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RIAT

Revista Interamericana de Ambiente y Turismo
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Editorial

Urban Tourism, Poverty, And Crime

Research paper

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Survival as a strategy for increasing adventure tourism in Ecuador.

Literature Review

Astrotourism research landscape: a bibliometric analysis.

Bibliometric study about sustainable tourism product in Scopus database.

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Editorial

Urban Tourism, Poverty, And Crime

Turismo urbano, pobreza y delincuencia

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After the impact of COVID-19 on tourism, several cities have been affected by an increase in criminality, primarily in large urban centers that receive a significant number of tourists. It's true that the COVID-19 pandemic has had a significant impact on the global tourism industry. Many cities heavily reliant on tourism as a source of income were severely hit by the decrease in travel and the restrictions imposed to contain the spread of the virus. Urban tourism, poverty, and criminality are complex aspects that can be interconnected in urban areas in various ways. Here's a perspective on how these three elements can relate:

a) **Economic Impact of Tourism on Poverty:** Urban tourism can generate economic opportunities by creating jobs in sectors such as hospitality, transportation, and services. However, it's important to consider whether these jobs are of quality and whether they benefit the entire community. In some situations, jobs in the tourism industry can be temporary, poorly paid, and lack benefits, which might not be sufficient to lift people out of poverty.

b) **Inequalities and Gentrification:** Investment in tourism infrastructure and the development of tourist areas can affect gentrification, where housing prices increase, and low-income residents are displaced. This can increase poverty in certain areas while benefiting investors and

tourism businesses. Local communities might lose access to essential resources and be pushed out of their homes due to transforming their neighborhoods into tourist zones.

c) **Relationship between Poverty and Criminality:** Although poverty is not a direct cause of criminality, there is a correlation between the lack of economic opportunities and an increased likelihood of engaging in criminal activities. People in poverty situations might face obstacles in accessing quality education, adequate health-care, and stable employment, which can contribute to their vulnerability to criminality.

d) **Rise in Crime in Tourist Areas:** While tourism can have a positive economic impact, it can also increase the opportunity for criminal activities in tourist areas. Tourists are often perceived as easy targets for theft, scams, and other crimes due to their lack of familiarity with the environment and their willingness to spend money.

Proper management of urban tourism, poverty, and criminality requires approaches that address inequalities and promote equity. This involves ensuring that the economic benefits of tourism reach all layers of society, as well as implementing measures to prevent gentrification and improve the living conditions of local communities.

Collaborative innovation, partners, and geographical proximity in the tourism sector in Chile

Innovación colaborativa, socios y proximidad geográfica en el sector de turismo en Chile

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ABSTRACT

Increasingly, firms collaborate with diverse actors to innovate, such as other business organizations and business support organizations. A better understanding of the relationship between the actors engaged in collaborative innovation is essential to innovation management and policy. However, literature on collaborative innovation addressing emerging countries and the tourism sector is relatively scarce. Using data from 257 Chilean tourism firms and partial least square structural equation modeling (PLS-SEM), we analyze the effect of the interrelations of tourism firms with business and support organizations on product and process innovation and the effect of geographical proximity. The results state that collaboration with business organizations as buyers and suppliers facilitates innovation. In addition, collaboration with business support organizations such as universities, public organisms, and technological centers facilitates process innovation and is influenced by geographical proximity. Conclusions and implications are discussed.

Keywords: Collaborative Innovation, Innovation, Geographical Proximity, Tourism, Chile

RESUMEN

Cada vez más, las empresas colaboran con diversos actores para innovar, como otras organizaciones empresariales y organizaciones de apoyo a las empresas. Comprender mejor la relación entre los agentes que participan en la innovación colaborativa es esencial para la gestión y la política de la innovación. Sin embargo, la literatura sobre innovación colaborativa dirigida a países emergentes y al sector turístico es relativamente escasa. Utilizando datos de 257 empresas turísticas chilenas y el modelo de ecuaciones estructurales de mínimos cuadrados parciales (PLS-SEM), analizamos el efecto de las interrelaciones de las empresas turísticas con las organizaciones empresariales y con organizaciones de apoyo en la innovación de productos y procesos, y el efecto de la proximidad geográfica. Los resultados afirman que la colaboración con organizaciones empresariales como compradores y proveedores facilita la innovación. Además, la colaboración con organizaciones de apoyo a la empresa como universidades, organismos públicos y centros tecnológicos facilita la innovación de procesos y está influida por la proximidad geográfica. Se discuten las conclusiones e implicaciones.

Palabras clave: Innovación Colaborativa, Innovación, Proximidad Geográfica, Turismo, Chile

INTRODUCTION

Innovation is increasingly analyzed as a process where different actors participate by sharing ideas, research, and development and creating new products and processes. This phenomenon is called "collaborative innovation," which has antecedents in systemic approaches to innovation, such as clusters, regional innovation systems, innovation ecosystems, and open innovation. These approaches highlight the formal and informal interactions between the various actors involved in innovation in each territory (Porter, 1998; Chesbrough, 2003; Oh et al., 2016; Marasco et al., 2018; Shin & Perdue, 2022; Xie et al., 2023). Another antecedent is that companies often lack the resources and capabilities to develop their innovation processes (Geldes et al., 2017; Heredia et al., 2019).

