by actively participating in the creation of their travel narratives. The entire foundation of STD is this shared knowledge, where local viewpoints coexist with those of foreigners. The idea of co-creation develops as a guiding philosophy that heightens the attractiveness of STD as visitors invest in both the vitality and sustainability of the destination as well as their own unique and unforgettable experiences (Liburd et al., 2017).

Moreover, the notion of STD is encompassed within the broader framework of SC, which emphasizes the integration of sustainable development and competitiveness. González-Reverté (2019) and Perles Ribes et al. (2018), argued that a destination lacking a focus on sustainability cannot be categorized as smart. In essence, it is vital that an STD be formulated with the objective of managing the expansion of tourism in a sustainable conscious manner (Ivars-Baidal, Celdrán-Bernabeu, et al., 2019; Ivars-Baidal, García Hernández, et al., 2019).

The interest in exploring STD is on the rise, particularly centered around their potential impact on sustainable development goals (Branny et al., 2022; Lee et al., 2020; Trindade et al., 2017) and the adoption of environmentally friendly information technology practices (Rahmadian et al., 2022; Revilla et al., 2022a; Rodrigues et al., 2023). Research findings underscore that the integration of ST concepts holds promise for augmenting local communities' economic well-being (Kabil et al., 2022), by fostering job creation and amplifying visitor expenditures (Akande et al., 2020; Cavalheiro et al., 2020). Furthermore, technology employment can play a pivotal role in curbing the adverse environmental effects tied to tourism pursuits. Significantly, it can facilitate enhanced waste management strategies and bolster energy efficiency (Esmaeilian et al., 2018; Kim et al., 2021; Nižetić et al., 2019). The establishment of STD has the potential to foster the social sustainability of local communities, involving residents actively in the tourism planning and decision-making processes (González-Reverté, 2019).

Establishing effective collaboration among various stakeholders stands as a pivotal requirement to formulate a comprehensive strategy that holistically addresses social, economic, and environmental dimensions (Zvaigzne et al., 2023). The creation of governance frameworks assumes a critical role in ensuring that technological advancements align harmoniously with sustainability objectives. Government leadership, in this regard, emerges as a paramount force in propelling innovation and endorsing technological integration. Similarly, proactive engagement within the community fosters social inclusivity and robust partnerships among tourism enterprises, thus enhancing the visitor experience while steadfastly upholding sustainability principles (González-Reverté, 2019; Gretzel et al., 2015). Collectively, these facets forge a solid foundation for intelligent tourism, firmly anchored in the tenets of sustainability and the well-being of both local residents and tourists.

Perles Ribes et al. (2018) assert that the pursuit of sustainability in tourism destinations has encountered significant difficulties, resulting in limited advancements and occasional regressions. These challenges have been exacerbated by the steady growth of the tourism industry on a global scale. Nevertheless, the advent of SCs and STDs presents a promising prospect for attaining sustainability within these regions.

Taking an alternative perspective, (González-Reverté, 2019) notes that there is a noticeable lack of empirical research on how sustainable endeavours impact urban sustainability. The author poses a vital question about whether the sustainability initiatives introduced by STD are backed by substantial actions or if they serve as a type of greenwashing, promoting sustainability without authentic implementation. This discussion echoes earlier discussions about the significance of sustainability in the realm of SCs.

In the same vein, El Archi et al. (2023) point out that there is a substantial body of knowledge that remains to be discovered regarding the progress of sustainable STD and that future research should be prioritise.

2.3. Place branding

In an increasingly interconnected and competitive world, the primary goal of place branding is to differentiate a place from its competitors, whether neighbouring cities, tourist destinations, or other regions with similar offerings. A strong and authentic place brand is a powerful asset that can drive economic growth, attract visitors, investors, and businesses, foster community engagement, and enhance the quality of life for residents, while also preserving and promoting the unique attributes that make the location special, positioning a destination for long-term success (Grebosz-Krawczyk, 2021; Kavaratzis & Hatch, 2013; Ma et al., 2019).

Place branding, also known as destination branding or location branding, is a comprehensive process that involves strategic planning, marketing, and communication efforts to create and manage the identity, image, and reputation of a specific place (city, region, country, or even a neighborhood) in the minds of its target audiences, such as tourists, investors, residents, and businesses (Boisen et al., 2018; Dinnie, 2004; Hankinson, 2010; Kavaratzis, 2005; Kavaratzis & Hatch, 2013; Oliveira, 2015).

Place identity is probably the most elusive and paradoxical of the concepts that make place branding a particularly challenging endeavour (Boisen et al., 2011; Dickinson et al., 2014; Kavaratzis & Kalandides, 2015).

The concept of identity has extended its significance from marketing theory into the realm of place branding. The ultimate goal of building a place identity is to create a robust and meaningful brand that differentiates the place, infuses it with positive associations, and genuinely represents its core essence. It aims to elevate the place's image and create a bond of belonging, ensuring that the brand is not just a superficial label but a true reflection of what the place stands for. By achieving this alignment between identity and branding, places can connect more deeply with their stakeholders and position themselves uniquely in the market, highlighting the centrality of identity in place branding and marketing (Boisen et al., 2018; Feng et al., 2023).

Once the distinctive character of a place is identified, it sets a certain expectation or creates a mental picture: its image. This image is essentially the way people perceive that place. A place's image is considered strong when most people have similar perceptions or thoughts about it. On the other hand, a place has a positive image if these perceptions are viewed positively within a certain context. For the best branding impact, there should be a close alignment between a place's

inherent identity and the image people have of it (Boisen et al., 2018; Hanna et al., 2021; Huertas et al., 2021; Skinner, 2021). In order to clarify the distinction between place brand identity and place brand image, scholarly literature widely recognises that place brand managers hold the responsibility for shaping place brand identity. This identity encompasses the core essence of a place, including its unique spirit or *genius loci* (Skinner, 2011). The development and communication of this identity occur within the organisation and are subsequently shared with the intended target audiences. These audiences then form their own interpretations of the location's brand image from an external standpoint(Skinner, 2008).

On the other hand, scholars have put forward the idea that it is crucial to initially establish the image of the place brand, followed by further efforts in place branding to modify the image as necessary (Anholt, 2008). In the context of tourism, individuals are often drawn to visit places based on the image they perceive (Skinner, 2021).

Such intentional and ongoing image management is intended to enhance the place's reputation. Place reputation differs from place image in that it is a long-term accumulation of normative opinions about the location that prompts an immediate judgment and/or emotional response, whereas place image must be understood within a specific context to be regarded positively or negatively(Boisen et al., 2018; Huertas et al., 2021).

Effective place branding development and communication processes involve engaging various stakeholders, including residents, businesses, government agencies, and non-profit organisations (Kavaratzis & Kalandides, 2015; Skinner, 2021). Within the domain of public procedures, which are frequently directed and financed by governmental bodies at different levels, the practise of place branding requires a substantial involvement of stakeholders to have its desired impact (Skinner, 2021). Regardless of the specific location, stakeholders, notably the residents, have a crucial role in fostering successful and thriving place brands, especially in scenarios where potential conflicts may occur between the local community and tourists. As stated by several authors (e.g., Braun et al., 2013; Hudak, 2019; Kavaratzis, 2012; Kavaratzis & Kalandides, 2015; Skinner, 2021) the fundamental basis for a successful place branding strategy lies in the acceptance and, ideally, the sense of ownership demonstrated by the resident population.

The theoretical discussions on place branding are diverse and ever-evolving, reflecting the complexities and dynamic nature of branding geographical locations. As destinations continue to compete for attention in an increasingly interconnected world, theoretical insights guide practitioners and policymakers in formulating effective strategies to create compelling and authentic place brands.

2.4. Smart tourism destination & place branding

Sustainable tourism development (STD) can be pivotal in bolstering place branding by enriching the visitor experience, fostering positive views, and highlighting the destination's innovative, sustainable, and future-oriented strategies (Dalgic & Birdir, 2020; Gretzel et al., 2015).

2.4.1. Identity

Social media platforms have inspired locals to discover the distinctive features of their cities while also drawing tourists wanting to partake in genuine experiences that enable them to fully appreciate the local culture (Gretzel & Koo, 2021).

Through their social media interactions, visitors and locals alike help to create a place's unique identity. The genuine viewpoints, collective encounters, and active participation of everyone involved contribute to a dynamic and diverse representation of the destination's essence, cultural attributes, and way of life (Hanna & Rowley, 2015; Zenker et al., 2017).

Travellers use social media platforms to exchange their experiences, provide recommendations, and offer reviews of multiple destinations, influencing the formation of a destination's identity as a hospitable and culturally stimulating locale. Narratives serve to intricately shape particular facets of the location, whereas connecting with local inhabitants facilitates the establishment of meaningful bonds and deeper integration into the cultural milieu. The act of delving into specialised interests and exchanging distinctive experiences serves to highlight the distinctiveness and allure of a given destination (Li et al., 2017).

Locals use social media to highlight their daily lives, support local companies, protect heritage, celebrate events, engage with tourists, and promote sustainability. They exhibit their practises, rituals, and traditions in order to paint a true picture of the identity of the place. By actively engaging travellers and advocating for sustainable practises, the sense of place is further enhanced and a more inclusive and hospitable identity is fostered (Zenker et al., 2017).

In an age of tourists' image sharing on social media, the role of the destination management/marketing organization (DMO) in creating and communicating a coherent place brand identity has led to questions concerning the DMO's level of control over place brand creation and communication (Skinner, 2018, 2021).

2.4.2. Image

According to several authors, smartness is an attribute of STD that shapes the image of cities and destinations among residents and tourists (e.g., Grebosz-Krawczyk, 2021; Huertas et al., 2021; Mandić & Garbin Praničević, 2019; Molinillo et al., 2019).

The integration of cutting-edge technology in the tourism sector holds promise for enhancing the quality of service offered by tourism providers and government entities, which allows tourists to engage in activities that align with their specific preferences, thereby enhancing their overall experiences. Thus, the increase in service quality will play a role in bolstering the image of a destination, cultivating a more positive perception of the location among tourists (Huertas et al., 2021; Jovicic, 2019; Ndou et al., 2023; Tavitiyaman et al., 2021).

According to existing research, it has been found that the use of Smart Technology Applications (STA), such as Wi-Fi access, electronic payment options, online maps, and mobile apps, has a substantial impact on the perception of tourists toward a certain destination. Furthermore, it has been suggested by Chan et al. (2019) that factors such as energy consumption, governance models for smart cities, and the quality of life in smart cities can significantly influence the perception of tourists visiting a particular destination. (Tavitiyaman et al., 2021) identify four key STA characteristics that boost positive tourist perceptions: intelligent information systems, cutting-edge touring tools, e-commerce platforms, and sophisticated safety measures.

Additionally, social media are efficient platforms for promotion and increasing the interaction with key stakeholders as well as the creation of positive place images (Boes et al., 2016; Huertas et al., 2021; Molinillo et al., 2018, 2019).

In the field of tourism, numerous studies suggest that user-generated-content (UGC), through the electronic word-of-mouth (eWOM) effect, considerably influences the formation of destination image (e.g., del Carmen Hidalgo Alcázar et al., 2014; Költringer & Dickinger, 2015; Lu & Stepchenkova, 2015; Marine-Roig & Anton Clavé, 2015; Molinillo et al., 2019; Perles Ribes et al., 2018; Reza Jalilvand et al., 2012). This image is considered to be highly influential for tourists' and stakeholders' decision-making as well as highly trustworthy because it is conveyed by tourists' peers and not driven by an economic interest (Költringer & Dickinger, 2015; Molinillo et al., 2019).

In this context, the use of extensive UGC data analytics serves a dual purpose. Firstly, it facilitates a comprehensive understanding of a destination's overall perception. Secondly, it enables the acquisition of valuable insights concerning management issues at specific attractions, helping in the implementation of smart marketing strategies and informed policy decisions. Consequently, the amalgamation of UGC data analytics with other relevant information sources ultimately contributes to the enhancement of both residents' quality of life and tourists' experiences, with a potential impact on the perceived image (Költringer & Dickinger, 2015; Molinillo et al., 2019).

Prior research underscores the role of smartness in elevating a positive brand image. Yet, it's striking to note that sustainability, as an intrinsic aspect of the concept of STD, is seldom incorporated into city branding (Huertas et al., 2021). Revilla et al. (2022a) compellingly demonstrate in one of their recent studies that countries opting for sustainable tourism strategies don't just earn themselves a favourable market image, but they also witness a marked uptick in their revenue.

2.4.3. Reputation

Gretzel & Koo (2021) pointed out that STD are designed to cater to the requirements and aspirations of both locals and visitors adaptively and efficiently. By leveraging smart technologies, these places can enhance the management of infrastructure, resources, and commonly used spaces, ensuring an optimal blend of daily life and tourism. This approach not only fosters the place's reputation as forward-thinking but also emphasises its commitment to the well-being of its residents and workforce.

Technological elements associated with STD, notably mobile phones, and applications, play a pivotal role in elevating a destination's reputation. Several studies (Berger et al., 2003; Brown & Chalmers, 2003; Dickinson et al., 2014; Perles-Ribes et al., 2019) strongly suggest that mobile devices empower tourist destinations to match their offerings with real-time demand. This responsive approach not only enhances the visitor experience but also bolsters the online reputation of these destinations.

In the same vein, employing smart solutions can amplify the operational impact of (DMOs). This is evident in the surge of bookings via their official websites. Such intelligent approaches not only boost reservations but also simplify handling the online reputation of the destination(Ivars-Baidal, Celdrán-Bernabeu, et al., 2019).

A compelling and positive brand identity for a place can establish a distinct reputation, setting it apart from other places, gaining a competitive edge across multiple settings, and thus allowing for effective communication of the place's unique offerings to its target audience (Freire, 2016; Skinner, 2018).

The increasing dependence of STDs on technology, coupled with the growing impact of social media on place brands, has not only raised eyebrows but also unveiled the dark side of this progress. Scholars have voiced their concerns, emphasizing the susceptibility of these destinations to emerging threats. These include new strands of terrorism (Barbe et al., 2018), the spread of fake news (Cassinger et al., 2018), and concerns over online data security. Such challenges pose a substantial risk, potentially tarnishing the image and reputation of tourism destinations in both the short and medium-term (Coca-Stefaniak, 2020).

2.5. Conclusions

In the wake of an ever-evolving global travel landscape and the incessant pursuit of enriched experiences, the exploration of STDs and their intricate interplay with place branding has illuminated both the complexities and potential synergies within the tourism industry. As we delve into the conclusion of this research, several key findings emerge beyond the identified literature gap.

Firstly, the concept of STDs remains a multifaceted and evolving phenomenon. The very definition of "smartness" in a destination context proves to be a fluid concept, encompassing a diverse range of technological, infrastructural, and experiential aspects. Additionally, while sustainability remains a cornerstone of STD discourse, the nexus between smartness and holistic sustainability, which encompasses environmental, social, and economic dimensions, remains under scrutiny, raising questions about the true impact and balance of these paradigms.

A critical revelation is the fundamental role of place branding in shaping the trajectory of Smart Tourism Destinations. However, it becomes evident that the existing conceptualization of place branding might not harness the full potential of STDs to enhance their competitiveness. While traditional place branding constructs have focused on identity, image, and reputation, STDs' unique blend of technology and sustainability demands a broader narrative that encompasses their intelligence, adaptability, and positive impact on various dimensions of sustainability.

Moreover, the indispensable role of stakeholder participation surfaces as a driving force in the development and branding processes of STDs. Engaging a diverse array of stakeholders, including local communities, governments, businesses, and tourists, is pivotal in aligning strategies with the destination's ethos, ensuring authenticity, and nurturing a sense of ownership, thereby fostering sustainable development.

Despite the insights gained, this study is not devoid of limitations. One significant limitation is the inherently limited nature of a comprehensive literature review. Unlike a systematic literature review, which follows a strict protocol to ensure the inclusion of all relevant literature, the comprehensive approach, while providing breadth, cannot guarantee the exhaustive incorporation of all pertinent sources. Thus, while the motivations drawn from the reviewed literature are substantial, there remains the possibility that some pivotal insights might have been inadvertently omitted. Another drawback is the dynamic nature of Smart Tourism Destinations and place branding. The expeditious rate of technological progress and evolving sustainability paradigms necessitate a reassessment of the findings derived from current scholarly works in anticipation of forthcoming breakthroughs.

Looking ahead, several avenues for future research beckon. Exploring a unified framework that encapsulates the multifaceted dimensions of smartness and sustainability in STDs could provide a more holistic understanding of their impact on place branding. Additionally, investigating innovative methodologies for stakeholder engagement and collaboration within the context of STDs could uncover novel strategies for achieving sustainable and competitive destinations.

In conclusion, this research offers a foundation for comprehending the intricate interplay between Smart Tourism Destinations and place branding. Beyond the literature gap, it highlights the fluidity of the STD concept, the evolving relationship between smartness and sustainability, the need for nuanced place branding in the context of STDs, and the vital role of stakeholder participation. As the realms of technology, sustainability, and tourism continue to evolve, the insights garnered from this study propel us toward a more informed and adaptive approach to fostering the symbiotic growth of destinations and their brands in an ever-changing world.

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DOI: 10.34620/978-83-67405-28-7-024 • 2024 • 220-228

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Proceedings of the International Tourism Congress 23

Companies in the algarve tourism chain and their economic and financial management practices

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Abstract

The objective of this article is to identify which economic management practices are adopted by companies in the Algarve tourism chain. The use of these allows organizations to effectively plan, execute and control their actions, ensuring their continuity. Among these organizations, this study considers the companies of the Algarve tourism chain. This is an exploratory and descriptive study. Data collection, carried out from March to June 2023, took place through structured interviews with managers of 11 companies in the Algarve tourism chain. The collected data were submitted to descriptive analysis, in which the average ranking and percentage relations of use of the practices surveyed were calculated, both performed based on the answers categorized by the Likert scale. The main findings of the research allow us to assume that when it comes to business management, the focus is on the short term for companies with annual turnover up to €10 million. Another finding of the research is that companies in the Algarve tourism chain that aim to expand show interest in using management tools so that they can achieve greater transparency and control of activities.

Keywords

Algarve Tourism Chain • Economic Management • Financial management • Business management • Management Tools in the Algarve

1. Introduction

Tourism is related to the movement and the idea that it leads to know new cultures, other landscapes, breaks with the routine of everyday life, opens new horizons and should always bring novelties to the validity of the tourist. The relevance of tourism, according to Figueiredo, 2002, goes far beyond the economic-financial circuits, acquires a profound and globalizing meaning.

In this way the emergence of a new phase of tourism, which assumes characteristics according to the new paradigm of the globalized economy, is accompanied by marked changes in the training and development of companies in the Algarve tourism chain. This atmosphere of change cannot be dissociated from the evolution of management tools and their trends.

Within this multiplicity of compositions, sizes and activities, are the organizations and that these need to have management tools for the sustainability of the same, in the short, medium and long term.

The use of these management practices allows organizations to measure their organizational performance, in order to make performance comparisons with competitors or organizations from other branches; present the results to investors evidencing the potential return of their investments; and also periodically verify compliance with short, medium or long-term organizational strategies (Luitz and Rebelato, 2003).

Thus, it can be understood that for the administration of companies, economic and financial management tends to be relevant due to the complexity of its administration as well as the differences in relation to the management of a company of other productive chains. (Verschoore, 2006).

Mantovani (2005) emphasizes the need to use economic and financial management, as this must assume, in addition to the traditional responsibilities, a joint posture in business, as well as in the development of corporate strategy.

Due to the context presented and aiming to contribute to the management of companies, this exploratory study seeks to answer the following research problem: What are the economic and financial management practices adopted by companies in the Algarve tourism chain?

It is understood that investigating the tools used in the management of companies in the Algarve tourism chain can contribute to solving the needs identified by Mantovani (2005) and Verschoore (2006). It is noteworthy that the sample is composed of 11 representatives and includes 10

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activities related to tourism and, for the treatment of the data, descriptive analysis was used.

Regarding the findings, it was found that smaller companies adopt short-term tools, which may denote one of the consequences, that according to INE (2023), 95% of companies fit as small companies and 28.3% of the population characterize themselves as long-term unemployed.

2. Literature Review

The activity of Tourism requires the previous existence of the tourist phenomenon, resulting from the simultaneous interaction of several systems that add up to carry the final effect, such as the junction of natural, cultural, social, historical and economic resources, generating complex factors where one system or subsystem can drastically affect another. It is thus considered that tourism is one of the most important instruments for generating employment and income worldwide, and the activities related to the tourism production chain are dispersed and disaggregated in many regions, making it impossible to grow and fully develop their capacities and potential (Figueira, 2020).

Tourism as a metaphorical process throws new challenges to public and private policies (Figueiredo, 2002) and in conjunction with the macro-economic transformations that have occurred in the business environment, particularly from the end of the twentieth century and the beginning of the twenty-first century, allied to the restructuring of the productive processes of the industrial division between the mass production of capitalism and the new economy, resized the set of competitive requirements, stimulating collective strategies and the use of economic and financial management The regional environments that knew how to incorporate into their productive fabric the benefits of the agglomeration of innovative, collaboratively related companies presented high levels of socioeconomic development in the late 1980s (Storper and Scott, 1995).

The new growth configurations, together with the impact of the restructuring of strategies made it possible to reconsider the forms of management of the companies, guiding them to manage with planning, control and evaluation. (Porter, 1989). These strategies, better suited to the needs of the new era, called into question the effectiveness of administrative practices that focused on competitiveness based on stable advantages in the internal hierarchy of production and management processes (Balestrin and Verschoore, 2008).

The use of these forms of synchronization allows the mapping of a business scenario in which corporations come to understand the power of negotiation using data and information resulting from the analysis of economic and financial management (Menegotto, 2010). In this sense, the monitoring of resources and expenses can influence profits in the business, such as suppliers that represent a high percentage of the company's cost structure, customers that represent a significant market share, expanding the power of scale, or groups that surround important structural dimensions, such as the level of market concentration (Ghemawat, 2007).

Managers are faced with a multiplicity of decisions, which fall on equity and the capital of others. In this way, the greater the information, the problems of asymmetry between managers, shareholders and creditors are reduced, increasing the confidence of the market in relation to the organization. Another factor that influences credibility is the age of the company, and the older they are, they enjoy reputation and credibility due to the history of their relationships and their strategic organization (Vieira, 2021).

The concept of strategy is applied in companies, where they do not need to be limited to competitive relationships, there are numerous possibilities for the undertaking of collaborative business actions of short, medium and long duration, beneficial to those involved.

2.1. Strategic Organization

For a better delimitation of the research field, management is defined as the organizational method of economic, financial and strategic activities, through coordination and/or cooperation between actors related to the company's activity (Porter, 1989), which enables global technological expansion, expanding the connective capacity of organizations and the possibilities of joint actions.

The performance of organizations using management allows the development of new conceptions in the execution of various organizational functions and processes (Menegotto, 2010). To do so, it is necessary to identify the management practices adopted by the organizations, in order to verify the information disclosed to the various members of the same and also enable the formation of new strategies (Alencar, 2019).

The strategic organization of each company is composed of teams and commissions within them, being carried out through a strategic commission formed by professional executives or representatives of the parties involved (Grandori and Soda, 1995).

The function of the strategic committee is to administer, manage the actions undertaken together, organizing and facilitating the achievement of the objectives outlined. It serves as the foundation of decisions made collectively, monitoring the activities developed, repairing the problems and the best solutions and sanctions when necessary (Adam, 2006).

Strategic committees can also perform value-adding functions, as they hold a single, broad view of the organization. They are: (a) to create an atmosphere of reciprocity among those involved; (b) promote the company's image; (c) institute mechanisms for attracting and selecting new partners (Lorenzoni and Baden-Fuller, 1995).



Figure 1. Organization chart of a company.
Source: Adapted from Adam (2006).

According to Oliver (1990) there is a series of critical contingencies for the formation of interorganizational relationships and that stimulates the creation of different types of companies. Balestrin (2008) points out that these contingencies are the causes that induce or motivate organizations to establish interorganizational relationships, explaining the reasons why organizations relate. Among these, those that exert influence on regulators (asymmetry) stand out; promote collectivity among members through information sharing (reciprocity); gain economic advantage, such as better resources and suppliers (efficiency); reduce competitive uncertainty through efforts to standardize products or services of each actor in the company (stability) and improve the image of the company and its actors (legitimacy). Due to this paradox between the company's strategy and interorganizational relations, management must be prepared to resolve and guide the strategic interests of both participants. This is made possible by adopting management improvement.

2.2 Economic and Financial Management

The riches must be well managed, and this cannot be done only empirically and randomly, there is a need for a management based on reliable information, which reduces the risk in the enterprises and that is aided by management instruments (Verschoore, 2006). The concept of management goes back to activities such as planning, coordinating, deciding, communicating and evaluating, all of them linked to constant changes by participating in a cycle within the organization.
According to Souza and Diehl (2009), information has its application in all phases of the management process and each of these phases requires an appropriate content and format.
Therefore, the management processes, supported by the information system, should be used to reduce risks, providing planning, control and guidelines for the achievement of economic and financial management and the achievement of the objectives of any organization (Santos and Ponte, 1998).
These processes should be structured, creating an information system that will support internal and control procedures that will assist in planning actions, as well as feedback.
According to Nascimento, Ott and Silva (2007), the dimension of management control represents the synergy of the means made available to administrators to monitor the organization's behavior in the face of changes. This monitoring is necessary due to the resizing in the processes in the face of changes to achieve the objectives estimated by the organization. This dimension is contemplated by the management process and the mechanisms inherent to it, such as strategic and operational planning, and the execution and control phases.
As with other types of organizations, in companies in the Algarve tourism chain the management process can represent a competitive advantage over its competitors. An effective management, prepared to react to environmental turbulence in an appropriate and timely way, can mean for the organization, according to the studies of Santos and Ponte (1998), the differential between remaining active, organized and profitable, or apathetic, deficient and subject to extinction. Therefore, it is necessary that the organization understands and applies economic and financial management in its processes.
Economic management is a system of the organization, generation and measurement of economic results, using strategic planning, operational planning and control, aiming at obtaining and providing information for short, medium and long-term decision-making in the organization.
The elements of the economic and financial approaches are presented in Table 1.
The economic result, as observed in Table 2, refers to profit or loss, which increases or reduces shareholders' equity,

Table 1. Economic Management Process and Information System.

Economic Management Process and Information System	
Strategic Planning	Environmental Information System
Operational Pre-planning	Economic Result Simulation System
Operational Planning	Budget System
Control	Information System Results Realized

Source: Based on Souza and Diehl (2009, p. 92).

Table 2. Differentiation of Economic Result and Financial Result.

	Economic	Financial	
		Spacious	Restricted
Statically	Net Worth	Net Working Capital	Cash Balance
Dynamically	Net Income	Change in Net Working Capital	Change in Cash Balance
Location	Balance sheet; Income Statement	Demonstration of Resource Sources and Applications	Statement of Cash Flows

Source: Adapted from Matarazzo (2003).

but does not change the availability of money in the same proportions. On the other hand, the financial result refers to the cash flows, and dynamically represents the variation of the cash balance and statically the cash balance. It also points out that, in the broadest sense of the financial result, it refers to net working capital and, in the restricted sense, it refers to cash itself. It is important to have this differentiation to obtain the correct economic information (Azeredo, 2008).

Financial management is concerned with the management of the inflows and outflows of monetary resources from the operational activity, that is, the management of the availability flow. In this context, Cheng and Mendes (1989) point out that there are three areas in the organization that deserve special attention, since they perform functions of fundraising and application.

Figure 2 shows the distribution of the three general events of the organization (capture, apply and use), what makes up each of them and the link between them, as well as the closing of the economic cycle. Financial flows, derived from operational activity, are defined in financial management (Cheng; Mendes, 1989).

The first is the financial area and it is understood that its function is to manage the flow of monetary resources of the company, supplying the needs and applying the surpluses, in addition to its collection and treasury activities. The second is the purchasing area, which can be understood as a fundraiser, when, when negotiating terms with suppliers, it provides or not to the financial area a “loan” at a certain rate. The third, finally, is the sales area, which, in turn, works as an applicator in the company, by granting deadlines to customers. It can be thought that, instead of making an application in the financial market, the company applies in accounts receivable. The establishment of margins and remuneration contemplate the economic focus of the process.

It is necessary that the manager has a systemic view of the organization. Through this system, as Santos (2021) treats the measurement by economic and financial concepts with a focus on business management and participates in the decisions in each event, in the capture, application and use of resources.

2.3 Economic and Financial Management Practices

The set of economic and financial management practices can be classified into two major groups: (a) those that treat management in a broad sense; (b) those that deal with management in the analytical focus of specific and operational actions.

Based on Catelli, Pereira and Vasconcelos (2001) it is possible to describe that in the first group there are the phases of the management process and comprise: (a) strategic planning; (b) operational planning; (c) execution; (d) control. On the other hand, the second group is more directed to concentrate activities that materialize the occurrence of the content of the plans and comprises the execution phase, complemented by control, a form of analysis and evaluation of performance through the use of financial and non-financial indicators. It is important to note that the general format of how the organization is managed, including the establishment of relationships of responsibility, command and governance are established by the management model, which in terms of structural organization can be represented by Figure 1 presented above.

Internal control systems are also part of management practices, which, in the view of Nascimento, Ott and Silva (2007), are effective tools to support controllership and as a way of maintaining good corporate governance practices. According to the authors, the operations of the organization must be constantly monitored in order to identify and correct possible failures or lack of control procedures. Nascimento, Ott and Silva (2007), add that audits, both internal and external, assume important roles in organizations, especially when it comes to monitoring internal controls.

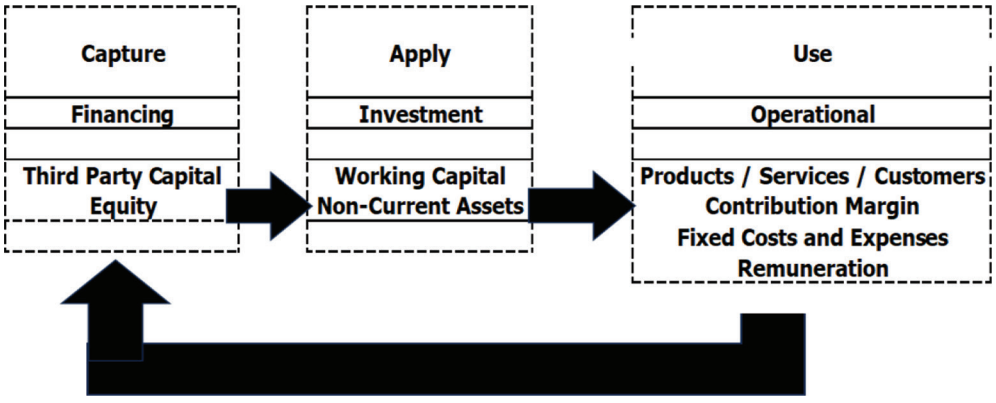


Figure 2. Amplitudes of Financial and Economic Management.
Source: Adapted from Cheng and Mendes (1989); Matarazzo (2003).

Under the focus of operational activities, economic and financial management practices involve, among others, cash flow management, cost management, price quotation and economic analysis. Ross, Westerfield and Jaffe (2002), highlight that organizations have in the planning and control of cash flow a relevant management tool. Structured by the flow of operating activities, investments and financing, cash flow is directly related to the financial balance of the organization, whether in the short, medium or long term. Regarding cost management, Hansen and Mowen (2001) highlight that the limitations imposed by an increasingly fierce competition market have induced companies to the relevance and need to strengthen their cost management procedures, both in the operational and strategic scope, considered a prerequisite for efficiency, effectiveness and sustainable continuity of the organization. Price quotation activities are included in cost management, given the relevance of the costs of materials, services and components in the total cost of the products sold. It is revealed here the importance of the good performance of the supply area given its direct relationship with the suppliers of the organization. Finally, there is the economic analysis of operations, whose main objective is to ensure the effectiveness of decisions (Ross, Westerfield and Jaffe, 2002).

Finally, there are the practices of analyzing the results of transactions with suppliers, measuring and transferring to the companies that make up the network and the development of joint actions.

All these practices, directly related to the core activity of companies, are highlighted by Menegotto (2010). For the author, joint acquisitions involve a significant part of the activities of the companies and covers the price quotation, negotiation and economic evaluation of transactions with suppliers.

3. Methodology

According to Marconi and Lakatos (2008), all sciences are characterized by the use of scientific methods. Generally speaking, the method is a set of systematic and rational activities that, with greater security and economy, allows to achieve the goal – valid and true knowledge, tracing the path to be followed, detecting errors and assisting decisions. The research method used in this study is the inductive, defined by Marconi and Lakatos (2008) as one that seeks to know the particularities of a population, to later understand how it behaves and, thus, to be able to draw a profile. In this sense, it was sought with the companies of the chain of the tursimo of the Algarve to know what are the practices of economic and financial management used, in order to verify how this group of organizations performs and analyzes the performance of management activities.

As for the classification of the research, it has its nature applied, with the approach of the qualitative-quantitative problem. The quantitative approach seeks to translate opinions and information into numbers so that they can be classified and analyzed. The qualitative approach aims to describe and decode the components of a complex system of meanings (Maanen, 1979).

As for the objective of the research is descriptive, which, according to Gil (1999) has as its primary objective the description of the characteristics of a certain population or phenomenon or, then, the establishment of relationships between the variables. This research seeks to observe, record and analyze the phenomena as an example: how often they happen, what structure they have, how they work, implying the realization of systematic and non-participant observations.

As for the technical procedures, the survey was used through structured interviews (Gil, 1999). The interviews were conducted with the managers, managers and owners of the companies. The population surveyed was delimited according to accessibility. Research in the Algarve is defined according to its representativeness in the tursimo chain of Portugal. The research sample is non-probabilistic, for accessibility, in which, according to Kotler (1998), the researcher selects the members of the population that give information more easily.

Thus, 11 companies were selected, whose criteria for selection were time of existence, organization, area and sector of operation and management developed. In addition, it was sought to pulverize the sectors (trade and provision of services) to create conditions of comparison between them.

In the treatment and analysis of data, the interviews were tabulated. Regarding the closed answers, the four-position Likert scale was used. For the open answers, content analysis was used, which, according to Flick (2004), is a procedure to analyze textual material, in which it is sought to typify the content and represent it in scale.

After data tabulation, descriptive analysis was performed. In order to identify the levels of agreement and use of the respondents' practices, we used the Average Ranking (MR) obtained in a weighted way through the score attributed to the answers, relating the frequency of the respondents' answers in relation to the assigned scale.

4. Results and Discussion

4.1. Respondent Profile

Regarding the profile of the respondents (Table 3) of the 10 participating companies, the most expressive participation of occupants of the owners (55%), administrative manager, administrative and financial director was identified.

Regarding the level of education, 9 of the interviewees have higher education and 2 have a high school education.

Regarding the time of experience of the interviewees in the activities within the tourism chain, 9 are above 10 years of experience and 2 interviewees up to 9 years of experience in the tourism chain.

Table 3. Respondents' role, 2023.

Role of Respondents	
Owners	6
Administrative Manager	2
Administrative Manager	1
Managing Director	2
	11

Table 4. Main activity developed by the participating company.

Main activity developed by the participating company	
Hotel	2
Local accommodation	1
Resort Management	1
Tax Consulting	1
Participation management	1
Water tourism activity	1
Restaurant	2
Health and wellness tourism	2
	11

4.2. Profile of the Companies Surveyed

The main activities of the interviewed companies (Table 4) resulted in 8 modalities, and hotel, restaurant and health and wellness tourism were the ones that prevailed. The other activities are almost entirely linked to the management of the companies in this chain.

As for the volume of annual transactions carried out, 5 of the companies have an annual volume of €5 million, 3 from €5.1 to €10 million, 3 companies over € 10 million.

Of the 11 participating companies 4 had up to 4 employees, 3 companies from 11 to 50 employees, 1 company from 50 to 100 employees and 3 companies above 100 employees.

4.3. Economic and Financial Management Practices

Regarding the economic and financial management practices presented to the respondents, the MR was determined, according to Table 5 and Table 6, where after the observation of scales 1 to 4 (1 does not use - 4 uses intensely).

It is observed that the practice of economic and financial management adopted by the companies of the Algarve

Table 5. Economic and Financial Management Practices of the Companies of the Algarve Tourism Chain.

Management tools used by companies in the Algarve Tourism Chain, 2023											
Management tool	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Strategic Planning	1	2	4	3	2	4	3	3	3	3	4
Operational Planning (budget x actual)	3	3	4	3	3	4	3	3	1	4	4
Cash Flow	3	4	4		3	4		2	2	3	3
Asset Control	2	2	4		4	4		3	3	4	4
Internal Controls	3	3	4		1	4	3	4	4	4	4
Internal Audit	3	2	4		1	4		2	2	5	5
External Audit	3	4	4		1	4		1	1	2	4
Own or external accounting	3	4	4	3	4	4	3	4	4	4	4
Standard cost for control analysis	3	2	3		1	4		1	1	4	4
Financial Indicators	3	3	3		4	4	3	3	3	2	3
Non-Financial Indicators	2	2	3		3	4		3	3	2	3
Periodic management reports	2	3	3	3	4	4		3	3	4	3
Economic analysis of supplier transactions	3	2	4		1	4	3	1	1	3	3
Price quotes with potential suppliers	3	2	4		1	4		3	3	4	3
Profit from transactions, by vendor	3	2	4		1	4		1	1	2	3
Profit from transactions, by product segment	2	2	4		1	4		3	3	2	4
Tax assessment in the transaction	3	2	4		1	3		3	3	4	4
Measurement and transfer of benefits obtained to members	1	1	3		1	4	1	3	3	4	4
Joint actions with other Companies	2	2	3		2	4	1	2	3	4	4

Table 6. Average Ranking of Economic and Financial Management Practices of the Companies of the Algarve Tourism Chain.

Management tools used by companies in the Algarve Tourism Chain, 2023	
Management tool	**Average Responses**
Strategic Planning	3
Operational Planning (budget x actual)	3
Cash Flow	3
Asset Control	3
Internal Controls	3
Internal Audit	3
External Audit	2
Own or external accounting	4
Standard cost for control analysis	2
Financial Indicators	3
Non-Financial Indicators	2
Periodic management reports	3
Economic analysis of supplier transactions	2
Price quotes with potential suppliers	2
Profit from transactions, by vendor	2
Profit from transactions, by product segment	2
Tax assessment in the transaction	2
Measurement and transfer of benefits obtained to members	2
Joint actions with other Companies	2
Average use of management tools	**3**

tourism chain uses 47% of the instruments surveyed, which corresponds to 9 instruments of the 19 questioned, and the most used instrument is accounting.

It is worth mentioning the low use of procedures such as the use of non-financial indicators, price quotation with potential suppliers, profit per transaction, per supplier and joint actions with other companies and that suggests a more traditional style of use of financial economic management practices.

It was also sought to relate the use of economic and financial management practices of companies with the volume of transactions. The objective was to verify if the volume of transactions causes significant changes in the use of the researched practices. For this, the companies were separated into two groups, those that have transactions of up to €10 million/year and those that operate above this amount.

Through the data of the answers it is possible to verify that in the companies of the chain of the tursimo of the Algarve that have a volume of transactions greater than € 10 million/year are used the practices of economic and financial management with greater intensity than in those with lower volume – general RM of 4.2 against 3.

The results also allow us to assume that, when it comes to economic and financial management of companies, the focus is on the short term. This finding is worrying in relation to the perpetuity of enterprises and regional development.

5. Conclusion

Through this study we sought to identify the economic and financial management practices adopted by companies in the Algarve tourism chain. To this end, a survey was conducted using the data collection instrument applied in interviews with managers and owners.

The verification of the results allows us to assume that when it comes to business management, the focus is on the short term for companies with annual turnover up to €10 million, since in the classification of the ranking of use and the average ranking, the index of 3 was obtained.

Another finding of the research is that the companies of the Algarve turismo chain that aim to expand show interest in using the management tools so that they can achieve greater transparency and control of the activities developed.

With regard to the relevance of management, this is evident in the degree of maturity and the need to implement economic and financial management practices in organizations, so that they can identify, measure and analyze the actions developed and make the accountability of these to their Stakeholders.

It is also possible to verify, that the companies of the chain of the turismo of the Algarve that have a volume of transactions greater than € 10 million/year use the practices of economic and financial management with greater intensity, than those that have a lower volume of transactions, since the general RM for those that have a lower volume of transactions resulted in 3 and, in relation to those with a higher volume, the overall MRI was 4.

Regarding management, it can also be seen that the activity the least used activities are the search for partnerships with educational institutions, the search for incentives and partnerships with government agencies and negotiations with suppliers jointly with other companies.

The results also allow us to suppose that the companies in the turismo chain adopt economic and financial management practices aimed at the short-term focus since in the average ranking and in the interviews, the tools used demonstrate. In this way, it is indicated to follow up the researches considering the importance of the perception of the perpetuity of the companies and of the regional development.

Through the findings it was found that smaller companies adopt short-term tools, which may denote one of the causes, according to INE (2023), of 95% of companies being classified as small companies and 28.3% of the population being characterized as long-term unemployed.

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DOI:10.34620/978-83-67405-28-7-025 • 2024 • 229-233

Proceedings of the International Tourism Congress 23

The influence of social capital on the development of the economic capital of the territory in a tourist region

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Abstract

This article aims to review in the literature studies on the influence of social capital on the development of economic capital. In this sense, research has been developed in order to encompass two emerging themes: social capital and economic capital, in order to expand the knowledge regarding the scientific production related to these themes. The characteristics of publications on the influence of social capital were analyzed in the database of the web of Science and Wiley online library. The work was characterized as exploratory and descriptive, which seeks to deepen the analysis of scientific production on social capital and economic capital. The main results of the study are the importance of social capital for the development of the territory, organizations and individuals and as a link between the diversity, volume and wealth of information necessary for economic leverage. It was perceived through the research that there is an additional area for future research in developing a configurational theory of social capital that would help classify companies in the tourism area in terms of their strategies, their relationships and the performance of the organization.

Keywords

K Social Capital • Economic Capital • Confidence • Content Analysis • Development of the tourist region

1. Introduction

The new social reality, which involves the fine line of development and the multiplicity of interpretations, seems to have found new meanings for the term economic capital. It is an interpretation almost of opposition, an antonym, to the first concepts that were pointed out to him, which, in fact, results from the effective realization of the real antonyms of progress and growth. The development that previously denoted production, consumption, wealth, export and import, transactions of goods and products at a global level, denotes being focused on the retraction of industrialism and mass production, based on a region, as pointed out by Ernst Friedrich Schumacher (1985), where the author referenced local development policies and presented his vision of the future if humanity did not change the way of understanding and doing development.

In this scenario, it is possible to perceive movements among the organizations in the tourist territories in the sense of evidencing the relationships as a competitive factor. As a form of associations different arrangements arise, these arrangements can be between individuals or companies that have similar interests and realize that from their unification they acquire strength in the face of conflict and world difficulties. The authors Coleman (1990) and Putnam (2002) point out that the existence of trust and high rates of social capital among members are perceived in the processes at the individual, local and regional levels, as well as internationally, among various actors in economic development and development sustainability.

Faced with this scenario, the research problem was identified the search for studies on the influence of social capital on economic capital in tourist territories. Therefore, the objective of this study is to review in the literature studies on the influence of social capital on the development of economic capital in a tourist region.

2. Literature review

According to Theodorson & Theodorson (1979) “capital are goods or other forms of wealth that are necessary for

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consumption and that can be used to generate more capital or other goods of services.
It is necessary to study the type of social capital existing in a given region, taking into account the particularities of the region where the institutions are located. The social and economic capital are observed in this study so that one can understand the process of economic development of a region.
To better understand the process of economic development, in a historical scope and dependent on the original path, Arend (2004, p.72) exposes that the process of economic development, which seeks to convey the idea of the need for cooperation/collaboration between the agents of the same institutional arrangement. Arend (2004:73) points out that, "from a stock of cumulative knowledge, conditioned by culture, development is dependent, above all, on local learning processes and the behavior of firms, on power relations in a given society. These variables, in addition to influencing the entire development process, affect each other. It is in this evolution that institutions, innovations and policies influence economic development, resulting in this phenomenon being particular and local. As it turns out, it is not a linear process, but an interactive succession in which some variables intervene."
The construction of economic capital is based on other types of capital: social, relational, natural and structural. To this end, this study will address two capitals: social capital and economic capital.
There are two theoretical strands related to the diffusion of the concept of social capital (HELAL et al., 2007). The first aspect, whose concepts describe the social capital accumulated by a given individual, and the same can obtain a position of advantage in a certain group, relating this process to issues of power.

For Lin (2001, p. 12):

Social capital can be defined as "the resources incorporated into a social structure that are accessed and mobilized in intentional actions." According to the author, this type of capital is composed of three elements: resources embedded in the social structure, accessibility to social resources by individuals or mobilization and use of these social resources by individuals through intentional actions.

For the authors Bourdieu (2001), Granovetter (1985) and Lin (2001), these relate the concept of social capital as an "individual good".
Bourdieu (2001, p. 134), defines the position of a given agent in the social space by the position he occupies in the different fields, that is, in the distribution of powers that act in each of them.

For Granovetter (1985) in his study highlights the importance of socia networks linked to elements such as trust and cooperation that constitute social capital, while Lin (2001, p. 12) contemplates that this type of capital is composed of three elements: resources embedded in the social structure, accessibility to social resources by individuals or mobilization and the use of these social resources by individuals through intentional actions.
It highlights concepts linked to the second strand of studies on social capital is analyzed as an element belonging to a group, community or society, seen as a public good, found in the relationships between people or groups.
The concepts of social capital as a "public good" are conceptualized by the authors Coleman (1988), Fukuyama (2000) and Putnam (2002), who follow:

Coleman (1988, p. 118 - 119):

> Social capital studied in parallel with financial, physical and human capital, being identified in three forms: obligations and expectations, which depend on the reliability of the social environment, capacity of information flow of the social structure and norms accompanied by sanctions.

For Fukuyama (2000, p. 28):

> When approaching social capital with a focus on the development of countries, the author states that it can be defined as "a set of informal values or norms, common to the members of a group that allow cooperation between them." In this sense, these norms must include virtues such as honesty, fulfillment of obligations and reciprocity.

The author Putnam (2002, p. 177) exposes that social capital has "Characteristics of social organization, such as trust, norms and systems, that contribute to increase the efficiency of society, facilitating coordinated actions".
The coordinated actions enable a greater interaction and that have repercussions on the formation of capital in terms of volume, diversity and richness of information, variables that are listed by Koka and Prescott (2002) and that help in the construction and support of economic capital.
Information constructs a sense of reality, hence the importance of knowing and mapping where knowledge about social capital and the effects on economic capital is being built.
Therefore, it is necessary to research how studies are being conducted in various countries and authors in the last twelve years and what are the research objects that they are using as a basis for the evolution of the concept of social capital.

3. Methodology

3.1 Type of study

This study was developed from a qualitative research, according to Flick (2007), aims to address the outside world and understand, describe and sometimes explain social phenomena from within in various ways, such as analyzing experiences of individuals or groups and examining interactions and communications that are developing.

The objective of this study was to review in the literature studies on the influence of social capital on the development of economic capital, analyzing the characteristics of publications on the influence of social capital on economic capital, in the database of the web of Science and Wiley online library, as well as the elements studied in the publications; main areas and methodological aspects used, directing to expand the knowledge regarding the concepts of social capital and economic capital.

3.2 Definition of the sample

The data for this research were collected through the web of Science and Wiley online library. The extraction of the sample was segmented from the search engine of the web of Science and Wiley online library, using as keyword social capital and economic capital.

3.3 Steps for data collection

The research was divided into four stages. Initially, the word social capital was typed as a topic in the search field of the web of Science and Wiley online library. Thus, 13,994 articles were collected by the web of Science. After that, the business and accounting area was selected.

In the second stage, the articles that had as theme social capital and economic capital were identified. From a brief analysis of the publications found in the first stage, 74 articles were enumerated, to be combined with the term social capital and economic capital, being the journals Academy of Management Journal with 22 articles, Economics of Education Review with 24 articles and Strategic Management Journal (Print) with a set of 28 articles.

Of the 74 articles, the abstract was analyzed and it was verified which articles were appropriate to the research theme. Ten articles were identified in this selection.

In the third stage, the JCR system was searched, combining each topic related to the theme of social capital, in the business area, by impact factor. The Strategic Management Journal was separated with an impact factor:3,783, and 190 articles were first selected. From these, the abstract was analyzed and 6 articles were selected. After research was done in the Journal of Management Studies with the impact factor resulting in 4,255. In this Journal we obtained as a result 9 selected articles. In the fourth stage, after crossing the pre-selected articles, an analysis was performed verifying the keywords, abstract and separated 16 articles that were grouped and that can be observed temporal visualization of the publications.

The analyses allowed the construction of categories and codes to assist in the interpretations of the collected material and to assist in the description of the results.

4. Results and Discussion

Once the Corpus was defined, which according to Bardin (2009, p. 122) is the set of documents taken into account to be submitted to the analytical procedures, the preparation for the content analysis was carried out.

For this work content analysis was used, which according to Bardin (2009, P. 42):

> ... a set of communication analysis techniques aimed at obtaining, by systematic and objective procedures of description of the content of the messages (quantitative or not) that allow the inference of knowledge related to the conditions of production/reception (inferred variables) of these messages.

Minayo (2001) states that Content Analysis is understood as a set of techniques that has two functions: verification of hypotheses and/or questions and discoveries of what is behind the manifest contents.

A categorization process was structured, which according to Bardin (2009, p.145): “categorization is an operation of classification of constitutive elements of a set by differentiation and then by regrouping according to gender, with the criteria previously defined”.

For the classification of the elements in categories it is necessary to impose the research what each of the elements has in common to the other and that will allow its grouping (Bardin, 2009). To proceed with the categorization it is necessary to work in two stages: the inventory and the classification.

In the inventory stage we isolate the elements and in the classification we divide the elements and try to impose an organization on the elements (Bardin, 2009).

This phase of the analysis of transformation of raw data into a unit of analysis was taken care to take into account that these must present sets of information that have a complete meaning in themselves, because later they will be analyzed without the aid of additional information and will be treated outside the context of the original text, but understood and interpreted within the original meaning (Bardin, 2009).

To this end, we proceeded with categorization, which is the operation of classifying the elements of a message following certain criteria (Bardin, 2009), because it is necessary to extract the meaning from the data.
In this sense the categories should be, according to Bardin (2009):

a) Valid: it means to say that it must be appropriate or pertinent;
b) Exhaustive: each set of categories must be exhaustive in order to allow the inclusion of all units of analysis;
c) Homogeneous: the whole set is structured in a single dimension of analysis;
d) Consistent: the classification will not be affected by the subjectivity of the coders.

Taking the principle that content analysis has as its basic objective to produce a reduction of the data of a communication which, in general, will have to have a reduced number of categories (Bardin, 2009), the categories for analysis of this work were created:

Category 1: Authors;
Category 2: University of Origin;
Category 3: Place of origin;
Category 4: Year of Publication;
Category 5: Conceptual aspect used;
Category 6: Main findings;
Category 7: Object of study;
Category 8: Methodology.

After the structuring of the categories was made the analysis where it can be verified that;

In Category 1: authors: Jan P. Voon was the author who stood out the most, the other authors were diversified, but it is observed that from 2010 the studies are being directed to the effects, impacts and determinants of social capital in economic development.
In Category 2 and 3: University of Origin and Place of Origin: it was found that the universities that research at the territory level, according to the author Putnam, are those of Europe, China, Japan and the United States.
It is observed that in the most recent researches the universities that seek to analyze the territory are those located in Japan and China and that China uses the United States as a research site.
In Category 4: Year of publication: We analyzed the years of publications in the sample and observed that there is an increase in the number of publications considerable in the last decade and that the publications occurred in the Strategic Management Journal and Journal Of Management Studies.
Category 5: Conceptual aspect used: we sought to verify which strand the authors used the most in the publications. After comparing with the Universities, authors and codes of the methodology.
It is observed that Coleman's theory is the most widely used. Regarding the codes of the category objectives, it can be verified that the action analyze, interact and examine were the most used.
Category 6: Main findings: The results indicate that social capital improves the support of economic growth, as Yamamura (2010) and Von and Chen (2003) report that productivity change can occur in a developing country experiencing changes in the composition of its capital inputs. The productivity of the total stock of social capital contributes to change and improvement in sustaining economic growth. The authors Wassmer and Dussage (2011) corroborate the results of their research where they identified that the market rewards companies that form alliances and contribute resources that can be combined synergistically with the resources of the companies themselves, as well as with network resources accessed through their alliance portfolio.
Category 7: Object of study: The objects of study were categorized into three forms:

a) Territories;
b) Individuals and
c) Companies or organizations.

As a result, 40% of the surveys using territories, 50% of the surveys using organizations and 10% using individuals were obtained.
Category 8: Methodology: It was observed that the most used methodology was the survey and analysis of economic data that helped in the formulation of hypotheses which were submitted to statistical tests for their acceptance or refutation.

5. Conclusions

The authors surveyed, as well as the articles worked in this study report the importance of social capital for the development of the territory in a tourist region, of organizations and individuals and as a link between the diversity, volume and richness of information necessary for economic leverage. There are some determinant similarities of a certain proximity between both authors in the theoretical-interpretative treatment of social capital, especially in what refers to the meaning of the concept. However, in those aspects related to the extent of their approach, the divergences are deeper in relation to the few convergences. With regard to the symbolic aspects, Bourdieu presents interpretations of greater depth, emphasizing both the side of belief and the power that it allows to exercise.

Better coordination and greater cooperation, the fruit of networks, norms and trust resulting from the relationships developed in social organizations, are Putnam's great contribution. However, in Bourdieu trust and reciprocity can also emerge from the "group amalgamation", which is nothing other than the intensification of the relational behavior of an individual or group, resulting from the interknowledge and inter-recognition of permanent and useful connections.

Finally, the analysis that interrelates the agents and their activities is more in line with the reality faced by both workers and micro and small urban and rural entrepreneurs from regions for which development theories are centered on the territorial perspective and involving social pacts.

In this perspective, Bourdieu's analysis, either by recognizing and treating the conflict of interests, or by also serving as an explanatory and justifying element of symbolic behaviors, also loaded with deep cultural and economic correlation, should deserve a greater effort of interdisciplinary analysis, in order to provide more consistent interpretations and propitiating dialogues that involve diverse thoughts and schools, but with a deep vision of interconnection.

Koka and Prescott (2002) They point to future research where they expose an alternative approach to developing a configurational theory of social capital that would help classify companies in terms of their strategies, their relationships and the organization's performances.

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DOI: 10.34620/978-83-67405-28-7-026 • 2024 • 234-253

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Proceedings of the International Tourism Congress 23

The urgency of affirming the tourism 4.0 concept, in practice and research

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Abstract

The concept of Tourism 4.0 is still little used when it comes to academic production indexed in Scopus. Since technological change is relevant in tourism, this scarcity of academic production is strange. This study, by systematically analyzing this production, seeks answers to the apparent paradox. The literature on Tourism 4.0 was analyzed and then compared with samples of literature on tourism and hospitality, technology, and Industry 4.0. The analysis was developed using MAXQDA and SPSS software.
The study shows that the literature on technology 4.0 in tourism is superior to that labeled "Tourism 4.0" and shows that it is midway between the industry 4.0 specific literature and the tourism and hospitality literature.
The study also shows that research on the application of 4.0 technologies in the tourism sector has given less emphasis to the operational dimension in the implementation processes of those technologies, contrary to what happens in other contexts. The research thus contributes to establishing a platform from which to establish research initiatives to realize the potential impact of 4.0 technologies on tourism operations and processes and to help practitioners prioritize their initiatives to implement 4.0 technology systems in tourism and hospitality.

Keywords

tourism 4.0 • industry 4.0 • systematic literature review • cluster analysis • research agenda

1. Introduction

Several authors (e.g., Li, 2018; Masood & Sonntag, 2020; Müller et al., 2018) associate the development of the concept of Industry 4.0 with the efforts, made by German public authorities in the early 2010s, to create a conceptual model integrating the set of technologies that were emerging at that time (Li, 2018).
The transformative potential arising from the integration of these technologies is so high that very often the concept of Industry 4.0 is associated with a new industrial revolution (a fourth wave) (Amaral & Peças, 2021; Ingaldi & Ulewicz, 2020; Matt et al., 2020).
For Ingaldi and Ulewicz (2020) the fourth industrial revolution differs from previous ones because - by relying on a set of technologies that streamline the processes of information exchange between people and between people and objects, as well as between objects themselves - it is applied to all aspects of our lives. The need for integration of these technologies across all the situations mentioned leads Ingaldi and Ulewicz (2020) to conclude that the ongoing technological change will affect all sectors and all activities.
This is how the concept, which was originally closely linked to industrial-based production systems (manufacturing), has been progressively transferred to other sectors or themes. Currently, we find references to,

- Services 4.0 (De Zotti et al., 2018; Paschou et al., 2018).
- Government 4.0 (Trček, 2022; Valle-Cruz & Sandoval-Almazán, 2014).
- Agriculture 4.0 (Klerkx et al., 2019; Rose & Chilvers, 2018).
- Health 4.0 (Chute & French, 2019; Qiu et al., 2020).
- Quality 4.0 (Sader et al., 2021; Sony et al., 2020; Zonnenshain & Kenett, 2020); and
- Logistics 4.0 (Strandhagen et al., 2017; Winkelhaus & Grosse, 2020).

When we analyze the number of "4.0" publications in these sectors or topics, we observe that some - agriculture, health, quality, logistics - have more than a hundred documents indexed in Scopus, while others have only a few dozen - services and government. This is normal, it is to be expected that some sectors are more affected by the ongoing technological change than others. However, when we do a

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search in Scopus for Tourism 4.0 (yes, there are also articles about 4.0 in tourism!) we find that Tourism 4.0 has a very small number of indexed papers, just over a dozen. Why is this happening? Is the technological change underway in tourism less challenging than the change underway in quality? Is the sector less penetrable to the technologies of the 4th industrial revolution than agriculture? Is the change brought about by 4.0 technologies more impactful in logistics than in tourism?

This article seeks to answer these questions by building a look at the analysis of the academic production of tourism 4.0. From a methodological point of view, this work falls within the scope of systematic literature reviews, presenting, however, the variant of comparing several sets of articles to better characterize the body of literature under study.

The remaining paper is organized as follows, the next section presents the literature review (section 2), the next section discusses the applied methodology (section 3), and then the empirical study is presented (section 4). The paper concludes with a discussion of the results and conclusions (section 5).

2. Literature review

Industry 4.0 (henceforth I4.0) is a relatively recent concept, just over a decade old (e.g.: Boyes et al., 2018; Masood & Sonntag, 2020; Parida et al., 2021). The concept, initially developed in Germany (Lopes de Sousa Jabbour et al., 2018; Manavalan & Jayakrishna, 2019; Rojko, 2017) quickly gained momentum and projection in both academia and business (Buer et al., 2018). It cannot be said that there is an established definition for I4.0 which is not to say that the concept is controversial or ambiguous. The literature does not point out any significant controversy regarding the concept. I4.0 is affirmed by a set of ideas that are common to the discussion of the subject, although they are not always enunciated simultaneously.

The first of the ideas is that of deep transformation, often referred to as a revolution (Borghi & Cocconcelli, 2021; Manavalan & Jayakrishna, 2019; Sikorski et al., 2017; Tamás & Illés, 2016, among many others). These works consider a series of stages in the social and economic development process of industrialization, with the change currently underway being the fourth stage of that path (the works mentioned, among many others).

According to Mkhize & Brijball Parumasur (2022), this transformation will have important consequences in society, whether in terms of how value is created, interactions within society, or how business is done. In a similar line of thought, Ross and Maynard (2021) consider that this revolution will impact the incentives, rules, and behaviors of urban economic life, transforming the way it is communicated, learned, and how we act and relate to each other and to the environment in which we live.

From another perspective, Dantas et al. (2021), consider that I4.0 is a relevant factor to deal with the economic and societal challenges that sustainable development (namely, the Sustainable Development Goals) represents. This point of view is also held by Bai et al. (2020). In this aspect, the literature is less consistent, with some arguing that there is evidence that there is an association between I4.0 and the sustainability of operations (Kumar et al., 2020), and some considering that I4.0 still lacks the ability to create sustainable value for society (Tseng et al., 2021).

A second dimension often associated with I4.0 is the technological one. The Internet of things, Big data, or Artificial Intelligence are technologies commonly associated with I4.0 (Matt et al., 2020; Mkhize & Brijball Parumasur, 2022; Redondo et al., 2020). Other authors add Cloud computing, Cyber-Physical Systems, and Virtual Reality to the three technologies mentioned (B. Chen et al., 2017; Frank et al., 2019; Moeuf et al., 2018; Tao & Zhang, 2017). However, the range of technologies associated with I4.0 is not restricted to those listed. Oesterreich and Teuteberg (2016), for example, add Augmented Reality, Robotics, Radio Frequency Identification (RFID), or 3D Printing to those mentioned, among others. Again, there is no single, exclusive list of what I4.0 technologies are.

In I4.0, more important than the technologies considered individually, is the set of technologies and the ability of each of them, individually, to integrate and be integrative, in a logic of digitalization and automation of processes. Oesterreich and Teuteberg (2016) defend this perspective, in an analysis of the impacts of I4.0 in the construction sector, considering that I4.0 includes a wide range of technologies and interdisciplinary concepts, which allow the digitalization, automation, and integration of the construction process in its various phases.

Integration is a fundamental element of I4.0. Whether it is the integration of, or between, technologies (see for example, Chong et al., 2018; Molano et al., 2018; Saldivar et al., 2015), or the integration of I4.0 with the management practices of production systems (see, for example, about lean six sigma the studies Chiarini & Kumar, 2021; Shahin et al., 2020) or, finally, the integration of new I4.0 systems with pre-existing systems (see, Bangemann et al., 2016; Schlechtendahl et al., 2015).

Digitization and automation are the two other defining elements in the implementation of Industry 4.0 (Abdirad & Krishnan, 2020; Hopkins, 2021; Isaksson et al., 2018; Sima et al., 2020). Through them, the improvement of productivity and the process of transforming work and jobs is realized (Sima et al., 2020).

The label 4.0 initially associated with manufacturing transformation processes has spread to other domains (Birkel & Müller, 2021) - services, government, agriculture, healthcare, education, and, also, tourism. As Qiu et al. (2020) point out, at the same time as the fourth revolution is developing in the industry it is also occurring in health technologies. The same is true for other sectors.

Of the sectors listed, tourism is one of the least productive under the 4.0 label, which would be understandable if the sector were relatively immune to technological change. However, this is not the case! Different authors testify about the importance of technology in tourism, for example,

- Darras Barquissau et al. (2023) state that the hotel industry, has been disrupted (*sic*), in recent years due to technology. The authors feel that the rapid evolution of technology (*sic*) creates difficulties, especially for small independent hotels, which often lack the necessary resources to operate, manage and compete in the market.
- Buhalis et al. (2023) expect Metaverse to revolutionize (*sic*) travel and tourism management and marketing.
- Shin et al., (2023) argue (strongly) that there has been one factor that has changed everything in the hotel and tourism industry: technology.

As noted, very recent works, clearly argue for the influence of technology and technological change on tourism. It is not, therefore, because of the possible lesser relevance of the technical issue in tourism that justifies the low adherence of the sector's academia to the 4.0 wave. The reasons for this must be different. This is what this work will try to answer.

3. Methodology

Systematic literature reviews have imposed themselves in recent years as a type of study that finds its place in published research. This is also the case both in published research about tourism and hospitality (see, for example, Cheng et al., 2018; Mariani et al., 2018; Yang et al., 2017; Yung & Khoo-Lattimore, 2019) and in published research on I4.0 (Kamble et al., 2018; Liao et al., 2017; Lopes, 2022; Piccarozzi et al., 2018).

Progressively, the PRISMA protocol has become established as the standard for constructing sample documents, with its use being expressly assumed, in studies such as Liao et al. (2017); Yang et al. (2017; Yung & Khoo-Lattimore (2019), or underlying and implicit, in studies such as Kamble et al. (2018).

This study did not use this protocol as in the main sample - sample 1, Tourism 4.0 articles - all available documentation was used. The process of extraction of the articles and the elaboration of the study sample was carried out by simply searching for articles in Scopus and accessing their full text.

If the PRISMA protocol has been imposed for the selection of the samples, sometimes assumed as such, other times as an inspirational model, for the analysis phase there is no similar standardization of procedures, so the literature is very diverse in the way these analyses are done.

Often, works include the general characterization of the collection of documents under study, which is done through counts (of most frequent expressions, keyword frequency, geographical distribution (countries and regions), most influential authors, main sources, etc.) (see as an example, Lopes, 2022; Niñerola et al., 2019).

This first level of analysis is then complemented by more in-depth analyses that make use of more differentiated techniques - content analysis (Lopes, 2022); cluster analysis (Liao et al., 2017; Oesterreich & Teuteberg, 2016); network analysis (Cheng et al., 2018; Comerio & Strozzi, 2019; Kamble et al., 2018; Niñerola et al., 2019). Other times these papers rely on detailed descriptions of the articles under study (Lopes & Losada, 2022; Mariani et al., 2018).

The use of software to support systematic literature reviews is frequent, in particular, the use of MAXQDA (which will be used in this study) is widespread (Beck & Hämäläinen, 2022; Lopes & Losada, 2022; Miseliunaite et al., 2022; Suleimany et al., 2022).

The following study will make a systematic analysis of the published literature on tourism 4.0, comparing this literature with samples of published literature on tourism or hospitality and I4.0, looking for answers to justify the little adherence of the literature on tourism to the 4.0 wave.

3.1. The Design of the Empirical Study

The study is based on a set of documents selected from a search conducted on the Scopus indexer in February 2023. The search key used focused on the fields Title, Abstract, and Keywords and corresponded to the following logical expression: "tourism 4.0" OR "hospitality 4.0". Only papers published in academic journals were considered [TITLE-ABS-KEY ("tourism 4.0" OR "hospitality 4.0") AND (LIMIT-TO (SRCTYPE, "j"))].

Other types of documents (e. g. conference papers) were not considered because access to the full text of these papers is often more difficult and it was considered that this could influence the study.

The search resulted in 16 articles, of which 2 were excluded, one because it was not in English (it is in Spanish) and another because it was not possible to access the full text. Thus, a set of 14 articles resulted to be analyzed. Including the article in Spanish would make it impossible to compare the lexicons used. The 14 articles that constitute the Tourism 4.0 literature sample (sample 1) were compared with four other article samples (see appendix 1 for the complete list of the articles of the five samples),

- A second (sample 2), consisting of articles obtained from a search in Scopus of documents that,
  - contained in the title, abstract, or keywords one of the words TOURISM or HOSPITALITY; and
  - contained in the title, abstract, or keywords two of the following expressions: "Artificial intelligence", "Big data", "Cloud computing", "Cyber-physical systems", "Internet of things", and "Virtual reality".

- A third one (sample 3), consisting of articles obtained from a Scopus search of documents that,
  - contained in the title, abstract, or keywords one of the words TOURISM or HOSPITALITY; and
  - contained in the title, abstract, or keywords the expression “Industry 4.0”.
- A fourth (sample 4), consisting of articles obtained from a Scopus search of documents containing in the title, abstract, or keywords one of the words TOURISM or HOSPITALITY.
- A fifth (sample 5), consisting of articles obtained from a Scopus search of documents that contained in the title, abstract, or keywords the expression “Industry 4.0”.

In all cases, only documents that had been published in academic journals were considered (book chapters and conference papers were not considered).
For sample 2 of the first search phase, 181 articles resulted, of which 152 were published in the years 2019, 2020, 2021, or 2022. Similarly, for sample 3 of the first stage of the search, 39 articles resulted, of which 35 were published in the years 2019, 2020, 2021, or 2022.
For these samples, a second phase of article selection was then carried out to obtain two sets of 14 articles each. The two sets of articles were as follows: 152 for the first sample and 35 for the second,

1. The year distribution of articles in sample 1 - 2022, 5 articles; 2021, 3 articles; 2020, 5 articles; and 2019, 1 article - was considered by selecting articles for samples 2 and 3 distributed annually in the same way.
2. The number of citations of the articles in sample 1 was considered, seeking articles for samples 2 and 3 articles that meet a similar citation distribution.
3. Whenever there was more than one article that met the criteria stated in the previous point, they were sorted by source name and selected in that order.
4. If no article met the requirement (of the number of citations), the article that most closely met that number was selected, applying the same procedure if several articles were in the same situation.

Regarding the last two samples (4 and 5), the article selection process was a bit more complex because in both subjects the publication of articles is very intense. In Scopus, there are about 150,000 indexed documents that satisfy the search requirement indicated for sample 4, of which more than 110,000 are articles. In recent years, the annual production of articles in Tourism or Hospitality has been close to 10,000. About Industry 4.0, the numbers, although more modest, are still very relevant: more than 25,000 documents registered in Scopus, of which more than 10,000 are articles, with an annual production, in the period 2019-2022, between a minimum of about 1,000 articles (in 2019) and a maximum of about 3,000 articles (in 2022).
Thus, the procedure described above for samples 2 and 3 had to be adjusted by setting the additional criterion that no more than one article from the same journal should be selected in the same year. This ensured a greater diversity of sources.

4. Analysis of the results

The results of the study will be presented in two sections. The first characterizes the sample and the second analyzes the lexicon used, comparatively, with the lexicon used in four other samples.

4.1. Characterization of the set of articles in sample 1 - Tourism 4.0

The articles in this sample were all published in the period 2019-2022, with the distribution shown in Table 1.
Overall, the 14 articles involved 46 different authors, with only two (Vitor Rodrigues and Zélia Breda) publishing more than one article (two). The average number of authors per article is more than three (3.3), which reveals the existence of large teams publishing on Tourism 4.0.
The authors come from 10 different countries, with Italy, Malaysia, and Portugal having more than one article (four, three, and two respectively) (Table 2).

Table 1. Distribution of articles by years.

Year of publication	# of documents
2019	1
2020	5
2021	3
2022	5

Source: The authors, based on data obtained from SCOPUS.

Table 2. Distribution of articles per year.

Country/Territory	# of documents
Italy	4
Malaysia	3
Portugal	2
Australia	1
Indonesia	1
Japan	1
Serbia	1
South Korea	1
United States	1
Viet Nam	1

Source: The authors, based on data obtained from SCOPUS.

It should be noted that of the ten countries listed, seven are among the twenty countries with the highest volume of tourism receipts (data from the World Bank - International tourism, receipts (current US$), available at https://data.worldbank.org/indicator/ST.INT.RCPT.CD, consultation in February 2023) being the exceptions Indonesia, Serbia, and Viet Nam.

Finally, it is worth noting the existence of two international partnerships, one between researchers from Serbia and the USA and another between researchers from Japan and Malaysia. Everything indicates that these are sporadic collaborations, and it is difficult to consider the possibility of international networks studying the subject.

Regarding the sources, Information Technology And Tourism stand out with three articles published followed by 11 different publications each with a single article (Expert Systems with Applications, International Journal of Engineering and Advanced Technology, International Journal of Integrated Engineering, International Journal on Advanced Science Engineering and Information Technology, Journal of Asian And African Studies, Journal Of Hospitality and Tourism Insights, Journal of Hospitality Leisure Sport And Tourism Education, Journal of Tourism and Development, Planning Malaysia, Sensors (Switzerland), and Sustainability (Switzerland)).

The following table (3) shows the various sources by area, considering two main categories - Tourism and Information Technologies - and a generic category - others. The articles were mostly published in IT journals (five different journals and seven articles) and then in tourism journals (four different journals and six articles)[1].

In summary, the literature on "Tourism 4.0" can be characterized as scarce, naturally published in recent years, from countries with relevant tourism activity and published mainly in technology or tourism journals. It is also worth noting the lack of international cooperation networks in the study of the subject. Information Technology And Tourism emerges as the relevant publication in the discussion of the theme.

[1] Information Technology and Tourism was categorized under Tourism and IT, and the articles published in it were counted twice.

4.2. Sample Lexicon Analysis

The lexicon of the 70 articles that make up the five samples under analysis was evaluated as a whole, thus generating a list of the most frequent terms for that set of 70 articles. This list was created using the MAXQDA software, and for its construction lemmatization was used (hence appearing in the "Datum" list) and a stop list was used to eliminate sequences of only one or two characters and other words, with more characters, but of no interest to the study (e.g., "issue"; "journal"; "making"; "other"). This produced a list of 9,419 different words or character sets.

After that, a threshold was established considering only the 100 most frequent words (see appendix 2). Further studies were conducted by establishing the threshold at the 200 most frequent words and it was found that they did not present results with increased significance, so the study focused only on the 100 most frequent words.

With aggregation at the sample level (from A1 for sample 1 to A5 for sample 5), the data concerning the 100 most frequent words were analyzed in SPSS considering three different situations:

1. The number of times each of the words was in each sample (Ax-A).
2. The number of times each of the words occurred in each sample as a percentage of the number of words in the sample (Ax_B).
3. The number of articles in each sample that included each of the words (Ax_C).

Table 3. Distribution of articles by source.

Source Title	Tourism	IT	Others	# articles
Information Technology And Tourism	x	x		3
Expert Systems With Applications		x		1
International Journal Of Engineering And Advanced Technology		x		1
International Journal Of Integrated Engineering		x		1
International Journal On Advanced Science Engineering And Information Technology		x		1
Journal Of Asian And African Studies			x	1
Journal Of Hospitality And Tourism Insights	x			1
Journal Of Hospitality Leisure Sport And Tourism Education	x			1
Journal Of Tourism And Development	x			1
Planning Malaysia			x	1
Sensors Switzerland		x		1
Sustainability Switzerland			x	1

Source: The authors, based on data obtained from SCOPUS.

The third analysis was necessary since the length of the articles (number of words) varied greatly across the samples. For the comparative analysis of the samples, the hierarchical clustering technique was used, using the Furthest neighbor method and the cosine as the measure of proximity. The dendrograms obtained are shown in figures 1, 2, and 3.

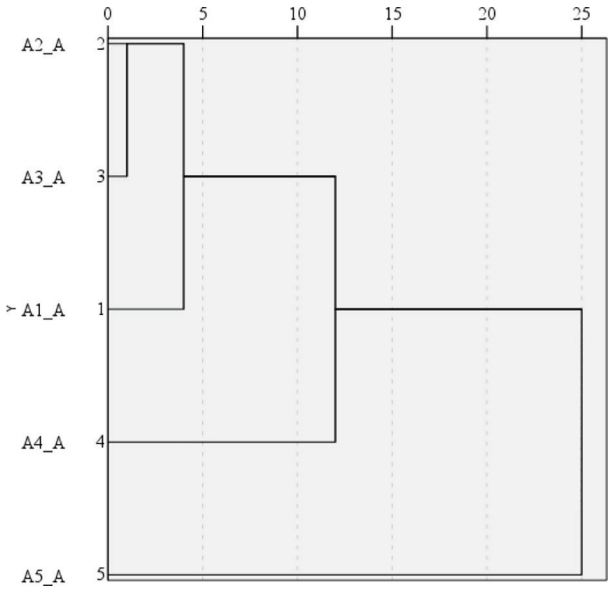


Figure 1. Dendrogram for situation i).
Fonte: os autores

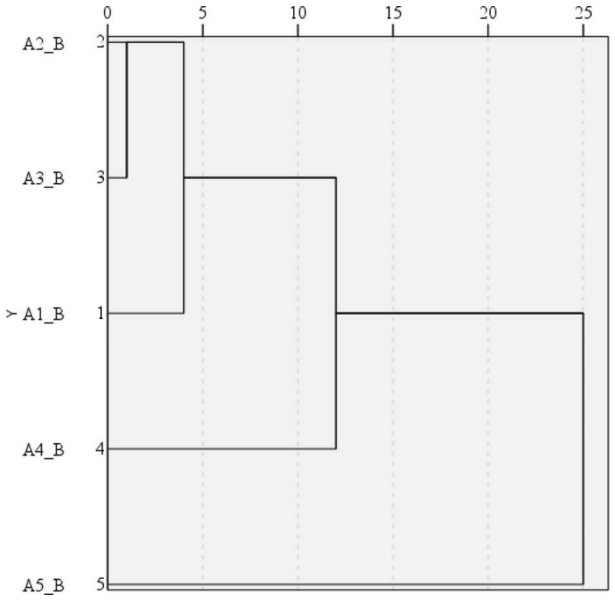


Figure 2. Dendrogram for situation ii)
Fonte: os autores

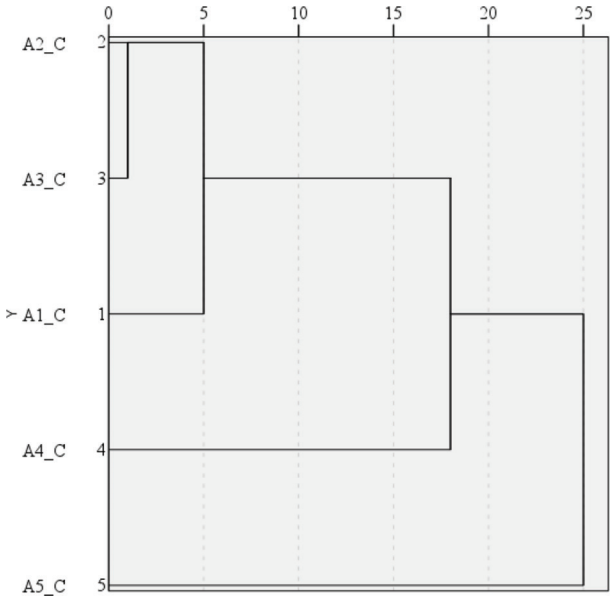


Figure 3. Dendrogram for situation iii)
Source: the authors

The results obtained show a clear proximity between the first three samples and a remarkable distance between these and the two reference samples (4 and 5). This situation is observed in all three tests performed. The tests were repeated for 50 words and 200 words with similar results.

It can thus be stated with some confidence that the relevant literature on Tourism 4.0 is not restricted to the 16 articles that the Scopus search returns, but rather a much broader set of documents, those obtained by applying the search criteria used in samples 2 and 3.

The correlation analysis between the lexicons used in the 5 samples was also performed. The Non-parametric correlations test was used by calculating the Spearman rho assuming non-normality of the distributions. Correlations were tested for,

1. of the number of times each of the words appeared in each sample (Ax-A).
2. of the number of articles in each sample that included each of the words (Ax_C).

The following Tables 4 and 5 present the results obtained. Once again, a greater proximity is observed between samples 1 to 3 (highlighted area), and a greater separation between samples 4 and 5. We can thus conclude, similarly to the previous analysis, that samples 4 and 5 are placed at the two extremes and the other three samples are positioned in a central position constituting a core of very close lexicons.

Table 4. Correlation (Spearman rho) of the samples by word frequency.

		A1_A	A2_A	A3_A	A4_A	A5_A
A1_A	Spearman rho	--				
A2_A	Spearman rho	,487**	--			
A3_A	Spearman rho	,468**	,496**	--		
A4_A	Spearman rho	,389**	,399**	,418**	--	
A5_A	Spearman rho	,356**	,400**	,376**	,279**	--

**.The correlation is significant at the 0.01 level (2 extremities).
Source: the authors.

Table 5. Correlation (Spearman rho) between samples by number of articles.

		A1_C	A2_C	A3_C	A4_C	A5_C
A1_C	Spearman rho	--				
A2_C	Spearman rho	,572**	--			
A3_C	Spearman rho	,566**	,598**	--		
A4_C	Spearman rho	,487**	,507**	,534**	--	
A5_C	Spearman rho	,463**	,515**	,500**	,413**	--

**.The correlation is significant at the 0.01 level (2 extremities).

Source: the authors.

4.3. Analysis of the most used words

The study presented above was complemented with a global analysis of the lexicon, now assuming texts of the same nature as those previously considered in samples 1 to 3, since the two previous analyses show strong similarities between the articles in these three samples.

Thus, we first compared the articles in these three samples with the articles in sample 4, and then with the articles in sample 5, looking for the words with a higher incidence in these samples compared to their incidence in samples 1, 2, and 3.

The 9,419 words and character sets were individually analyzed, trying to determine the set of words where it was possible to assume this difference in incidence (higher comparative incidence in samples 4 or 5, as the case, maybe). Different variants of selection thresholds were tested, and, in the end, the following criteria were chosen to consider whether a given word had a different incidence level:

- If its frequency in sample 4 (or 5) was greater than 1.5 times its frequency in each of samples 1, 2, or 3.
- If its frequency in sample 4 (or 5) was greater, by 1.5 times than the sum of its frequencies in samples 1, 2, and 3.
- It was present in at least 50% of the articles in sample 4 (or 5).

Table 6 presents the results obtained for both samples.

The words with the highest incidence in sample 4 (tourism or hospitality) are those related to the tourism activity (food, rural, water - in the contexts of “Clean Water and Sanitation” and “Coastal waters” - or life - in the contexts “local quality of life”; “quality of life of the people around”, “tourists experience rural life” and similar) and with the destinations (South and Southern) which, ultimately, should also be considered in the context of tourism activity.

In the words with a higher incidence in sample 5, compared to the incidence observed in samples 1 to 3, we highlight those related to operations and the production process (Action, Task, and Job), their characteristics (Additive, Flexibility, and Adaptive) and the context in which they occur (Industrial, Production, Manufacture, Factory, and Assembly).

This idea is reinforced when it is observed that other words related to operations - Automatisation, Autonomy, Interoperability, Interoperable, Job, Job-shop, Labour, Leadership, Workable, Worker, Workflow, Workforce, Workplace - have a greater comparative incidence in this sample, although they do not meet all the requirements listed above, and therefore their reference is only justified in this context of complementarity of analysis.

Finally, the set of words with a higher incidence in the set of the three samples 1 to 3 was determined, in comparison with sample 4 and sample 5. As in the previous study, different variants for the selection thresholds were tested, and the following criteria were chosen to include the word in the differentiated incidence list:

Table 6. Most frequent words in samples 4 and 5 compared to samples 1, 2 and 3.

Sample 4 – Tourism or Hospitality			Sample 5 – Industry 4.0		
WORD	**# ARTICLES**	**RATIO**	**WORD**	**# ARTICLES**	**RATIO**
Food	11	4,24	Industrial	14	2,04
Life	11	2,06	Standard	13	2,46
South	9	1,75	Production	13	1,99
Southern	8	5,71	Manufacture	12	2,26
Income	8	3,92	Action	11	2,34
Motivation	8	2,97	Task	10	1,92
Drive	8	2,16	Flexible	9	2,00
Rural	8	1,85	Supply	9	1,56
Water	8	1,80	Parameter	9	1,55
Adjust	8	1,79	Simulation	9	1,54
August	8	1,53	Date	8	3,41
Serious	7	2,86	Factory	8	2,62
Household	7	2,80	Machinery	8	1,70
Family	7	2,10	Horizontal	8	1,67
July	7	1,76	Job	8	1,62
Half	7	1,67	Detection	8	1,59
Diversity	7	1,53	Assembly	7	33,75
			Additive	7	4,40
			Flexibility	7	3,92
			Cyber-physical	7	2,37
			Adaptive	7	2,29
			Wireless	7	1,71
			Material	7	1,60

Source: the authors.

- If its frequency in the set of samples 1 to 3 (sum of the incidences in these samples) was more than 4.5 times the incidence in sample 4 (or 5).
- If it was present in more than 75% of the articles in samples 1 to 3, aggregated values in the set (32 articles or more).

Table 7 presents the results obtained for each of the samples. Unsurprisingly, the aggregate of articles in samples 1 to 3 is, compared to the articles in sample 4 (Tourism), "richer" in words associated with the technological dimension (Technology, Application, Communication, Network, Smart, Internet, Digital, Intelligence, User, Platform, Mobile). That aggregate of articles stands out from the articles in sample 5 (Industry 4.0) by the more frequent presence of words related to the tourism activity (Tourism, Travel, Experience, Tourist, Interaction, Destination).

These results confirm a previously anticipated scenario that samples 1 to 3 are in an intermediate space between samples 4 and 5.

5. Discussion and conclusions

The ongoing process of transforming the way societies and economies work, known as the fourth industrial revolution, supported by Industry 4.0, is significant, deep, and transversal to most sectors and human activities, which is why it is considered a revolution. There is no reason why the tourism and hospitality sector should be immune to this transformation process. This being so, why is there so little literature about Tourism 4.0? This is the question that this study sought to answer.

The study shows, objectively, that the literature concerning the transformation process mentioned within tourism and hospitality is much larger than the 16 articles, now registered in Scopus.

This study has not observed significant differences between the literature referenced by Tourism 4.0 and the literature about Tourism & Hospitality AND the technologies that compose the 4.0 (sample 2) or the literature referenced by Industry 4.0 AND Tourism & Hospitality (sample 3).

Table 7. Most frequent words in samples 1, 2, and 3 compared to samples 4 and 5.

Sample 4 – Tourism or Hospitality			Sample 5 – Industry 4.0		
Word	**# ARTICLES**	**RATIO**	**WORD**	**# ARTICLES**	**RATIO**
Technology	42	19,81	Tourism	42,00	1108,33
Service	41	7,92	Travel	40,00	30,17
Application	40	5,66	Experience	40,00	12,28
Design	40	4,57	Tourist	39,00	289,67
Communication	38	7,90	Online	37,00	5,59
Network	37	6,97	Interaction	35,00	5,86
Smart	36	49,85	Content	35,00	5,31
Internet	36	17,22	Big	35,00	4,90
Digital	35	112,33	Destination	32,00	324,33
Intelligence	35	39,56			
Customer	35	14,41			
Big	35	10,84			
Industrial	35	4,81			
Innovation	34	12,00			
User	33	12,84			
Platform	32	7,52			
Mobile	32	5,50			

Source: the authors.

If this were the case, the actual literature on Tourism 4.0 would not be the 16 articles indexed, for now, in Scopus, but 214, resulting from 16 in sample 1, plus 152 in sample 2 and 64 in sample 3, from which 18 articles would be removed, nine because they belong simultaneously to samples 1 and 3 and another nine because they belong simultaneously to samples 2 and 3. This would indicate that the tourism 4.0 space is already much larger than it appears at first sight.

This increased dimension of the Tourism 4.0 space, and the fact that more researchers are working on the subject and that there is a much more significant production, is very relevant from the perspective of developing bolder research agendas on the subject. The facility for holding scientific meetings, the call for special issues of academic journals, or the development of research lines, is not the same if the subject motivated 16 publications in four years or if it gave rise to more than two hundred.

However, the study shows that the issue is not restricted to whether or not to label an article with Tourism 4.0. The study also indicates that, in the case of the tourism sector, research to date has overlooked the operational dimension in the changes brought about by the implementation of 4.0 technologies. The digitalization and automation of processes, based on the integrated implementation of 4.0 technologies, is the pivotal element of the ongoing transformation movement. It is at the level of processes and operations that the revolution enabled by 4.0 technologies will take place and the lesser focus that the literature on the application of these technologies in tourism has on this subject may limit its impact.

This work thus establishes a platform from which research initiatives can be developed that materialize the impact, and potential, of technologies 4.0 on tourism operations and processes. That platform and those initiatives flow from, and should consider, the key findings that result from the study:

- That there is a much larger body of literature about 4.0 technologies in tourism and hospitality than is identified when searching for the term Tourism 4.0.
- That this larger body of literature, and the larger number of researchers involved, allows us to look differently when developing new research initiatives, including the establishment of research agendas.
- That these new research initiatives cannot ignore the operational dimension in the implementation processes of technologies 4.0. This dimension is a determinant of the impact and success of the implementation of those technologies and seems to be underestimated in the set of studies published so far on Tourism 4.0.

Beyond the elements mentioned, we believe that the work gives important clues to the editors of academic journals. We also believe that the paper provides lessons for practitioners, such as the importance of exploiting 4.0 technologies to improve processes and operations.

Finally, it should be mentioned that, from the methodological point of view, the work presents innovative solutions, namely the comparative model used.

5.1. Limitations and future studies

The methodology used, although robust and widely used, imposes restrictions on the scope of the conclusions as it advises further studies. The research strategy adopted in the study is based on the comparison of three samples with a total of 42 articles with two equivalent samples (of 14 articles each) of articles on Tourism and Technologies 4.0 and Industry 4.0 and Tourism.

The limitation of the samples to 14 articles results from the scarcity of articles on Tourism 4.0. Concluding that the collection of these articles is much larger than 14 (16 effectively) the study can be repeated and developed for a larger set of articles.

On the other hand, complementing the study presented, as well as the proposed one, with studies involving professionals from the sector - focus groups or similar - may allow the validation and deepening of the conclusions now obtained.

Acknowledgments

This work was supported by FCT, I.P., the Portuguese national funding agency for science, research, and technology, under the project UIDB/04521/2020.

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Appendix

Appendix 1. List of articles of the samples.

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
Amir et al. (2020)	Barik et al. (2020)	Adedoyin et al. (2020)	Abubakar et al. (2022)	Bortolini et al. (2020)
Basir et al. (2022)	Bisoi et al. (2020)	Bodkhe et al. (2020)	Charlton & Starkey (2020)	C. Yang et al. (2022)
Bilotta et al. (2021)	Díaz-González et al. (2022)	De las Heras et al. (2021)	Chen & Diao (2022)	Eugeni et al. (2022)
Davoli et al. (2021)	Fernandes (2021)	Dey et al. (2022)	Coopmans et al. (2021)	Hazra et al. (2021)
Hamdani et al. (2019)	Filieri et al. (2021)	G. Lee & Kim (2022)	Dabanli et al. (2021)	Matt et al. (2020)
Pencarelli (2020)	He et al. (2022)	Hou (2022)	Drpić & Rudan (2019)	Matyushenko & Redko (2019)
Rodrigues, Eusébio, et al. (2022)	Kim et al. (2019)	Kruja et al. (2019)	Makoni & Tichaawa (2021)	
Rodrigues, Stevic, et al. (2022)	Lee et al. (2021)	Maquera et al. (2022)	Nunes et al. (2022)	Mulyana et al. (2022)
Samsudin et al. (2022)	Liang et al. (2022)	Mariani et al. (2021)	Rasoolimanesh et al. (2020)	Navakitkanok et al. (2020)
Sperlí (2021)	Reis et al. (2020)	Phi & Clausen (2021)	Sarpong et al. (2020)	Núñez-Merino et al. (2020)
Stankov & Gretzel (2020)	Samara et al. (2020)	Rauch et al. (2020)	Sharma et al. (2022)	Otal et al. (2021)
Strickland & Williams (2022)	Wang et al. (2020)	Roy (2022)	Su et al. (2020)	Rosin et al. (2021)
Sutherland et al. (2020)	Yang et al. (2022)	Ryan et al. (2020)	Zafeiroudi et al. (2022)	Seeger et al. (2020)
Van & Hieu (2020)	Zhao et al. (2022)	Soehardjoepri et al. (2020)	Zhang et al. (2020)	Vachter & Bányai (2022)
				Xu et al. (2022)

Appendix 2. Most common words by sample

Rank.	Word	#	Doc. (#)	Doc. (%)	Sample1	Sample 2	Sample 3	Sample 4	Sample 5
1	Tourism	5028	57	81,4%	1277 (14)	1002 (14)	1046 (14)	1702 (14)	1 (1)
2	datum	3164	69	98,6%	337 (14)	1104 (14)	895 (14)	395 (14)	433 (13)
3	service	2147	65	92,9%	330 (14)	841 (14)	706 (13)	79 (12)	191 (12)
4	system	2127	66	94,3%	318 (13)	493 (14)	508 (14)	203 (12)	605 (13)
5	technology	2108	64	91,4%	489 (14)	429 (14)	627 (14)	26 (9)	537 (13)
6	research	1892	69	98,6%	237 (14)	437 (14)	520 (14)	329 (14)	369 (13)
7	study	1763	66	94,3%	309 (13)	334 (12)	461 (13)	405 (14)	254 (14)
8	management	1712	65	92,9%	159 (14)	343 (14)	682 (14)	167 (11)	361 (12)
9	industry	1623	66	94,3%	289 (14)	204 (14)	447 (14)	110 (10)	573 (14)
10	smart	1559	50	71,4%	566 (13)	501 (12)	279 (11)	9 (3)	204 (11)
11	information	1431	69	98,6%	336 (14)	351 (14)	359 (14)	82 (14)	303 (13)
12	process	1415	67	95,7%	210 (13)	277 (14)	326 (14)	148 (12)	454 (14)
13	model	1396	67	95,7%	174 (13)	379 (13)	361 (14)	141 (13)	341 (14)
14	analysis	1352	68	97,1%	184 (13)	297 (14)	406 (14)	303 (14)	162 (13)
15	destination	1316	45	64,3%	315 (13)	203 (11)	455 (8)	342 (12)	1 (1)
16	tourist	1275	53	75,7%	381 (14)	273 (13)	215 (12)	405 (13)	1 (1)
17	development	1246	68	97,1%	200 (14)	144 (14)	299 (14)	484 (14)	119 (12)
18	business	1100	62	88,6%	189 (14)	214 (13)	359 (13)	145 (12)	193 (10)
19	review	1080	63	90,0%	229 (14)	445 (14)	178 (14)	106 (11)	122 (10)
20	network	1074	60	85,7%	148 (11)	202 (14)	298 (12)	31 (10)	395 (13)
21	base	1022	70	100,0%	143 (14)	285 (14)	220 (14)	208 (14)	166 (14)
22	application	971	62	88,6%	257 (13)	185 (14)	186 (13)	37 (8)	306 (14)
23	experience	941	60	85,7%	402 (14)	158 (13)	177 (13)	184 (12)	20 (8)
24	value	922	69	98,6%	181 (14)	187 (14)	237 (14)	128 (14)	189 (13)
25	provide	858	70	100,0%	172 (14)	254 (14)	211 (14)	120 (14)	101 (14)
26	customer	856	46	65,7%	277 (12)	239 (11)	262 (12)	18 (4)	60 (7)
27	social	851	62	88,6%	214 (13)	205 (13)	264 (13)	112 (14)	56 (9)
27	market	846	62	88,6%	221 (14)	152 (13)	196 (12)	176 (13)	101 (10)
29	city	812	44	62,9%	129 (9)	347 (11)	140 (10)	135 (10)	61 (4)
30	international	806	65	92,9%	111 (14)	197 (14)	154 (14)	124 (11)	220 (12)
30	digital	799	49	70,0%	235 (13)	103 (11)	336 (11)	2 (1)	123 (13)
32	level	798	66	94,3%	55 (13)	111 (13)	187 (14)	195 (14)	250 (12)
33	energy	795	32	45,7%	17 (6)	279 (7)	181 (7)	158 (5)	160 (7)
34	time	792	67	95,7%	98 (13)	150 (13)	159 (14)	151 (14)	234 (13)
35	work	768	65	92,9%	72 (11)	157 (14)	182 (14)	81 (12)	276 (14)
36	approach	754	67	95,7%	184 (14)	118 (14)	155 (14)	154 (12)	143 (13)
37	hospitality	733	38	54,3%	108 (10)	239 (10)	318 (10)	68 (8)	0 (0)
38	travel	727	57	81,4%	217 (14)	232 (13)	94 (13)	178 (13)	6 (4)
39	impact	726	64	91,4%	82 (12)	92 (13)	125 (13)	327 (13)	100 (13)
40	user	726	45	64,3%	380 (12)	147 (12)	128 (9)	17 (4)	54 (8)
41	method	722	66	94,3%	82 (14)	163 (12)	210 (14)	104 (13)	163 (13)
42	increase	706	67	95,7%	97 (13)	93 (13)	137 (13)	230 (14)	149 (14)
43	different	697	62	88,6%	87 (9)	142 (13)	202 (13)	114 (13)	152 (14)

(*Continued*)

Appendix 2. Continued

Rank.	Word	#	Doc. (#)	Doc. (%)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
44	iot	681	30	42,9%	148 (8)	170 (7)	107 (7)	0 (0)	256 (8)
45	big	679	50	71,4%	97 (11)	350 (14)	171 (10)	19 (5)	42 (10)
46	innovation	675	52	74,3%	134 (10)	101 (12)	305 (12)	15 (5)	120 (13)
47	production	659	47	67,1%	31 (10)	24 (5)	127 (10)	114 (9)	363 (13)
48	design	622	63	90,0%	177 (13)	85 (14)	149 (13)	30 (11)	181 (12)
49	event	615	34	48,6%	46 (7)	21 (7)	313 (7)	176 (9)	59 (4)
50	food	615	36	51,4%	8 (4)	12 (6)	82 (9)	432 (11)	81 (6)
51	hotel	609	33	47,1%	86 (8)	207 (10)	300 (9)	16 (6)	0 (0)
52	device	608	44	62,9%	83 (11)	151 (13)	61 (7)	1 (1)	312 (12)
53	communication	603	54	77,1%	115 (13)	103 (12)	114 (13)	14 (6)	257 (10)
54	support	593	69	98,6%	133 (13)	97 (14)	109 (14)	118 (14)	136 (14)
55	improve	591	63	90,0%	116 (13)	161 (13)	109 (11)	98 (12)	107 (14)
56	change	589	67	95,7%	103 (13)	71 (13)	141 (13)	136 (14)	138 (14)
57	product	589	60	85,7%	141 (13)	70 (11)	119 (14)	105 (11)	154 (11)
57	sustainable	587	50	71,4%	135 (10)	67 (8)	114 (11)	232 (11)	39 (10)
59	economic	585	53	75,7%	59 (10)	65 (11)	242 (12)	173 (12)	46 (8)
60	future	585	65	92,9%	102 (13)	132 (13)	122 (13)	56 (13)	173 (13)
61	robot	581	24	34,3%	22 (6)	334 (6)	210 (4)	0 (0)	15 (8)
62	online	573	55	78,6%	243 (13)	154 (12)	106 (12)	40 (10)	30 (8)
63	propose	569	55	78,6%	90 (10)	119 (11)	97 (10)	107 (10)	156 (14)
64	resource	557	57	81,4%	53 (11)	129 (13)	136 (13)	103 (9)	136 (11)
65	learn	540	54	77,1%	85 (10)	210 (13)	81 (11)	39 (8)	125 (12)
66	industrial	538	53	75,7%	66 (12)	33 (11)	74 (12)	12 (4)	353 (14)
66	quality	538	60	85,7%	113 (14)	100 (12)	83 (10)	160 (12)	82 (12)
68	platform	535	48	68,6%	52 (9)	160 (13)	194 (10)	18 (7)	111 (9)
69	sector	535	52	74,3%	72 (12)	90 (10)	168 (12)	168 (10)	37 (8)
70	literature	518	55	78,6%	78 (12)	125 (9)	139 (13)	72 (12)	104 (9)
71	environment	515	63	90,0%	89 (12)	103 (13)	90 (14)	66 (12)	167 (12)
72	sensor	509	29	41,4%	260 (5)	74 (9)	24 (4)	1 (1)	150 (10)
72	access	506	63	90,0%	120 (14)	103 (14)	120 (13)	77 (10)	86 (12)
74	company	506	48	68,6%	110 (10)	71 (11)	104 (12)	38 (6)	183 (9)
75	blockchain	498	17	24,3%	8 (4)	8 (2)	455 (5)	0 (0)	27 (6)
75	factor	494	60	85,7%	43 (13)	78 (11)	130 (13)	170 (11)	73 (12)
77	internet	493	48	68,6%	111 (12)	99 (13)	100 (11)	6 (2)	177 (10)
78	tour	490	33	47,1%	158 (10)	250 (11)	67 (7)	15 (5)	0 (0)
79	compute	481	46	65,7%	33 (9)	174 (13)	38 (6)	17 (6)	219 (12)
80	follow	479	69	98,6%	89 (14)	95 (14)	79 (14)	98 (14)	118 (13)
81	develope	478	65	92,9%	75 (12)	79 (12)	146 (14)	102 (13)	76 (14)
82	strategy	471	60	85,7%	126 (11)	95 (11)	68 (13)	96 (12)	86 (13)
83	manufacture	469	35	50,0%	20 (4)	18 (7)	105 (10)	3 (2)	323 (12)
84	focus	468	62	88,6%	104 (12)	82 (12)	100 (13)	85 (12)	97 (13)
85	framework	468	58	82,9%	77 (11)	110 (14)	147 (12)	57 (10)	77 (11)
86	potential	462	64	91,4%	75 (13)	59 (13)	92 (13)	83 (12)	153 (13)
87	activity	458	60	85,7%	59 (12)	73 (11)	128 (12)	147 (14)	51 (11)

(*Continued*)

Appendix 2. Continued

Rank.	Word	#	Doc. (#)	Doc. (%)	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
88	challenge	455	57	81,4%	96 (13)	99 (11)	107 (11)	33 (9)	120 (13)
89	university	453	65	92,9%	50 (12)	102 (14)	159 (14)	82 (13)	60 (12)
90	science	452	65	92,9%	60 (12)	119 (14)	120 (14)	85 (11)	68 (14)
91	identify	451	58	82,9%	87 (12)	100 (11)	110 (13)	74 (12)	80 (10)
91	human	443	57	81,4%	72 (12)	139 (10)	102 (12)	40 (11)	90 (12)
93	chain	442	41	58,6%	16 (7)	59 (8)	76 (10)	72 (6)	219 (10)
94	solution	441	50	71,4%	84 (10)	84 (10)	95 (10)	28 (7)	150 (13)
95	plan	440	60	85,7%	87 (12)	68 (13)	85 (12)	114 (12)	86 (11)
95	country	439	49	70,0%	37 (11)	48 (9)	115 (11)	158 (11)	81 (7)
97	test	434	45	64,3%	46 (8)	104 (9)	92 (10)	94 (9)	98 (9)
98	algorithm	425	30	42,9%	18 (4)	212 (11)	55 (6)	35 (1)	105 (8)
98	performance	425	59	84,3%	40 (11)	120 (14)	79 (13)	42 (9)	144 (12)
100	sustainability	423	44	62,9%	145 (8)	30 (7)	141 (11)	88 (11)	19 (7)

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DOI:10.34620/978-83-67405-28-7-027 • 2024 • 254-265

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Proceedings of the International Tourism Congress 23

Aiming towards green capability in the hospitality sector using nudge strategies

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Abstract

The use of green marketing and nudge theory in the hospitality sector is an approach that aims to influence a person's behavior by effectively steering them in a desired direction, in this case towards green consumption. It is therefore imperative that we ask ourselves how can we promote a 'greener' consumer behavior in the hospitality sector through nudging. Through a conceptual approach, one seeks to contribute to the debate and to raise new directions for research. A novel theoretical framework for green capabilities is also presented. Behavioral applications such as Nudge can help those making decisions in the hospitality sector to use Nudge when promoting green behavior in specific contexts. To the best of our knowledge, there has been little attempt to create a framework that explains the different dimensions that exist when intervening to implement green behaviors in the hospitality sector using Nudge strategies.

Keywords

Green Behavior • Green Capability • Green Marketing • Hospitality Sector; Nudge

1. Introduction

All tourism activities cause extensive environmental costs in destinations (Juvan & Dolnicar, 2017) and reducing the damage caused by tourism activities is not an easy task. Moreover, studies show that day-to-day pro-environmental behaviors (e.g., reduction of energy and water consumption, waste disposal, among many other) are almost completely forgotten when engaging in tourism activities (Kim et. al, 2020). The urgent need to change this situation has led researchers and other public and private stakeholders to find solutions based on behavioral theories, with one particular theory standing out from the rest - the Nudge theoretical approach. Nudge is a relatively new method of influencing behavior in a sustainable direction without changing people's values (Mont et al., 2014). As Sunstein (2014) puts it, nudging enables the development and implementation of policies that do not threaten people's autonomy. Rather, it effortlessly steers people in the best direction, as if they were making the decisions themselves. It recognises that people do not act as isolated individuals, but that consumption is socially constructed and often deeply embedded in group habits and norms (Hall, 2013).

Consumers care much more about environmental sustainability today than ever before. According to the Healthy & Sustainable Living - A Global Consumer Insights Project report (GlobeScan, 2019), issues related to the environment are among humanity's greatest concerns today. Environmental sustainability has become a central topic of discussion in society, both nationally and globally. As a result, brands are increasingly adopting green marketing strategies. However, studies show that there is a gap between people's intention to live healthy and sustainably and their actual behavior (GlobeScan, 2019). In this sense, the main objective of this paper is to explore the use of nudge as an accelerator for green capacity building and its main dimensions. Green capability and its adoption could be a promising step when business aim to ease environmental issues and achieve green ideals (Khan et al, 2022). Thus, this work aims to contribute to the existing conceptual corpus of research on green behavior and Nudge, and in particular to explore their interconnection in the hospitality sector, as the literature in this field seems to lack conceptual frameworks for the use of Nudge, is still fragmented and lacks a better

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understanding of its effectiveness (Souza-Neto, et al., 2022). Moyle et al. (2021) also noted the lack of patterns, integration, and theoretical and methodological advances in sustainable tourism research over the past three decades.

The article proceeds as follows. First, it presents the methods used in this study. Second, it deepens the knowledge of the Nudge concept and its overall effectiveness. Then, it discusses the main green consumption values and green marketing in the hospitality sector. Finally, the conceptual framework for green capabilities in the hospitality sector using Nudge is clarified, explored and discussed. Conclusions and implications for future research have been draw.

2. Literature Review

2.1. The Nudge Concept

The reality shows us that everyday environmentally friendly behaviors (e.g., reduction of water and/or energy consumption, not littering, etc.) do not occur in tourism and hospitality activities (Gössling, 2002; Kim et al., 2020), creating a gap between attitudes, intentions and behavior is produced (Juvan & Dolnicar, 2014; Juvan & Dolnicar 2017). Over the years, behavioral researchers and practitioners have struggled to deliver a framework that recognises human behavior for what it is, rather than based on simplistic economic models. This changed fundamentally when Thaler and Sunstein (2008) coined the term 'nudge'. This led to a renewed interest in applying behavioral science to the design of policies that consider individual and social welfare (Lehner et al., 2016). Nudge explores decision architecture and was defined by its creators as "the tactic of skilfully modifying a behavior. It is then any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler & Sunstein, 2008:6). Hausman and Welsh (2010) add a 'constructive' condition to the definition of nudge, explaining that nudges are required because of errors in individual decision-making and their role is to exploit these very errors. According to Hansen (2014:158), nudge can be described as "any attempt at influencing people's judgement, choice or behavior in a predictable way (1) this is made possible because of cognitive boundaries, routines and habits in individual and social decision-making posing barriers for people to perform rationally in their own declared self-interests and which (2) working by making use of those boundaries, biases, routines, and habits as an integral part of such attempts". Thus, nudges "help individuals to make what, on reflection, they themselves would recognise as the better choice" (Infante et al., 2016:4). To consolidate existing definitions and his own, Hansen (2016) sets out some conditions under which a nudge must be a nudge; according to this, a nudge would be any aspect of the choice architecture that alters people's behavior in a foreseeable manner without:

1. Forbidding any option;
2. Significantly changing incentives, whether regarded in terms of time, trouble, social sanctions, economic and so forth;
3. Nudges are called for because of cognitive boundaries, biases, routines, and habits in individual and social decision-making;
4. Work by making use of those binderies, biases, routines, and habits as integral parts of the choice architecture.

In summary, the nudge construct works by providing contextual attributes (i.e. a change in decision architecture occurs) that take ascendancy due to the human propensity to act automatically (e.g. a heuristic), but diverge from a biased heurist in that they lead people to make (presumably) good decisions (Tagliabue et al., 2019), moreover, green nudges have the potential to promote the wellbeing of both current and future generations (Hage, 2019).

2.2. The Nudge Effectiveness

Since its appearance, scholars have praised 'nudge' as an encouraging tool for behavior change because it allows the possibility of influencing individuals' decisions through simple changes in what is known as choice architecture. Choice architecture consists of defining the physical, social, and psychological context in which decisions are made (Thaler et al., 2013). A meta-analysis study conducted by Mertens et al. (2022:8), incorporating the results of more than 440 nudge interventions, has shown that "choice architecture is an effective and widely applicable behavior change tool that facilitates personally and socially desirable choices across behavioral domains, geographical locations, and populations". Nudge interventions to promote healthier food choices have led to an average increase of 15.3%, according to a meta-analysis by Arno and Thomas (2016). However, the authors point out that perhaps only positive results have been published. Lycett et al. (2017) analysed 40 studies that tested the effectiveness of nudge strategies designed to transform positively children's dietary behavior in their homes and found that 83 % of these studies produced positive results.

Over the years, researchers have made many attempts to prove the effectiveness of nudge. One of these early attempts was made by Allcott (2011), who used a sample of more than 600 thousand households in the United States of America (U.S.A.) to show that households that regularly received mail comparing their energy consumption with the ones of their neighbor's reduced consumption by an average of 2%. However, a study conducted by Gaudel & Crosetto (2019) points out to the fact that the nudge effect can disappear

if the proper time and incentives are given to the decision-makers in order to review their assessment, that implies that the nudge effect may not survive cognitive deliberation. A study by Sürücü et al. (2019) has shown that the nudge effect disappears or is extremely affected when the decision maker is presented with two options and strongly prefers one of them while being indifferent between the two options. Despite that, it would be illogical to believe that the ones that decide always have strong preferences and engage in cogitations in any situation when having no incentive to do so (Congiu & Moscati, 2022) and is presented with more than one option to choose from. Bang et al. (2020), for their part, have shown that disclosing the fact that it is a nudge does not reduce effectiveness and that understanding the intended outcomes increases acceptability. These studies thus show practitioners what to avoid or what should be done to maintain the effectiveness and efficacy of applying nudging. Yet nudge is not infallible, and one of its best-known failures is in the fight against smoking around the world. “The strength of the images used in the advertising campaigns of various brands weakens public policy efforts” (Sunstein, 2017:20).

2.3. The Nudge Effectiveness in the Hospitality sector

A few studies have been conducted to measure the nudging effect in the hospitality sector. The first study to use nudge, as far as one knows, was conducted back in 2008 when nudging was still in its infancy, as Goldstein et al. (2008). In the study, they found that by indicating that most guests to participate in the towel reuse program, followed the message “join your fellow guests in helping to save the environment” was more effective than the message “help save the environment. You can show your respect for nature by reusing your towels during your stay”. The results show that 75% of the guests in the first sample complied with the program, but in reality, only 44.1% truly followed the program to the letter. In the second sample, 35% of the guests also adhere to the reuse of their towels. They believe that the difference has to do with social norms - those rules that govern behavior in groups.

Chang et al. (2016) conducted a study that confirmed the effectiveness of nudges in saving electricity. They proved that hotels could achieve guest-driven electricity efficiency with properly designed nudges. The results indicated that guests are more inclined to engage in electricity saving practices when they are informed in real time about how much others are consuming. A study by Kim et al. (2020) on the implementation of architectural choice modes showed, through several experiments, that tourists who had to choose between an environmentally friendly hotel and a hotel with regular services chose the environmentally friendly hotel due to a feeling of guilt resulting from the choices. This result confirms the experiment led by Goldstein et al. (2008); as Festinger (1954) stated, people usually evaluate themselves in comparison to others.

Kallbekken and Sælen (2013) demonstrated that it was possible to lessen the quantity of food leftovers in hotel restaurants by an average of 20% with two non-intrusive nudges. In this study, the researchers reduced plate size and provided social cues. Given the contribution of edibles waste to climate change, this study should have received much more attention from hotels, restaurants, and researchers. It is imperative to remember that “in European countries, 40% of food waste happens at the retail and consumer stages” (Barker et al., 2021:1). Finally, it is important to enhance the study conducted by Visser-Amundson (2020) on the broad multi-stakeholder partnership to tackle food waste in the hospitality sector in the Netherlands, in which 172 restaurants participated and whose use resulted in a 21% reduction in food waste. Nudging in the hospitality’s food sector is important as one third of all edibles produced for human consumption worldwide are never consumed (Murphy et al., 2019).

2.4. Green Consumption Values

There is a prevailing belief among researchers that environmental problems can be mitigated or even solved by correcting human behavior towards greater environmental sustainability (Han, 2021). Changing individual consumer behavior at the moments of approaching, buying, and consuming products in an environmentally friendly way is considered a fundamental requirement for environmental sustainability (White et al., 2019; Halder et al., 2020; Wang et al., 2020). This may be a consequence of the fact that environmentally friendly consumption has become increasingly important worldwide, especially since the 1980s, as environmentally friendly consumption can effectively contribute to the achievement of the global Sustainable Development Goals (Zhao et al., 2022). However, not much is known about how consumers’ cultural values and ethical ideologies lead to green consumption (Halder et al., 2020). Nevertheless, there is a well-grounded theoretical basis in the literature on pro-environmental consumer behavior in hospitality. Several of the mainstream theories include: “the theory of planned behavior” (Ajzen, 1991; Manaktola & Jauhari, 2007; Han et al., 2009; Han & Kim, 2010; Lee et al., 2010; Chen & Tung, 2014; Grimmer & Milles, 2017), “the descriptive theory of social norms and social comparison” (Goldstein et al., 2007), “the construct of the new ecological paradigm” (Mair & Bergin-Seers, 2010; Kang et al., 2012), “value-belief-norm theory” (Stern, 2000; De Groot & Steg, 2009; Choi et al, 2015; Han, 2015), “commitment to the environment” (Rahman & Reynolds, 2016), “social exchange theory” (Homans, 1961; Blau, 1964; Emerson, 1976; Jiang & Kim, 2015) and “consumer demand theory” (Millar & Baloglu, 2011; Rahman et al, 2013).

Psychological research has uncovered an apparent attitude-behavior gap (also referred to in literature as the value-action gap) when examining the relationship between environmental attitudes and behavior. While most people may support pro-environmental beliefs, few are willing to choose 'green products' over price, utility, convenience and simplicity (Young et al., 2010; Sachdeva et al., 2015). Research also shows that values are an important antecedent of a multitude of pro-environmental behaviors (Steg et al., 2015). The literature also shows that the most relevant factors explaining people's pro-environmental behavior are "biospheric values" (concern for nature and environmental protection), "altruistic values" (concern for the well-being of others), "egoistic values" (safeguarding and promoting personal interests) and "hedonic values" (seeking pleasure with as little effort as possible) (De Groot & Steg, 2009; Steg et al., 2014; Bouman & Steg, 2020; Wang et al., 2021).

One can propose a broad taxonomy of values, however, studies conducted across countries and among different people and cultures allowed to establish the existence of two broad facets of core values (Rahman & Reynolds, 2019) - self-transcendence versus self-enhancement (Schwartz & Bardi, 2001; De Groot & Steg, 2008). The self-transcendence versus self-enhancement dimension characterizes itself by universalism and benevolence as opposed to power and achievement values (Schwartz, 2005). Pro-environmental beliefs, attitudes, identities and behaviors according to the self-transcendence (i.e. altruistic or biospheric) and self-enhancement (i.e., egoistic or hedonistic) dimension, according to several studies (Stern et al., 1998; Nordlund & Garvill, 2002; De Groot & Steg, 2009; Boer & Fisher, 2013; Nilsson et al. 2016). Values of self-transcendence lead individuals to care about the wants of others and the environment (Schwartz, 2012) and are considered positively related with pro-environmental attitudes and beliefs (Stern et al. 1998; Boer & Fisher, 2013; Steg et al., 2014). Self-enhancement values lead individuals to focus on themselves, on their own interests (Schwartz, 2012) and are generally negatively related to pro-environmental beliefs and attitudes (Stern et al., 1998; Steg et al., 2014). Conversely, environmental self-identity (i.e. the degree to which individuals see themselves as environmentally friendly) and also group factors might play a crucial role in predicting pro-environmental behavior (Hornsey et al., 2006; Bouman & Steg, 2020).

In summary, hospitality managers need to comprehend the dynamics of consumer behavior if they are to implement an effective and efficient environmental program that is not only beneficial to the environment but also to the bottom line (Rahan & Reynolds, 2015).

2.5. Green Marketing in Hospitality

Research on green marketing and the purchase of green products began in the 1970s. But it was not until the 1980s and early 1990s that significant progress was made in this particular thematic, including the appearance of eco-labeling (Horne, 2009; Smith & Bower, 2012; Braimah, 2015).

Probably the first definition of green marketing was given by Mintu and Lozada (1993). According to them, it is the use of marketing tools to promote exchanges that are able to satisfy organizational and individual goals in such a manner that makes the preservation, protection and conservation of the physical environment sustainable. Green marketing is thus clearly based on Elkington's (1994) Triple Bottom Line.

Green marketing strategies can largely be applied to hospitality in order to achieve the three major effects of green marketing on businesses identified by Polonsky (1994):

1 – Cutting back costs – Adapting production processes to become greener often results in the more effective use of resources and, through this, to changes in cost patterns;

2 – Differentiation relative to rivals – When supplying new products on new markets and/or creating value for existing products, a business can gain access to new market(s) segments, enhance customer loyalty, and increase profitability – in other words, improve its relative position in the market in comparison with rivals;

3 – Revitalisation of a business – A business can use greener processes as an opportunity to revitalise its product(s), as well as its overall corporate strategy, culture, mission, vision, image, etc. by applying the guidelines of green marketing.

Most studies that seek to understand the impact of green marketing on consumers' environmental behavior date back to the last fifteen years, such as that of Kim and Han (2010), who concluded that customers accept to a slight extent a service with lower quality of a green hotel if the green initiative does not lead to a rise in the room cost. Haanes et al. (2011), for example, found that companies pursuing green marketing strategies can achieve economic benefits in the areas of operations and innovation (e.g. process improvements, operational savings and enhanced technological development), but do not achieve monetary benefits through higher customer prices or market share. Ko et al. (2013) demonstrated that green practices directly prop up a retailer's brand image but only indirectly influence customer loyalty, or the study by Patwary et al. (2022), which showed that the use of green marketing instruments (e.g., eco-label, eco-brand and environmental advertising) in the Malaysian hospitality industry improves green attitudes and behavioral intention to purchase green products.

2.6. Aiming Towards Green Capability in the Hospitality Sector Using Nudge

All that has been said points to the benefits that nudge can have in changing behavior. As far as the hospitality sector is concerned, the development of environmentally friendly tourism behavior through nudge has already begun. However, there is a clear lack

of conceptual work in the literature dealing with the hospitality sector and with the application of nudge. Our study aims to help fill this gap. Furthermore, studies like the one of Khan et al. (2022) have shown that green capability can play a pivotal role in the adoption of green purchasing practices. Coates and McDermott (2002:436) defined capabilities as "a bundle of aptitudes, skills and technologies that a firm performs better that's its competitors, that it is difficult to imitate and provides an advantage in the marketplace". Lee and Klassen (2008) defined green capabilities as the assets, technologies, and expertise that firms can exploit to respond in a timely and decisive manner to the diverse environmental needs of customers and other stakeholders. Four green capabilities can be identified in literature:

1) Green supplier development, that refers to the ability of the firm to identify and collaborate with their suppliers to achieve greater green outcomes (Blome et al., 2014);
2) Green marketing, that refers to the ability of the firm to effectively market its green products and processes to its customers and stakeholders (Shang et al., 2010);
3) Green manufacturing and packaging, that refers to the ability of firms to alter their manufacturing and packaging processes in way to reflect green concerns (Shang et al., 2010);
4) Environmental participation, that refers to the ability of the firm to bring together its internal stakeholders (staff and departments) to work together in the implementation of green initiatives (Bae., 2017).

Our framework (Figure 1) has had in account these four dimensions previously presented and in the work of Whitmarsh et al. (2011) and Hall (2013), more specifically the latter author's framework. Although Whitmarsh's and Hall's frameworks include the dimensions of carbon capability, it seemed right to us to make some adjustments and transform their frameworks on carbon capability into one on the dimensions of green capability in the hospitality sector. Several constructs were added due to the specifics of the context of our own research.
In this framework on tourist's green behavior change through nudge, three dimensions were identified:

1) Decision-making (e.g., knowledge, skills, judgement);
2) Individual behavior and practices (e.g., energy conservation, water savings, avoiding food waste, etc.);
3) Organisational engagement with greener governance (e.g., institutional change, implementing green processes; eco-labeling, nudge, etc.).

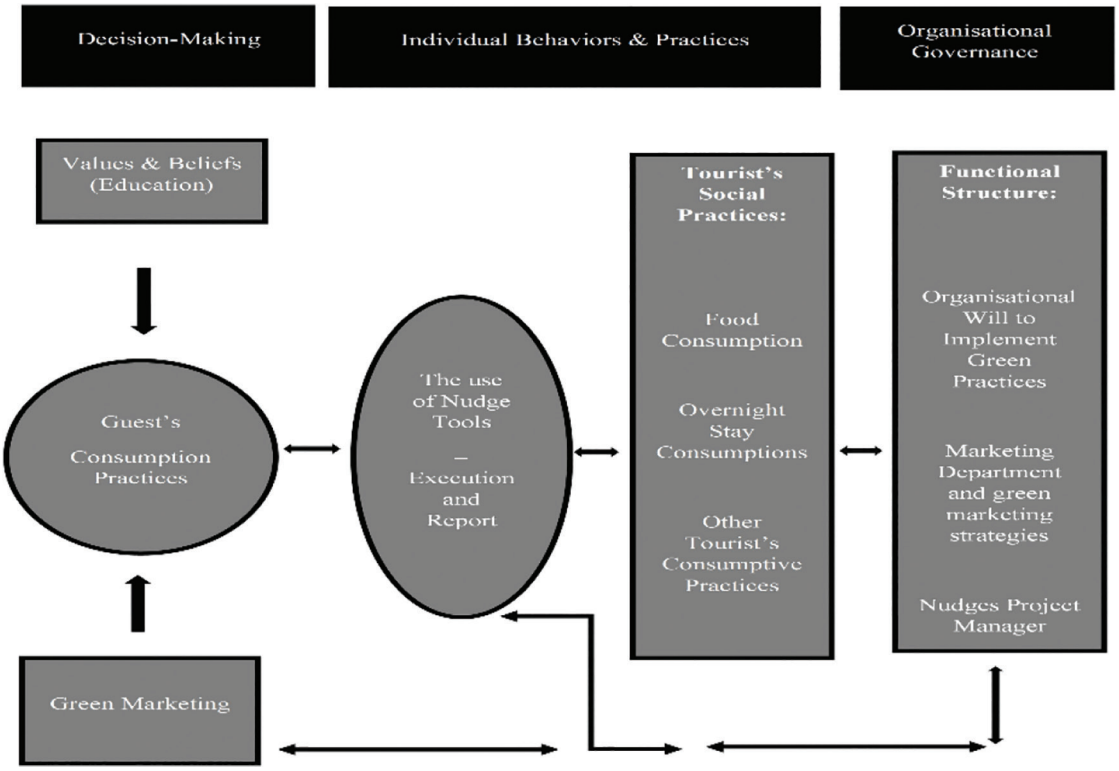


Figure 1. Dimensions of Green Capability in the Hospitality Sector.
Source: Designed by the authors based on the carbon capability models of Whitmarsh et al. (2011) and Hall (2013).

Bearing in mind the work of Whitmarsh et al. (2011), it is possible to say that the idea of changing tourists' behavior through nudges aimed at implementing green consumption behavior requires a comprehension of the limits of individual action and where these meet larger social institutions and infrastructures. Furthermore, we argue that much of tourists' consumption behavior is based on hedonic values (seeking pleasure with less effort as possible (De Groot & Steg, 2009; Steg et al., 2014; Bouman & Steg, 2020; Wang et al., 2021) or habitual and routine actions that are not based on conscious decision-making (Hall, 2013). In line with the literature on social studies and structuration (Giddens, 1984), which organizational theory draws on to analyze change over time (Langley, 2009; Floyd et al., 2011), we see the cognitive decision-making of individuals (guests) in relation to consumption (micro-level) as resulting from institutionalized, formal and informal rules that shape lifestyle choices, and in a set of practices bounded by social systems and rules dictated by macro-level structures (Whitmarsh et al, 2011) - it is "the practice concept that links the micro and macro level likewise" (Whittington. 2015:146), ie, individual choices and practices such as those of hospitality consumption are highly shaped by social structures.

Contrary to Whitmarsh's et al. (2011) carbon capability framework, in our case the pressure is not exerted by the actors (guests) on dimension 3 (governance), but from dimension 3 on the other dimensions through nudge. Our dimension 3 - governance - is already engaged with greener practices, i.e., it is a sine qua non condition. It therefore aims to achieve behavioral change (dimension 2) through nudge in order to influence the cognitive and motivational processes of the guests (actors) (dimension 1).

The importance of nudge on green capability comes from the fact that reality shows us that in tourism the everyday pro-environmental behaviors (e.g. reduction of water and/or energy consumption, not littering, etc.) are not happening in tourism and hospitality activities (Gössling, 2002; Kim et al., 2020), especially due to egoistic values (safeguarding and promoting personal interests) and hedonistic values (seeking pleasure with the less effort as possible) (De Groot & Steg, 2009; Steg et al., 2014; Bouman & Steg, 2020; Wang et al., 2021). Nudge is consequently important to promote green capabilities by "skillfully modifying a behavior (...) in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler & Sunstein, 2008:6). It should work by bidirectionally linking dimensions 1 (decision-making, i.e., guest consumption practises) and 2 (individuals' behavior and practises, i.e. social practises of guests). This is important because individuals do not act as isolated individuals; consumption is a social practise (Hall, 2013). Nevertheless, according to Bovens (2009) and Alemanno (2012), the use of nudges must satisfy the following parameters:

1) Intervention must not restrict individual choice;
2) It must be in the interest of the individual(s) being nudge;
3) It involves a change on the architecture choice;
4) It implies the cognitive use of cognitive biases;
5) The intended action does not result from a totally autonomous choice.

It is crucial to note that this framework also envisages that the use of nudge will be considered after the implementation of green marketing strategies and will act as a complement in a much broader green policy. Furthermore, once nudge has been implemented, if the effectiveness is to be reached, that the results are communicated to the functional structure (dimension 3 - organisational governance) that needs to address green growth in order to adapt or even change the current messages as necessary without changing the overall policy goals (e.g., engagement with green growth).

3. Methodology

This study follows the idea that conceptual analysis sometimes consists in disintegrating concepts into their constituent parts in order to improve overall understanding. Therefore, conceptual research is a particular research strategy that is mainly in the subjectivist-interpretivist paradigm and provides opportunities for critical engagement (Shin et al., 2012). Researchers opt for conceptual research because the research problem cannot be addressed using only one theory or the concepts that integrate it. In the words of Gilson and Goldberg (2015:128), conceptual research should "bridge existing theories in interesting ways, link work across disciplines, provide multi-level insights, and broaden the scope of our thinking". As our previous analysis on conceptual research suggests, it can be said that the main characteristic of conceptual research is that it can make progress without requiring specific empirical data to support its knowledge assertions. A particular advantage of conceptual research is that it allows for multiple mental constructs (Shin et al., 2012).

Conceptual research was chosen, culminating in a conceptual framework, because in it a researcher can synthesize concepts or and perspectives drawn from multiple sources (Imenda, 2014). It was our intention with this paper to contribute to the existing theoretical corpus of research on green behavior and nudge in the context of the hospitality sector.

4. Results and Discussion

Despite growing knowledge and awareness regarding our impact on the environment, changing current behaviors,

and in particular the behavior of tourists, has had limited results (Gössling et al., 2009; Hall, 2013; Gössling & Buckley, 2016). Studies have consistently demonstrated a disparity between expressed values and practical actions (White et al., 2019). The literature review also indicates that the use of messages that encourage social comparison generally has a much greater impact in hospitality than messages that do not (Goldstein, 2008; Gächter et al., 2013; Visser-Amundson, 2020). Thus, although appeals to individual responsibility and moral obligation produce some results, social comparison seems to result in a greater level of effectiveness.

The framework presented here emphasizes the role played by nudge, but also by green marketing. The implementation of green marketing strategies should anticipate the use of nudging - nudge should come as a complement, not as a panacea. It is then our believe that this framework here presented clear answers to our research question, i.e. how can we promote 'greener' consumer behavior in the hospitality industry through nudging. Based on the literature, especially Whitmarsh (2011), we can assume that our green capabilities framework provides a critical understanding:

- The role that guests and social practices play in producing water, food and energy waste, littering and carbon emissions;
- The benefits of engaging in a green lifestyle;
- What is possible through guest actions;
- Which activities require organisational action and change;
- Nudge management;
- Green marketing management;
- Limits and opportunities for green(er) consumption.
- The role that the social environment plays in guest consumption.

This research is thus a sound contribution to the scarce literature on nudging pro-social behavior in the hospitality sector (Nisa et al., 2017; Filimonau, 2018), although claims have been made in this direction (Hugh & Lee, 2016). In particular, this study contributes to the literature on nudging by showing how hospitality organisations can implement strategies into practise to achieve greater green effectiveness. Furthermore, it contributes to the literature with a novel framework that will certainly help to strengthen the debate on what is needed to implement nudge strategies with greater effectiveness. Our study is also important because as Khan et al. (2022) indicated, green capabilities play a key role in the adoption of green purchasing practices and that they have a positive effect on economic and environmental performance, and insignificant impact on social performance.

Furthermore, this study provides a set of guidelines that can help practitioners and researchers understand the structure and concept of green capability and how this can positively impact the organisations in the hospitality sector. Nevertheless, we argue that raising the level of Green Capability in the hospitality sector through nudge, while important, is not sufficient to significantly influence guest (tourists) behavior, at least not as much as it should, even though the financial and environmental impacts are significant, as studies have shown. However, it is not the panacea for all environmental problems in the hospitality industry.

5. Conclusions

In Western countries, green consumerism is understood as a means of engaging in pro-environmental-sustainable behavior. There are also operational definitions that enumerate different behaviors that can be considered as promoting positive environmental effects (Thøgersen & Noblet, 2012). The present study focuses on an illiberal model to shed light on two issues: nudge and green marketing. In doing so, this conceptual framework for changing tourists' green behavior through nudge aims to relate three dimensions. As a conceptual contribution, this study suggests that in the hospitality sector, it seems possible to integrate nudge theory with shared value co-creation in tourism services (Font et al., 2021), were shared value co-creation results in the genesis of satisfaction, commitment, and loyalty (Prahalad & Ramaswamy, 2004; Sweeney et al., 2015). Furthermore, the literature shows positive empirical results of nudge interventions in tourism (Souza-Neto et al., 2022).

Another endowment of this study lies in understanding the concept of nudges and the so-called 'choice architecture', which has been explored in the scope of behavioral economics, as a concept whose implementation leads to straightforward green behaviors and practices in the hospitality sector. The focus of nudging is on redesigning the 'choice architecture' to encourage beneficial decision-making by consumers (Hall, 2013). It is well known that there is a high predisposition and positive attitude towards purchasing products that are considered environmentally friendly, even though the 'value-action gap', were people often do not act in accordance with what they know or care about (Whitmarsh et al., 2011), shows the disparity between public awareness of sustainability and limited resources and behavioral responses.

As the literature supports, nudges respect individual freedom, as they can be elaborated both by governments (under libertarian paternalism) and by private entities and can be beneficial to both as well as to society. In the hospitality sector, the use of nudge strategies and green marketing tools seems

to contribute to the sustainable development of the sector by promoting cost savings, differentiation, business revitalisation (Polonsky, 1994) and improved brand image (Ko et al., 2013), leading to improved green attitudes and behavioral intention to purchase green products (Patwary et al., 2022).

In the future, there is a chance to reshape and promote new behaviors for a new trajectory for sustainable tourism and travel (Moyle et al., 2021). Businesses that understand how to adequately explore this "new" concept, nudge, will be able to gain a competitive advantage and improve the profitability of hospitality services.

Considering that nudging and green marketing are closely linked to what is often referred to as 'new governance' (Hall, 2013), further research can explore this interconnection and deepen it. The potential of green marketing to influence green and in result sustainable behaviors needs to be further studied, including with regard to tourism and the hospitality sector.

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DOI: 10.34620/978-83-67405-28-7-028 • 2024 • 266-276

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Proceedings of the International Tourism Congress 23

Digital math trail development as Project-Based Learning in Tourism

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Abstract

This paper aims to present a Project-Based Learning (PBL) experience, that was developed in the city of London and consisted of creating five digital mathematical trails in English.
The project was developed by a group of 25 higher education students in the field of Tourism and Event Management, who designed a tourist trail where mathematical manifestations emerged among the cultural heritage of the city of London. The project was divided into four stages and allowed students to combine the learning of curriculum contents with a real-life context. By observing the world around them, students could make an authentic connection between mathematics - exterior elements with decorative art-, digital technologies and the English language.
At the end of the project, a questionnaire survey was applied to students, in order to analyse students' perceptions of the PBL experience, their motivation, satisfaction and the skills developed by participating in the interdisciplinary project.
This paper describes the results obtained from the questionnaire and presents the different phases of the project in detail, as well as the mathematical trails that resulted from the project.

Keywords

digital math trail • interdisciplinary learning • language learning • project-based learning • tourism

1. Introduction

In a promptly evolving educational environment, conventional teaching methods are progressively being complemented by dynamic methods and strategies that encourage student-centred learning approaches.

Project-based learning (PBL) is part of a wider group of instructional methodologies that align with this perspective of active approaches, striving to engage students in the dynamic construction of knowledge, by facilitating meaningful projects, where students create tangible outcomes that are applicable in real-life scenarios.

Within this context, higher education students in the field of Tourism and Event Management were proposed the development of digital mathematical trails in English. By using a freely accessible mobile application (app), itineraries were developed to identify and record various mathematical manifestations. Their description was provided in English, making the itinerary accessible to both tourists and students.

This project allowed interdisciplinary teams to be integrated, with the aim of promoting the learning of different curriculum subjects through a real-life contextual approach. While at first glance it may seem that Mathematics has no connection to Tourism, a closer look reveals the multiple manifestations of Mathematics in Cultural Heritage. Discovering Mathematics present in everyday objects, art, or nature (for example, explaining symmetry groups found in Portuguese pavement, tiles, stained glass, or balcony railings) or observing mathematical objects and instruments are just some of the ways to engage in Mathematical Tourism.

Combining this mathematical perspective with the heritage of a different linguistic and cultural context is a way to enhance student learning, particularly in the field of Tourism. Thus, it is possible to develop foreign language skills in a natural and authentic context, making the learning process relevant and purposeful, while allowing students to broaden their

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cultural horizons. In particular, the project aims to improve students' development of written and oral comprehension and production (foreign language skills), their recognition and use of geometric figures and patterns (mathematical skills) and their ability to communicate through digital technologies (digital skills).

The result of this project is available through the Wikiloc app, accessible to any tourist who wishes to further explore Mathematical Tourism.

2. Literature review

2.1. Use of smart technologies in Tourism

In recent years, Information and Communication Technologies (ICTs) have become increasingly integrated into various sectors, with Tourism serving as a prime example. This integration has led to a transformative shift in the traditional tourism industry, leading to a new era known as smart tourism, powered by smart technologies.

Smart technologies have found their way into the fabric of the tourism experience, with the primary aim of enhancing tourists' comfort and enjoyment. Smart tourism is defined by Li, Hu, Huang, and Duan (2017) as "the ubiquitous tour information service received by tourists during a touring process" (p. 5). It's important to note that smart tourism goes beyond mere ICT applications; it represents a comprehensive system that fosters interactions among Destination Management Organizations, tourists and other stakeholders, ultimately generating greater value for tourists (Yoo et al., 2017).

The adoption of smart devices, including smartphones, tablet PCs, smartwatches, smart glasses, and others, has brought substantial economic and social benefits to the tourism industry. These devices offer advantages such as easy access to information, cost reduction, enhanced security, and the ability to create customised itineraries based on users' interests and objectives (Wang, Xiang & Fesenmaier, 2016). Thus, the use of smart devices has become indispensable in tourism, offering tourists convenience and efficiency. Among the standout features of these devices, portability and practicability play a pivotal role in enhancing the overall tourist experience (Kirova & Thanh, 2019).

The synergy of smartphones, mobile networks, the Internet of Things (IoT), and Near Field Communication (NFC) technologies has led into a paradigm shift within the tourism industry. As highlighted by Wang, Li, Zhen & Zhang (2016), tourists have six compelling reasons for using their smartphones during their trips: communication, social engagement, research and information gathering, entertainment, and ease of use.

Furthermore, the applications and performance of smartphones and smart devices in tourism are remarkably diverse, according to Razeeth et al. (2019). These devices enable real-time sharing of experiences with family, information retrieval and analysis, purchasing of travel services, booking hotels, providing NFC services, conducting information searches, offering entertainment options, and facilitating social interactions.

One of the primary advantages of using smartphones is how they have transformed the way people travel, enabling communication with fellow travellers and the sharing of experiences. Consequently, a multitude of apps, websites, and social networks have emerged, enabling tourists to leave their digital footprint. This digital footprint, categorised by Girardin et al. (2008) as active or passive, records tourists' movements and behaviours. Active footprints are the result of user actions on the web, such as writing comments, uploading photos and videos, among others, while passive footprints result from the interaction with a website, such as researching products or services.

Capitalising on tourists' tendency to share their experiences, numerous apps and websites have been developed for this purpose. Platforms like Wikiloc allow users to create customised tourist itineraries, recording trails, photographing points of interest, and describing waypoints, tracks, and routes. These itineraries are then made accessible to other users who can follow them.

Initially embraced by outdoor sports enthusiasts (Scalabrini et al., 2023), the Wikiloc app rapidly gained popularity among tourists, becoming a valuable tool for creating digital tourist itineraries. Today, this concept extends beyond tourism and is adopted by various sectors, including education, where teachers leverage it to design educational trails that immerse students in an adventurous and exploratory learning experience.

In the following section, we explore the innovative concept of math trails, which, like digital tourist itineraries, harness the power of technology to offer immersive learning experiences in both educational and tourism contexts, bridging the gap between exploration, adventure, and education.

2.2. Math trails and use in education and tourism

A mathematical trail consists of a "sequence of stops along a pre-planned route, in which students study mathematics in the surrounding environment" (Cross, 1997, 38). According to Barbosa et al. (2016), through the completion of a trail, students use and apply, in a real-life context, the mathematics they have learned in the classroom, allowing them to activate informal knowledge from their daily life. On the other hand, the mathematical trail may also serve as a starting point for exploring certain concepts after returning to the classroom. Furthermore, according to the same authors, the completion of a mathematical trail is a way of "providing students with real and meaningful learning experiences, helping them

appreciate the importance of mathematics as an integral part of their daily lives" (p. 58).

Richardson (2004) mentions that among the main advantages of the mathematical trail is the fact that it takes place outside the classroom, which allows students to explore the outside world, in an attitude of discovery and expectation.

The fact that mobile devices are part of our daily lives today, and consequently of students' lives from an early age, makes it imperative that teachers integrate their use into the school curriculum, making them a tool used to reinforce and improve learning. In fact, mobile devices have great potential if seen as an ally, which allows access to different information from anywhere (Sung, Chang & Liu, 2016). This functionality is actually guaranteed by features of these devices, such as portability or wireless (Cahyono & Ludwig, 2019).

According to Fessakis et al. (2018), digital technologies allow a better understanding of mathematics, acting as a "mind tool that facilitates inquiry, decision making, reflection, reasoning, problem-solving and collaboration" (p. 51).

The construction of mathematical trails as a pedagogical strategy allows a more dynamic and motivating perspective on mathematics and its learning, highlighting fun, innovation, and motivation for the study of mathematics (Costa, 2022).

The creation of digital mathematical trails allows students not only to improve their skills in the field but also to create itineraries that can be followed by tourists. This dual aspect excites students because it enables them to apply their mathematical knowledge in a real context, creating tourist experiences through technology.

The increasing number of smart devices and, consequently, their applications, allows tourists and users in general, to have access and visit more places that may generate pleasant experiences and that attract tourists to visit them (Costantino et al., 2022). Therefore, it is important to invest in diversified, attractive and enriching content, which motivates tourists to want to explore this content in real life, as happens with trails.

2.3. Project-based Learning and Interdisciplinary Learning

The experience described in the current paper is an example on how traditional didactic approaches are increasingly complemented by active methodologies that promote student-centred learning experiences in an authentic context.

In fact, when faced with the challenge of keeping up with the transformations of a highly complex and diverse society, higher education teachers are encouraged to rethink their traditional pedagogical practices, renewing them through active pedagogical methodologies, which meet the interests of current students and prepare them for their professional future.

Project-based learning (PBL) refers to a pedagogical methodology that fits into a broader group of active methodologies and aims to involve students in the active construction of knowledge, enabling them to engage in meaningful projects, where they may develop real-world products (Krajcik & Shin, 2014; Condliffe et al., 2017). Krajcik and Shin (2014) identified the following six characteristics of PBL: (i) a driving question; (ii) learning goals; (iii) scientific practices; (iv) collaboration; (v) using technological tools; and (vi) creating an artefact.

It is the conjunction of these characteristics that allows PBL to be described as a collaborative inquiry-based teaching method where students integrate, apply and build their knowledge as they work together to create solutions to complex problems (Markula & Aksela, 2022). According to Thomas (2000), these complex problems should also be as authentic and connected to the real world as possible: "Projects are realistic, not school-like. Projects embody characteristics that give them a feeling of authenticity to students" (p. 4). This is particularly relevant when the artefacts created by students do in fact have a real audience, which can motivate students and also provide opportunities for them to receive authentic feedback from real users.

Several studies have been conducted that analyse the effect of using a Project-based methodology in different variables, such as student motivation, student satisfaction and students' perceptions on the methodology when connected to their learning process. These studies demonstrate the benefits of project-based learning in terms of enhancing student satisfaction, motivation, and learning outcomes across various disciplines.

Walsh (2010) analysed the influence of a Project-based learning project in students and concluded that not only were students more motivated to learn, but they also improved their collaboration skills to solve problems and teachers identified an increase in student engagement.

An extensive literature review on PBL was concluded by Condliffe et al. (2017), who concluded that there are positive effects of PBL approaches on student engagement, motivation and perceptions on efficacy in many schools, despite the different way PBL was used in each context.

Shin (2018) also concluded that PBL has a positive effect on student motivation and their ability to collaborate, as well as in students' perceptions of PBL, which were very positive.

In a Portuguese context, Alves et al. (2019) analysed students' perceptions in higher education and concluded that students perceived a high level of satisfaction with PBL, which also led to an increase in their satisfaction with learning, more autonomy and very positive perceptions, as "over 90% of the students consider that the PBL methodology enables the development of skills connected with critical and open mind thinking, collaborative work, listening to others, creativity, mutual help, problem solving ability and self organization."

The different studies reinforce PBL's emphasis on active learning, real-world application, collaboration and

problem-solving skills, which aligns with students' needs for meaningful and engaging educational experiences that will also, in the future, impact their professional development.

If the extra dimension of interdisciplinarity is added to a Project-based learning approach, in what Biasutti and Deghaidy (2014) refer to as IPBL – interdisciplinary project-based learning, then students are encouraged to integrate ideas and connect topics and perspectives from different disciplines into one single project. According to the authors, use by touristsstudents are offered a way of analysing the same issue from different perspectives with the aim of developing a broader dimension of understanding the problems. This represents an opportunity for students to engage and effectively collaborate, by applying a meta-disciplinary dimension of understanding.

3. Description of the activity

The digital mathematical trails aim to inspire in students the discovery of symmetries and geometric figures in urban heritage. Completing outdoor mathematical trails outside of school encourages students to apply mathematical knowledge and establish connections between mathematics and other areas of knowledge, such as architecture, landscape, or the history of the location where the trail takes place (Barbosa, 2016).

The digital mathematical trails were carried out in London at two distinctive sites of the city (St James's and Piccadilly) (Figure 1 and 2). Divided into groups, students created five digital mathematical trails, with waypoints located at sites that showcase different symmetries and geometric figures in urban heritage. Each waypoint on the map corresponds to a representation of geometric interest.



Figure 1. Map of a digital mathematical trail in St. James.



Figure 2. Map of a digital mathematical trail in Piccadilly.

The project followed a plan that involved four different phases:

Phase 1: Before travelling to London, the project was explained to students, as well as the functioning of the Wikiloc app.

Phase 2: In London, students were divided into groups and conducted a first exploration of the St James and Piccadily areas, where they observed and took note of decorations, monuments, building façades (tiles), balcony railings, among other features. During this phase, students explored, analysed and interpreted different aspects in various contexts, in order to support and enhance meaningful mathematical learning of concepts such as symmetry, rosettes, friezes, and wallpaper patterns. The purpose was for students to acknowledge the existence and significance of mathematics in their surrounding environment.

Phase 3: Students then proceeded by recording the trail with the Wikiloc application, photographing the places where they found geometric representations. In these waypoints, students identified the place of interest, in the app, and added a brief description of the designated figure. They identified reflection and rotation symmetries and distinguished rosettes, friezes, etc. (Figure 3).

Phase 4: Upon their return to Portugal, students edited the trail, by making a more detailed description of the geometric details previously signalled. This description was made in English, to allow a greater number of tourists to use the mathematical digital trails and also for students to use their writing skills in the English language.

As aforementioned, the trails were designed using the Wikiloc application and can be explored through the links: https://shre.ink/HYyb; https://shre.ink/HOU3; https://shre.ink/HOr6; https://shre.ink/HOrn; https://shre.ink/HOr1.

All the aforementioned six features that represent PBL were present and actually gave motto to the project, as students



Figure 3. Examples of geometry in urban heritage.

were initially asked the question on how mathematics is all around us and how they could connect that with technological and linguistic skills. Then, they used scientific methods in order to solve and study this driving question, by allowing students to learn new topics and skills central to the curriculum while answering the question. Collaboration was also an essential part of the project, as students carried out all the different phases of the project by working with their peers. Finally, students answered the driving question by creating an artefact, by means of technological tools, which allowed them to support their learning and portray their level of understanding of the topic.

4. Methodology

The present study took place during the school year 2022/2023 in a Portuguese public Higher Education institution in the centre of Portugal. The first phase of the project, when students had the first contact with the idea and with the app, occurred during the first semester. The subsequent phases of the project happened during the second semester and during the month of March 2023 a group of 25 Portuguese students and 3 teachers travelled to London.

In a universe of 25 (=*n*) students travelling to London, 20 students responded to the survey, with a response rate of 80%. Most respondents are female (90%) and aged up to 20 years (60%). Students attend the degree in Tourism and Hotel Management (40%), the degree in Event Management (30%) and the degree in Tourism (30%) (Table 1).

At the end of the project, a questionnaire survey was applied to students, in order to analyse students' perceptions of the PBL experience, their motivation, satisfaction and the skills developed by participating in the interdisciplinary project. The questionnaire was conducted on Google Forms and it consisted of 9 closed-ended questions, with a five-point Likert scale, and 3 open-ended questions. The questionnaire was based on similar studies, namely the instruments developed by Shin (2018) and Alves et al. (2019).

This next chapter describes and discusses the results obtained from the questionnaire, based on the research objectives and the variables included in the study.

5. Results and discussion

5.1. Satisfaction

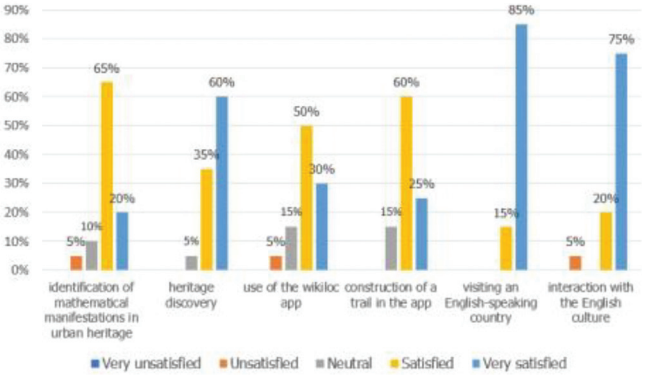
When asked about their degree of satisfaction, most students were satisfied (60%) and very satisfied (35%) with the activity in general (graph 1).

When questioned about the degree of satisfaction with different parts of the project, a high level of satisfaction was recorded in all components, although it was more expressive in the "visit to an English-speaking country" (85% were very satisfied and 15% were satisfied), "interaction with the English culture" (75% were very satisfied and 20% were satisfied) and heritage discovery (60% were very satisfied and 35% were satisfied). These data reveal that students first appreciated the tourism component of getting to know a new country.

Although with slightly lower percentages, the remaining parts of the project were also satisfactory for students: "construction

Table 1. Sample description.

Variables	Options	Absolute Frequency (n)	Relative Frequency (%)
Gender	Male	2	10%
	Female	18	90%
Age	Up to 20 years old	12	60%
	More than 20 years old	8	40%
Degree	Event Management	6	30%
	Tourism	6	30%
	Tourism and Hotel Management	8	40%



Graph 1. Level of satisfaction with the activity, in general.

of a trail in the app" (25% were very satisfied and 60% were satisfied); "identification of mathematical manifestations in urban heritage" (20% were very satisfied and 65% were satisfied) and "use of the Wikiloc app" (30% were very satisfied and 50% were satisfied) (graph 2).

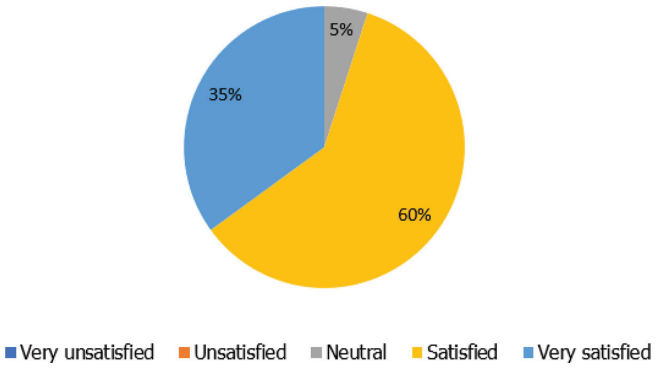
5.2. Skills

According to students, developing this project contributed to improving different skills. All respondents recognised that the project played a key role in improving their skills in mathematics, English language and digital skills Graph 3.

A more detailed analysis of the students' responses reveals that they consider that the greatest contribution of the project was in developing English language skills, such as: (i) "development of oral comprehension" (50% considered that it contributed a lot and 50% considered that it contributed); (ii) "development of written comprehension" (50% considered that it contributed and 35% considered that it contributed a lot); (iii) "development of written production" (35% considered that it contributed a lot and 50% considered that it contributed); and (iv) "development of oral production" (25% considered that it contributed a lot and 60% considered that it contributed).

Regarding the specific skills arising from the project related to mathematics, students declared that it: (i) contributed to a greater predisposition to look for and explore geometric patterns and an interest for investigating (30% referred that it contributed a lot and 45% referred that it contributed); (ii) improved the ability to recognise and analyse properties of geometric figures (20% said it contributed a lot and 55% said it contributed); and (iii) increased their sensitivity to appreciate geometry in the real world and the recognition and use of geometric ideas in different situations, namely in art and nature (10% referred that it contributed a lot and 65% say it contributed).

The students surveyed are known as generation Z, as they were mostly born after the year 2000. Thus, they are used to mobile phones and the internet being part of their daily lives.



Graph 2. Degree of satisfaction with each of the different parts of the project.

Despite this frequent use, students referred that the project helped them acquire skills regarding: (i) "communication through digital technologies" (35% considered that it contributed a lot and 50% that it contributed); (ii) "use of digital in different contexts and situations" (25% considered that it contributed a lot and 60% that it contributed); (iii) "digital image editing" (30% considered that it contributed a lot and 45% that it contributed); and (iv) "use of the Wikiloc app" (15% considered that it contributed a lot and 60% that it contributed). Students considered that, in general, the project contributed to: (i) the development of linguistic and cultural skills (35% considered that it contributed a lot and 60% that it contributed), (ii) the development of digital skills (10% considered that it contributed a lot and 60% that it contributed); and (iii) to the development of mathematical skills (5% considered that it contributed a lot and 55% that it contributed). It should be noted that 30% and 35% of surveyed students said, respectively, they were neutral regarding the development of both digital and mathematical skills.

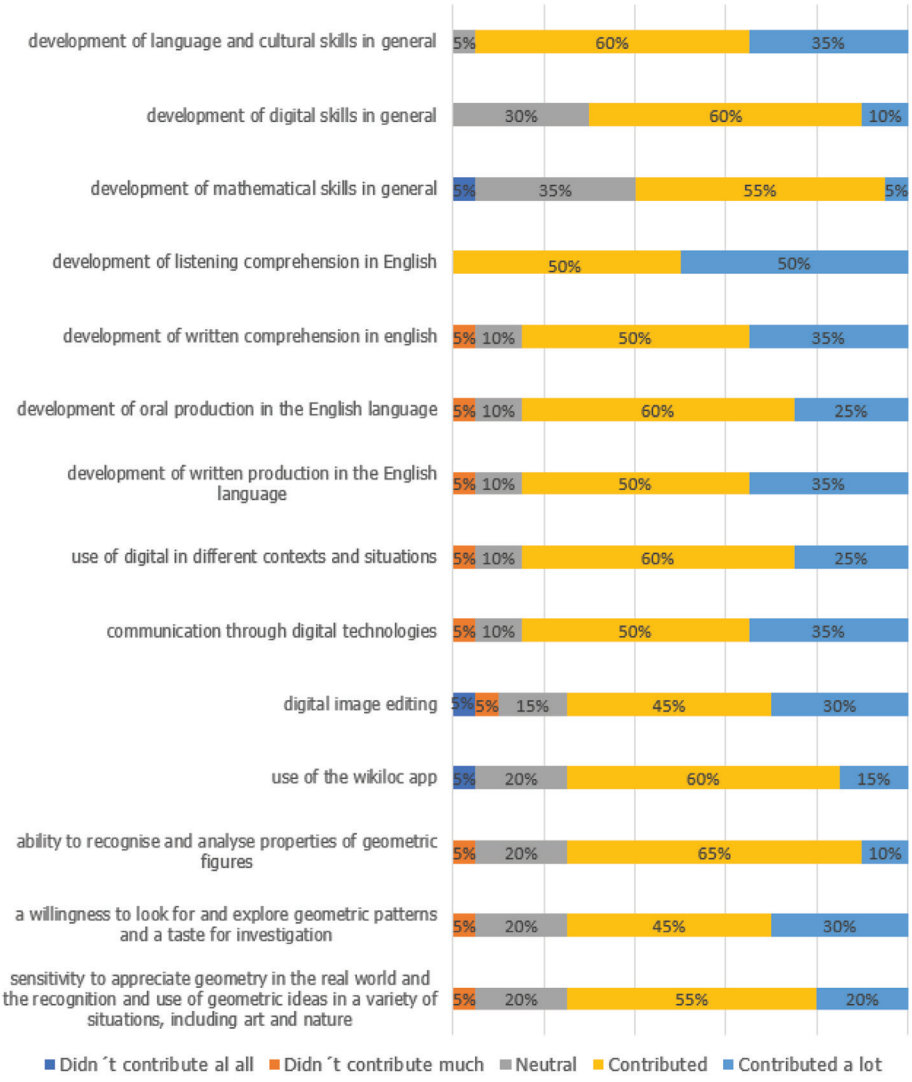
5.3. Motivation

Regarding motivation, students revealed that, after participating in the project, they were more motivated to visit other places of historic and cultural interest (85% were very motivated and 10% were motivated) and to participate in other similar projects (65% were very motivated and 25% were motivated), which demonstrates that developing the project had a positive impact on their motivation. Regarding the study of the curricular areas involved in the project, the greatest motivation was to continue studying English (40% were very motivated and 40% were motivated), which is explained by the need to know the language to communicate in the visited country, as well as other countries. The project also affected students' motivation to study digital technologies (15% were very motivated and 45% were motivated), although 20% of respondents only felt moderately motivated and 15% were not very motivated to study digital technologies.

The motivation to study mathematics has the most divergent type of response among students surveyed, because only 20% said that the project motivated them to study maths and 35% were moderately motivated to do so. Of the students surveyed, 30% referred to being little motivated and 15% were not at all motivated to study mathematics (Graph 4).

5.4. Project-Based Learning (PBL)

Questioned about the impact of this project on their learning, students mentioned that the fact that it took place in an authentic context, outside the classroom, contributed a lot (60%) to their learning. Students also highlighted the use of the project results by tourists (40% referred it contributed a lot and 55% mentioned it contributed), that is, students considered the fact that the project could



Graph 3. Contribution of the project to developing the following skills.

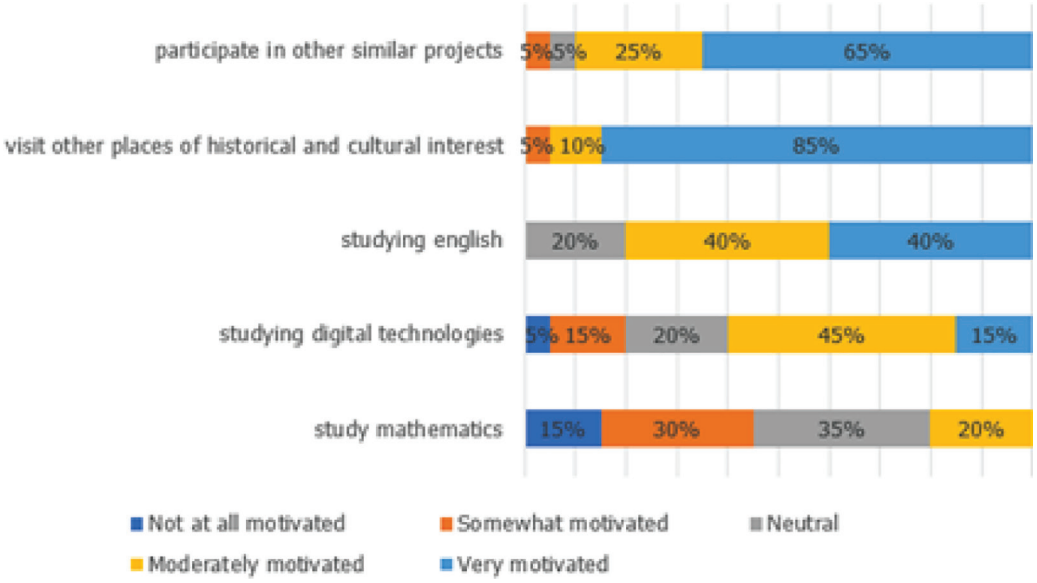
effectively be used by tourists to improve their engagement and consequently, their learning. Also, the use of a project-based learning methodology (40% considered it was very helpful and 50% that it was helpful), as well as collaborative work among students and collaboration between different curricular units, had a strong impact on their learning (see graph 5). This contribution of the project to learning is confirmed by the skills that the students reported having acquired with the project (see Graph 3).

5.5. Students' perceptions

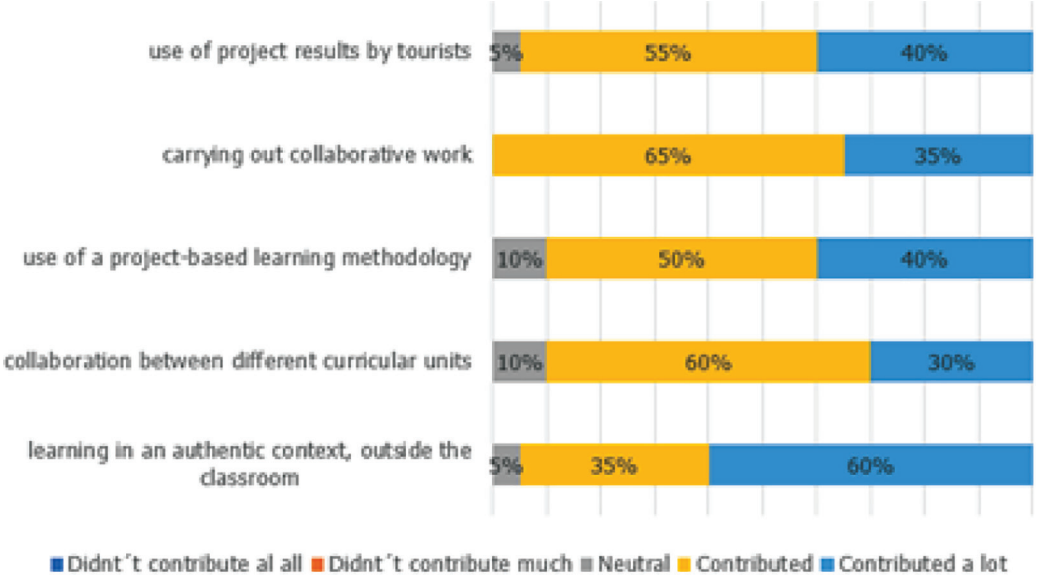
All students considered the activity was fun and that it was not difficult to implement. Despite this, only 20% considered that the activity helped them enjoy Mathematics, although 45% recognised that it contributed to a better understanding of the importance of learning Mathematics. However, 80% of students referred that the activity helped them understand how Mathematics is present in their lives.

In turn, 70% of respondents said that the project helped them appreciate the English language more and 75% said that it helped them better understand the importance of the English language. The same percentage of students said that the activity made them enjoy working with technologies more and it also helped them understand their importance.

Students who were involved in the project said they want to create more digital trails (75%) and that it has made learning more stimulating (85%) and awakened the desire to travel (90%) (see graph 6).

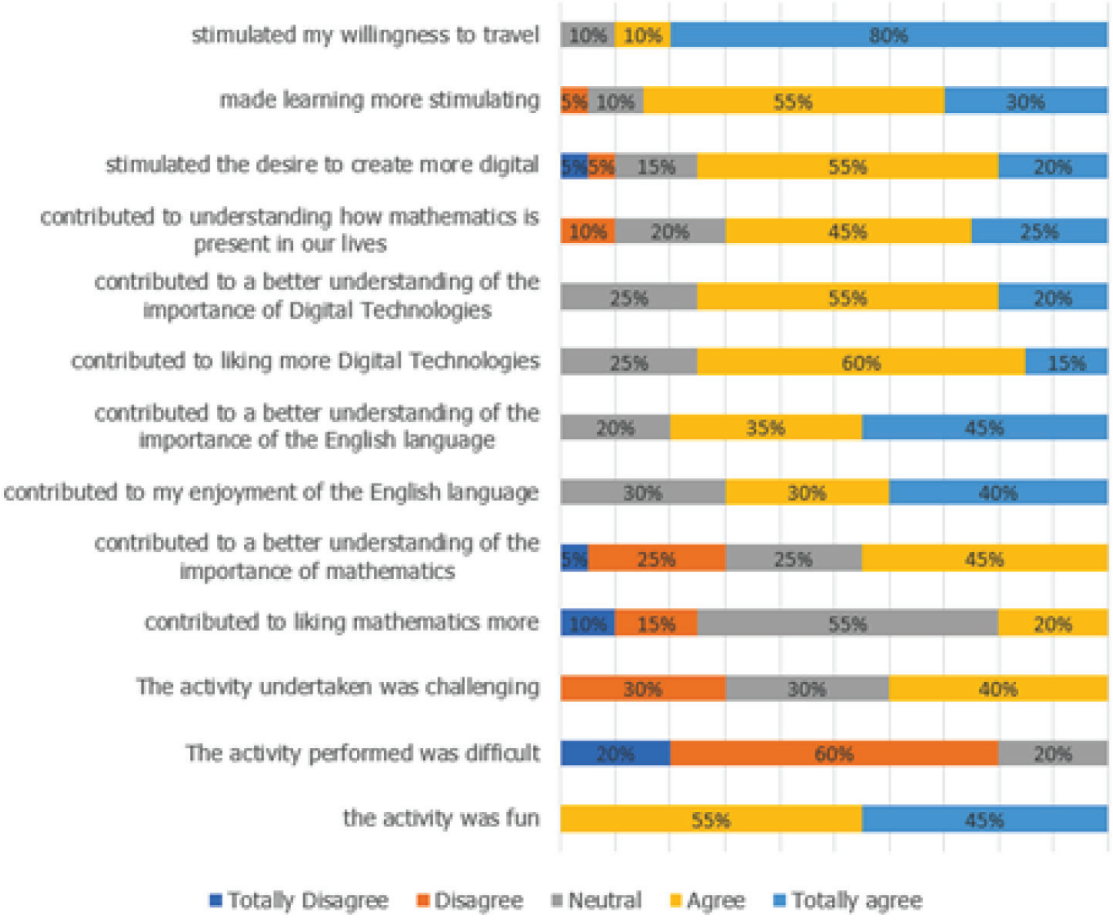


Graph 4. Degree of motivation, after participating in the project.



Graph 5. Contribution of the following aspects to learning.

The information that can be seen above allowed us to gain a comprehensive understanding of students' experiences and perceptions. Notably, students found the activity to be enjoyable, with many describing it as "fun." At the same time, some students acknowledged the challenge it presented, signifying that it was both "challenging" and "hard." Beyond the immediate enjoyment, the activity had a significant impact on students' perceptions of Mathematics and Digital Technologies. Many felt that it contributed positively to their engagement with Mathematics, emphasising how it "contributed to enjoying Mathematics" and "contributed to a better understanding of the importance of Mathematics." Similarly, the integration of Digital Technologies was well-received, as students noted that the activity "contributed to enjoy working with Digital Technologies more" and "contributed to a better understanding of the importance of Digital Technologies." Furthermore, the activity played a role in shaping students' appreciation for language and culture. A noteworthy number of participants expressed that it "contributed to appreciating the English language more" and "contributed to a better understanding of the importance of the English language."

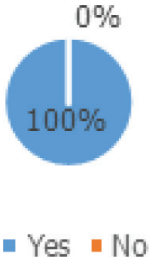


Graph 6. Degree of agreement/disagreement with the statements.

Moreover, the activity extended its impact beyond academics. It led students to recognise the ubiquity of Mathematics in their lives, with many noting that it "contributed to understanding how Mathematics is present in our lives." Additionally, it sparked enthusiasm for future endeavours, with students reporting that it "stimulated the desire to create more digital trails" and "made learning more stimulating."

Lastly, the activity had an influence on students' outlook on travel, as they found that it "stimulated my desire to travel." These multifaceted responses collectively paint a picture of an activity that not only engaged students academically but also enriched their perspectives on various subjects, from Mathematics and Digital Technologies to language, culture, and travel.

After the project was completed, all students said they would like to carry out more activities like this, attesting to the success of the project to build digital math trails in English. Learning outside the classroom, involving students in creating a project that can be applied to a real context, in which different tourists and other students can benefit from its use, seems to be motivating for the development of projects like this (see graph 7).



Graph 7. Would you like to do more activities like this?

6. Conclusions

The results of this study support the idea that interdisciplinary project-based learning demonstrates favourable effects on

students' motivation, satisfaction and also their learning, through the development of different skills. Additionally, student feedback gathered through the survey subsequent to the project reveals highly encouraging perceptions towards this particular pedagogical approach, which is in line with the aforementioned studies.

Students have also demonstrated their interest on mobilising knowledge from areas as distinct as Mathematics and Foreign languages, which they have come to recognise that are increasingly connected, especially in the field of Tourism. Thus, the objective of promoting student-centred learning through an experience in an authentic context has been achieved and students themselves recognised the importance of this learning experience.

Despite the positive results of this study, it is recommended that further research be conducted to explore the effects of project-based learning on student performance at a more extensive level and other study areas. Exploring the effects of project-based learning in additional study areas is essential to assess its versatility and impact across various subjects, as different disciplines may present unique challenges and opportunities for project-based learning, and understanding how this teaching method influences student performance in a variety of academic contexts is crucial.

Funding and acknowledgements

This work is financed by national funds through FCT - Foundation for Science and Technology, IP, within the scope of the reference project UIDB/04470/2020

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DOI: 10.34620/978-83-67405-28-7-029 • 2024 • 277-286

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Proceedings of the International Tourism Congress 23

Capacity development in tourism destinations: a review of stakeholders' collaboration strategies

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Abstract

This study aims to determine the effective stakeholders' collaboration strategies in managing capacity development (CD) issues or problems confronting tourism destinations. This research adopts a qualitative approach through content analysis, that exclusively reviewed concepts and strategies of stakeholders' collaboration from different case studies obtained from 17 CD papers under the 'networks and governance' domain. The domain was determined based from a previous literature review performed in 2018 consisting of 36 articles published in SCOPUS database between 2000 and 2018, that resulted to classification of three distinct categories, namely: networks & governance; community empowerment & development; and knowledge management. Findings reveal that stakeholders' collaboration strategies are a key element or success factor in effective management of CD in destinations. The research highlights the relevance of integrating collaborative techniques to CD by different tourism destination stakeholders regardless of organizations' form, size and classification. Strengthening the capacities of individuals and organizations is essential to stimulate development and well-being of tourism destinations.

Keywords

capacity development • content analysis • review • stakeholders' collaboration • tourism destinations

1. Introduction

Destinations are often affected with issues or problems that must be addressed to remain competitive and sustainable. Destinations must have the strong capacities to provide quality tourism products and services. CD is a vital element of sustainability and has become an important tourism issue that bridges human capital gaps and channels community development. An effective approach in managing CD programmes and initiatives is fundamental to destination management and in supporting the achievement of UN Sustainable development goals (SDGs).

Individuals and community capabilities are required since inadequate capacity affect development programmes and initiatives (Eicher, 2004). While destinations are heterogeneous in structure, they are considered complex, having a set of attributes that can be affected by changes, issues or situations (Sproule & Suhandi, 1998 cited in Zeppel, 2006). Some of these include weak institutions (Babu & Sengupta, 2005; Koutra & Edwards, 2012), lack of strategic institutional capacity policy (Swaminathan, 2003), socio-political constraints (Caffyn & Jobbins, 2009) and limited tourism understanding (World Bank, 2006). In addition, the lack of wealth and resources also creates pressures especially in marginalized and low-density areas. This impedes growth and development that requires long-term solutions. Destination management organizations (DMOs) must consider the complex structure of communities and manage destinations effectively. Although each destination is unique and has a set of conditions, several studies recommend applicable solutions to CD problems or issues that confront destinations and to transform them in becoming more sustainable.

This research explores the effective strategies towards CD based on content analysis, an extended review of articles under the '*network and governance*' domain of a previous literature review. Since most CD literature adopted qualitative approaches, specifically with the use of case studies, the research explores theories and concepts of stakeholders' collaboration which were discussed in 17 articles. It is

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therefore significant to determine these appropriate strategies in managing CD programmes.

2. Literature review

2.1. Capacity development in Tourism Destinations

Destinations are often confronted with several issues and problems. A destination always aims to enhance and sustain the economy, society and environment based on 'sustainable tourism' principle. This concept embeds on social inclusion, economic growth and environmental stewardship, the three pillars of sustainable development that must be achieved in the long-term (World Bank, 2015). Sustainable development must bring equitable distribution to communities.

> "Sustainable tourism takes full account the current and future economic, social and environmental impacts, that addresses the needs of visitors, the industry, environment and host communities" (UNWTO, 2019).

Accordingly, tourism is a vital tool for national growth and socio-economic development. It has a direct contribution in empowering communities, especially to marginalized destinations, hence, tourism's activities must be pro-poor, transformative and proactive. Destinations can be in different forms and scale where tourism plays a role for socio-economic development. A successful and competitive destination requires a strategic and holistic approach in offering a unique and memorable experience to visitors (Ritchie & Crouch, 2003). For tourism to progress, the industry should be prioritized as part of economic growth and diversification. However, there could be no long-term benefits if local people working in this sector are improperly trained or lack the necessary skills. Several studies suggest that CD is an essential element of a successful destination. CD programmes are key to effective implementation of managing destination resources (Babu & Sengupta, 2005). Communities, organizations and individuals gain results because CD provides outcomes and improvements at various levels (UNDP, 2009). Strengthening capacities of people, institutions and the local communities presents practical solutions. Moreover, building capacity is vital in understanding the fundamental characteristics of community capacity, where community may address problems or issues, spontaneously or through planned actions (Chaskin, 2001), and for them to take charge, solve problems and make decisions by themselves.

CD is recognized as an effective tool in strengthening the abilities of individuals, organizations and societies to achieve their objectives (UNDP, 2009) and solving destination problems (Abaza, et. al, 2002). Having better capacity means improved systems and rules (Abaza, Bankobeza, Bendahou & Al, 2002) and better governance and policy implementation (Kaufman et al., 2003), resulting to better tourism products and improved systems (Carson & Macbeth, 2005) specifically in developing countries. Moreover, CD is known as a catalyst for change and transformation at individual, organizational and societal levels. UN has also emphasized the implementation of effective capacity initiatives as a systematic way to enhance CD at the national level to achieve SDGs (UNDP, 2000; 2015). It induces multi-level change among individuals, groups and systems and considered transformative since it supports in developing new ideas or approaches that results to innovation and creativity.

Furthermore, a destination's success depends on destination managers' and stakeholders' capabilities and skills, hence, DMOs must create a suitable environment that forms leadership and coordination as part of human capital development. DMOs must ensure that competent people working in the industry promote positive image for the visitors and the host community (Herman & Zoonosis, 2015). Investments in people is critical in achieving organizational or destination competitiveness (Maria Lut & Vlad, 2012), which has long-term benefits to sustain growth. Institutions must have a clear framework where tourism is prioritized, and human capital serves a key element of sustainable tourism development.

2.2. Stakeholders' Collaboration Strategies

People are considered both as the 'mechanism' by which knowledge, skill or resource is transferred and at the same time, the 'recipient' of it. An individual or institution has the power to act differently resulting to relationships or being part of a network of connections (Giddens, 1984 cited in McLeod, Vaughan, & Edwards, 2010). Besides, institutional support is necessary and cannot be separated from stakeholder collaboration (Carlisle, Kunc, Jones & Tiffin, 2013). This is highly reflective in engaging destinations on a multi-sectoral basis – across public or private sector, political or administrative boundaries (Goeldner & Ritchie, 2009). The critical role of stakeholders is fundamental in achieving sustainable tourism, that enriches social life, reduces community's isolation and stimulates local production and businesses (Eusebio, Kastenholz & Breda, 2014). Sustainable tourism contributes positively to people, community and the environment where stakeholders' involvement is always necessary to maximize the benefits and minimize the costs.

An emphasis about *participatory approach* as a solution towards 'people-centred' development propels partnerships which are applicable at almost all levels (Blagescu & Young, 2006). On the other hand, *social learning* derives important lessons that emphasize the role of stakeholders' engagement and collaboration (Eade, 1997), where people with different

values, experiences and knowledge work together to achieve their goals (Cheng, et al, 2008).

Based on a study conducted about tourism stakeholders' *networking, collaboration and knowledge exchange* in south Australia, some problems that confront destinations are lack of regional engagement (due to intra-regional competition and resistance to regional boundaries), isolated local culture, reliance on public sector leadership, an aging group and external stakeholders. On the other hand, some problems that affect peripheral regions include limited physical infrastructure and tourist activities' offerings (Ashley, 2006; Moscardo, 2008; Page & Getz, 1997; Sharpley, 2009). Local tourism systems must engage their capacities to minimize or resolve problems to foster regional development (Carson, Carson & Hodge, 2014).

Collaboration is predominantly a common CD denominator for destinations that fosters innovation and creative learning (Martinez-Fernandez & Toner, 2003); promotes shared norms and mutually beneficial interactions (Thomson & Perry, 2006; Elliot, 2007) and integrates harmonized activities amongst actors (O' Flynn & Wanna, 2008). Collaboration builds relationships that bring stakeholders together. It can prevent antagonism, enhance policy harmonization and add value to the management system or institutional process. They serve as an instrument for institutions in having effective interventions and strategies for sustainable development (Malik, 2002).

Furthermore, another form of collaboration are networks. *Networks* are no doubt, becoming an empowering CD tool. Governments, institutions, enterprises and individuals share and collaborate ideas, knowledge, skills and information. These networks can flow in any direction, North-South, South-North, within and between countries and regions. Networks must be managed openly, participative and demand-driven to avoid constraints and create possibilities in empowering people (Fukuda-Parr, Lopes & Malik, 2002). In recent years, network concepts have been used in a diverse range of tourism topics. Examples of the knowledge-based approach to cooperation for building and sustaining capacities are the North-South partnerships and relationships within systems or networks (Oxfam, 2012). In the context of social and economic development, networks are usually distinguished by knowledge exchange, information and expertise (McFarlane, 2006; Stone, 2002) and help multiply learning opportunities (Borgatti & Foster, 2003). Besides, collaborative research and networking projects are considered as CD strategies (Horton, et. al, 2003).

Together with the adoption of the UN Sustainable Development Goals (SDGs) 2030, countries and stakeholders need *collaborative partnerships* to implement this plan. Even though every destination has its own uniqueness, weakness or set of problems, stakeholders must collaborate and exploit the available resources (Decelle, 2004). CD is attributed as a collaborative and powerful process based on relationships amongst people (Aref & Redzuan, 2009). It is also a driven process of learning that stimulates positive change to social and organizational factors which promote local ownership and efficiency (Otoo, Natalia & Behrens, 2009). Stakeholders' collaboration or partnership plays a crucial role to the success of any CD programmes.

3. Methodology

This study employed a qualitative approach, an extended review of selected articles (content analysis) based on a previous literature review conducted in 2018. Literature reviews are useful to evaluate a theory or evidence, or examine the validity of a certain theory or competing theories (Tranfield, Denyer & Smart, 2003). These reviews are also important in evaluating the state of knowledge on a certain topic, to identify gaps or discuss a particular matter (Snyder, 2019). Previous literature review determined concepts, issues and methodological approaches of 36 CD papers published in SCOPUS from 2000 – 2018. SCOPUS is considered as the largest database of peer-reviewed journals and publications. During the third quarter of 2018, published articles were searched following a set of criteria and procedures, for example, keywords used – "capacity development," "capacity building," "tourism," "destinations," and "peripheral destinations." Following the literature review process of most conceptual and theoretical papers, these key terms were all relevant to the research theme (see Figure 1). 186 articles were generated and then examined. 36 articles were retained after preliminary and final reviews, while the rest was eliminated due to its irrelevance to the topic and/or without full paper access. Data coding, categorization and analysis were executed, that resulted to the classification of papers into three themes/domains: *networks & governance; community empowerment & development;* and *knowledge management.* With reference to this study, the 17 articles under the '*networks and governance*' domain were exclusively reviewed. Qualitative content analysis was carried out by categorizing data into certain subjects or themes, through data coding and representation either in figures, tables or other representations (Creswell, 2014).

4. Results and discussion

Results of the content analysis indicate approaches/themes discussed from 17 reviewed documents were aligned or synonymous to *stakeholders´ collaborative approach*. *Networking, partnerships, stakeholders, involvement,*

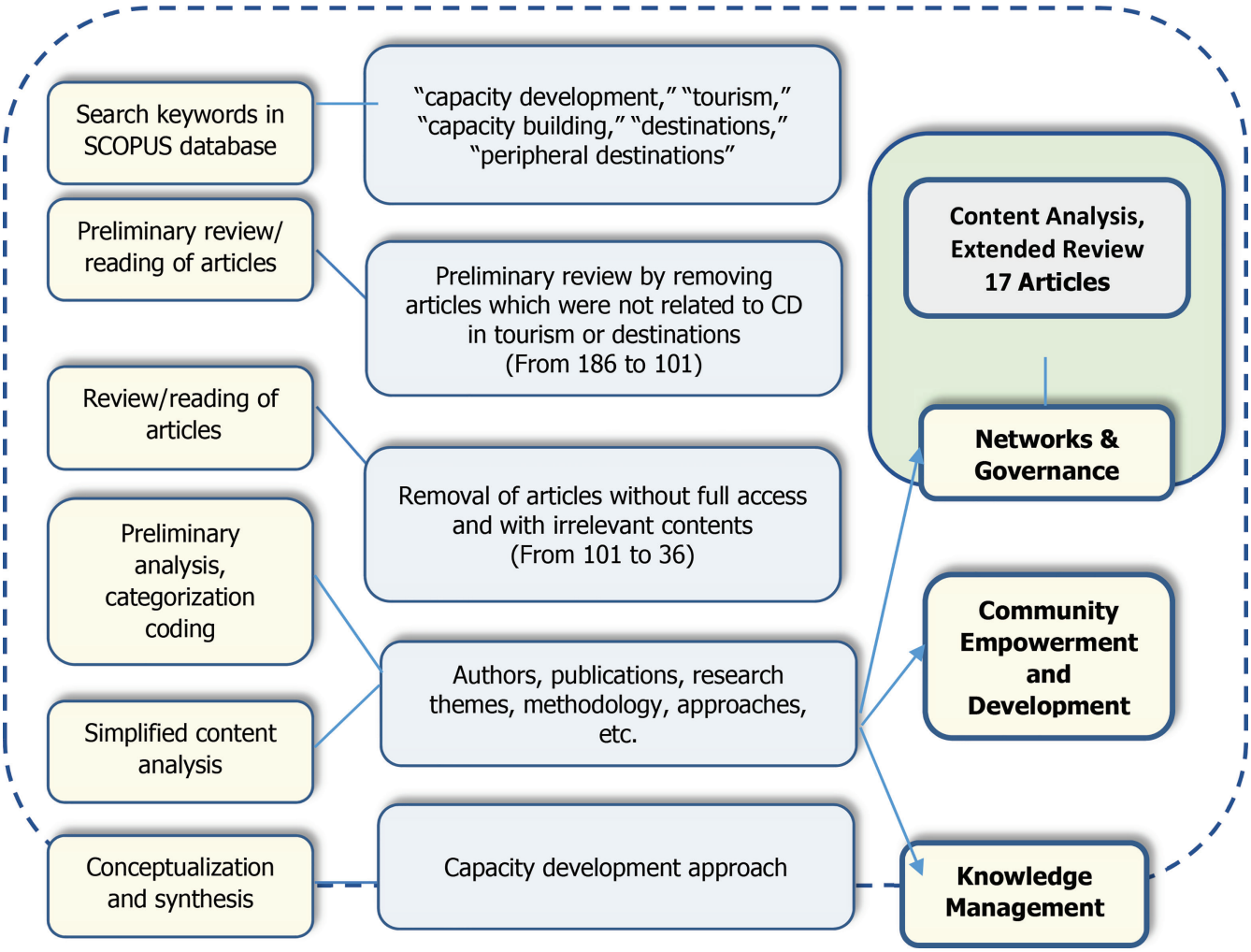


Figure 1. Literature/Extended Review Process. *Source*: Authors' own construction.



Figure 2. Article themes linked to collaboration/partnerships. *Source*: Wordcloud Generator (2021); https://monkeylearn.com/word-cloud/.

engagement and *collaboration* are the mostly discussed themes and words used in (Figure 2) all articles.

The methodologies revealed that qualitative method was adopted for all studies except for one which applied a mixed-method approach. All have used case studies while research coverage or theme is either linked to *social sciences, business management* or *environmental studies. Asia, Europe* and *Africa* have the greatest number of case studies. Even though there are developed countries included, majority were developing and least developing nations as shown in Table 1.

Findings revealed the different themes and terms but generally relative to *collaboration. Capacity building through stakeholder collaboration*, enables meeting the objectives with the purpose of empowering diverse stakeholder groups (Table 2). Experiences based on several cases have proven its role in training and institutional development in tourism, conservation and natural resource management in Kazakhstan (Thapa, 2018); complex inclusive destination development projects in Albania, Botswana, Nepal and Tanzania with reference to SNV Netherlands Development Organization (SNV) (Hummel & van der Duim, 2016); and community-based tourism adopted in Kokoda Track, Owen Stanley Range, Papua New Guinea (Reggers, Grabowski, Wearing, Chatterton & Schweinsberg, 2016). CD must be tailored to the needs of community actors, where *local community engagement and involvement* from various social-ecological system is essential, such as the case of South Penghu Archipelago Marine National Park, Taiwan (Wu & Tsai, 2016). Based on related literature, community involvement in tourism leads to a sense of ownership and pride (Andereck & Vogt, 2000) and brings an opportunity for sharing and exchange of experiences between locals and visitors (Fennel, 2014).

Apart from collaboration, *transparency* is a key element in having a successful and sustainable destination development, based on a Tourism Optimization Management Model (TOMM) applied in Austria, Germany, Italy, Czech Republic, Slovenia and Poland (Jiricka, Salak, Arnberger, Reder & Pröbstl-Haider, 2014). A collaborative effort such as *transboundary collaboration that promotes partnerships among government, NGOs and local communities*, in the case of biodiversity conservation and management agreement between Cameroon and Nigeria (Nzeda Tagowa & Nformi Buba, 2012) is an example that goes beyond geographical setting.

Collaborative CD, in whichever form - *joint partnerships* (Rabady & Jamal, 2006); *strategic alliances* (Stronza, 2008); and *cooperative research* (Crabbe, Martinez, Garcia, Chub, Castro & Guy, 2010), emphasizes the importance of *community empowerment and knowledge transfer* in establishing trust relationships and local integration (Panyik, Costa & Rátz (2011). It also encourages innovative approaches and sets a precedent in improving organizational management and policy development, such as the case of Marine Protected Areas (MPAs) (Crabbe, Martinez, Garcia, Chub, Castro & Guy, 2010). Trueque Amazonico (Ecotourism Exchanges in the Tropical Andes – Peru, Ecuador and Bolivia) that focused on transparency, trust and legal agreements (Stronza, 2008); and promotion and development of rural tourism in Hungary (Panyik, Costa & Rátz (2011) are best examples of this approach.

Networking and partnerships as governance practices are crucial to effective management of resources, such as the case of D'Kar village in Botswana (Raditloaneng & Chawawa, 2015). It is recommended that public and private stakeholders must share responsibilities in managing and sustaining a collaborative management system, as per the case of Lake Toba geopark tourist area in Indonesia (Situmeang, 2016). On the other hand, Ssenyonga (2016) suggested the *creation of networks at both local and international levels,* based on the Ugandan experience about community museums promoting Ugandan heritage. Previous studies are also relative to these cases with reference to collaboration and strategic alliances (Ruhanen, Breakey & Robinson, 2012); networking (Sparrowe, Liden, Wayne & Kraimer, 2001); and networks (Fukuda-Parr & Hill, 2002).

Table 1. Countries investigated as data sources

	Territory	Country	Total
WORLD			**28***
	Africa	Botswana Morocco Nigeria South Africa Tanzania Tunisia Uganda	**7**
	Asia	Bangladesh Cambodia Indonesia Kazakhstan Nepal P. New Guinea Taiwan, ROC Turkey	**8**
	Europe	Albania Austria Czech Republic Germany ***Hungary*** Italy Poland Slovenia	**8**
	N. America	Belize USA	**2**
	S. America	Bolivia Ecuador Peru	**3**

Source: Authors' own construction

Note: Some papers comprised several case studies which exceeded the total number of reviewed documents. All country cases adopted qualitative methods except for Hungary case study that used mixed methods.

Table 2. Stakeholders´ Collaboration Concepts/Themes

Authors	Approaches
Thapa (2018)	Collaborative engagement, public-private partnership
Islam, Ruhane & Ritchie (2018)	Stakeholder collaboration, adaptive co-management, social learning
Hummel & van der Duim (2016)	Multi-stakeholder approach
Reggers, Grabowski, Wearing, Chatterton & Schweinsberg (2016)	Stakeholder collaboration, participatory - community approach
Situmeang (2016)	System thinking approach, collaborative management
Wu & Tsai (2016)	Actors' engagement
Ssenyonga (2016)	Networking, people dimension
Raditloaneng & Chawawa (2015)	Networking and partnerships, governance practices
Jiricka, Salak, Arnberger, Reder & Pröbstl-Haider (2014)	Stakeholder involvement, collaboration
Giampiccoli, Jugmohan & Mtapuri (2014)	International cooperation, community ownership and responsibility
Orbasli (2013)	Stakeholder involvement, social interaction and cohesion
Nzeda Tagowa & Nformi Buba (2012)	Relations and public engagement, strategic regional approach, transboundary collaboration
Panyik, Costa & Rátz (2011)	Integrated approach and collaborative management
Crabbe, Martinez, Garcia, Chub, Castro & Guy (2010)	Action plan approach, power enhancement, cooperative research
Caffyn & Jobbins (2009)	Governance capacity and stakeholder interactions
Stronza (2008)	Strategic alliances
Rabady & Jamal (2006)	Community-academic partnership (joint)

Source: Adapted from: Flores & Costa (2018).

Accordingly, local tourism initiatives must be sustainable and self-reliant especially for marginalized destinations. Through community harmony and cohesion, poor communities are ensured of ownership, management and control (Giampiccoli, Jugmohan & Mtapuri, 2014). *Community ownership and responsibility* are key CD elements as exemplified in Mpondoland Village in South Africa. *Social learning,* through knowledge creation and sharing, institutional development and empowerment, was proven effective in park management in the case of Lawachara National Park, Bangladesh (Islam, Ruhanen & Ritchie, 2018). Additionally, community values (Pearson & Sullivan, 1995) serve as a catalyst for social interaction, cohesion and community identity for effective implementation of stakeholder involvement in management plans, as applied in the cases of Çatalhöyük and Ani, Turkey (Orbasli, 2013).

The most significant finding was from Caffyn & Jobbins (2009). Their studies reported about rigid government structures. A command-and-control (top-down) government structure shows its inability to administer or manage complex forces of coastal zones, based on Morocco and Tunisia case studies. Results revealed major obstacles in achieving sustainable coastal governance and tourism development, such as socio-political constraints embedded at the governance level or structure. It suggests for easing restrictions and reduction of controls towards local bodies or councils, civic organizations and community groups and *provide measures to enhance administrative efficiency and performance*.

Several cases present different perspectives where results are highly directed or linked to *collaboration* as a key issue or factor in solving CD problems. It has proven that success towards CD depends primarily on *collaborative management* among local people and various stakeholders. This shows that no matter what CD activity is involved, collaboration in any form, is the most recommended approach in enhancing sustainable management of destinations.

5. Conclusions and implications

Collaboration is considered the main strategy in managing CD issues or problems in tourism destinations based on several studies. The participation and collaboration of various stakeholders has been proven as a key element and success factor to CD programmes in tourism destinations (Caffyn & Jobbins, 2009; Crabbe, Martinez, Garcia, Chub, Castro & Guy, 2010; Giampiccoli, Jugmohan & Mtapuri, 2014; Hummel & van der Duim, 2016; Islam, Ruhane & Ritchie, 2018; Jiricka, Salak, Arnberger, Reder & Pröbstl-Haider, 2014; Nzeda Tagowa & Nformi Buba, 2012; Orbasli, 2013; Panyik, Costa & Rátz, 2011; Rabady & Jamal, 2006; Raditloaneng & Chawawa, 2015; Reggers, Grabowski, Wearing, Chatterton & Schweinsberg, 2016; Situmeang, 2016; Ssenyonga, 2016; Stronza, 2008; Thapa, 2018; Wu & Tsai, 2016). Studies suggest that *stakeholders' collaboration* is broadly dependent on alliances and policies in the destination, degree of social learning and interactions and level of shared knowledge. Accordingly, collaboration leads to strong cooperation, community engagement, empowerment and sense of responsibility and ownership (Figure 3).

Although non-empirical in nature, results provide a clear message that a CD problem or issue can be effectively addressed by applying an existing method or strategy, either practiced or adopted by destinations. This research presents not only the relevance of integrating collaboration to CD by stakeholders who are involved in CD projects and programmes but also in supporting the formulation of programmes and activities either tactical or strategic for destinations or organizations regardless of the nature, structure or type. Strengthening individuals' and organizations' capacity is considered vital to develop and sustain a community's well-being. It is practically important for tourism or DMOs to include collaboration or partnership initiatives (in any form) as a key



Figure 3. Collaboration as a Key CD Element in Managing Destinations. *Source*: Authors' own construction.

element of destination management plans or programmes such as in the areas of marketing, operations, planning and development. It leads to better appreciation of collaboration's significant role to achieve CD goals in tourism. Putting it as an element in organizational plans effectively enhance the capabilities of individuals and institutions.

This research presents different concepts of stakeholders' collaboration towards CD that supports the UNSDG 17 (*Partnerships for the goals*). The content analysis is limited only to case studies from 17 articles that emphasized *collaboration*, under the '*networks and governance'* domain of previous literature review. Although the topic is not something new, the findings provide an added value to the study of CD in destinations and contribute to tourism literature. Perspectives and experiences of different stakeholders towards stakeholders' collaboration and CD in tourism, as well as other CD variables, factors or issues i. e. governance, through empirical research must be considered for future studies.

Funding and acknowledgement

This work was supported by Fundação para a Ciência e Tecnologia (FCT) through PhD Research Grant No. 2021.06592.BD.

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