Although collaborative innovation is an approach that has been developed in the literature and is linked to open innovation, it has been less developed in emerging countries and the tourism sector, with increasing economic importance (Rubalcaba et al., 2016; Marasco et al., 2018; Shin & Perdue, 2022). Due to this, the aim of this study is to analyze collaborative innovation in firms linked to the tourism sector in Chile. Specifically, it studies the interrelations of tourism firms with other business organizations (buyers, suppliers, and clients) and with business support organizations (public agencies, universities, technology centers, and trade associations) to facilitate the development of product innovations (goods and services) and process innovations. Additionally, it is analyzed if the geographical proximity (distance) promotes the mentioned interrelations. These analyses allow answer questions such as: In the case of tourism firms, with which organizations to collaborate to innovate? Does the collaboration of tourism firms with other organizations facilitate product or process innovation? Does geographical proximity facilitate the collaboration of tourism firms with other organizations?

The method used is Partial Least Square - Structural Equation Modelling (PLS-SEM). It analyzes the relations between constructs developed from the literature (Henseler et al., 2016). The data is obtained from a survey of 257 firms in the tourism sector in Santiago of Chile. Initially, a theoretical model of the relationships between geographic proximity, business organizations, business support organizations, process innovation, and product innovation is proposed.

The results of this study will generate background information to answer questions such as which partners to collaborate with to innovate and if geographic proximity is relevant to interrelate with business organizations and business support organizations. The policy and managers' implications are discussed.

The following sections are Theoretical Framework, Data and Methodology, Results and Discussions, and Conclusions and Implications.

THEORETICAL FRAMEWORK

This section has reviewed some approaches to define the theoretical proposed model and their hypotheses, such as collaborative innovation, geographical proximity, and types of innovation (Figure 1).

Collaborative Innovation

Increasingly in the management and tourism literature, it is emphasized that innovation is the result of a collaborative process between different actors (Cantù et al., 2015a, 2015b; Marasco et al., 2018). This approach has its bases in systemic approaches to innovation, such as clusters (Porter, 1998), technological innovation systems, or innovation ecosystems (Oh et al., 2016), as well as in the concept of "open innovation" that emphasizes the opening of the innovation process beyond the boundaries of the company seeking to complement ideas, resources, and capabilities with other actors (Chesbrough, 2003). Also, there are relevant antecedents in related approaches, such as "co-innovation" and "co-creation," that emphasize the participation of stakeholders in innovation processes, such as consumers and suppliers (Lee et al., 2012). In general terms, collaborative innovation is a process that involves cooperation with individuals, organizations, companies, and institutions to develop new ideas, products, and services. Moreover, it has positively affected innovative performance, especially in supply chains rather than industry-university-research collaborations (Xie et al., 2023). On the other hand, it has been seen that the effects of collaborative innovation have different results depending on the type of partners with whom it is innovated (Cantù et al., 2015a, b). In general, it is observed that cooperation with firms such as suppliers and buyers generate positive effects on innovation. Also, it is observed that collabora-

tion with support institutions such as public agencies, universities, and technology centers facilitates indirect firm innovation through support instruments and programs (Etzkowitz & Leydesdorff, 2000; Gallaud, 2013; Geldes et al., 2017; Marasco et al., 2018; Fuentes et al., 2019). For example, Castillo-Vergara & Torres (2019) indicate that business cooperation and professional cooperation affect technological innovation. However, academic collaboration has not a significant effect. In the tourism sector, collaborative innovation has diverse approaches in the literature. According to a systematic review by Marasco et al. (2018), there are five approaches: cooperative behavior of innovating firms, co-creation, collaborative networks for innovation, knowledge transfer, and innovation policies. In this vein, the need to research collaborative innovation in the tourism sector is highlighted (Marasco et al., 2018; Shin & Perdue, 2022). Moreover, in Latin America, there are fewer studies on innovation (Olavarrieta & Villena, 2014; Rubalcaba et al., 2016).

Tourism sector and collaborative innovation in Chile.

First, to analyze collaborative innovation in Chile, reference is made to the Global Innovation Index (WIPO, 2022). In this index, the country is in position 51 for 2021. However, the dimensions "innovation linkages" and "state of development and depth of clusters" occupy positions 75 and 77, respectively. It implies a lower development of these dimensions. On the other hand, the National Innovation Survey, based on the Oslo Manual (OECD, 2005; 2018), indicates that only 10% of companies cooperate to innovate. Specifically, 8.8% collaborate with domestic organizations and 3.2% with foreign organizations. In addition, Chilean companies present different levels of collaboration with other actors: higher education institutions (3.8%), public research institutes (3.7%), consultants, laboratories, or R&D institutes (4.2%), competitors (4.0%), customers (5.5%), suppliers (7.4%) and companies of the same group (6.2%). These results indicate that collaborative innovation is a challenge in Chile, and it invites to develop of more research in the tourism sector, given its contribution to the economy and employment, considering that cooperation to innovate and innovation differs according to territory and economic sector (Hall & Rosenberg, 2010; Geldes et al., 2017).

Official statistics show that tourism is a relevant economic activity in Chile (Subsecretary of Tourism, 2020). In 2019, Chile was the third country with the highest number of

international tourist arrivals in South America, with more than 4.5 million arrivals, which generated revenues of more than US\$2.9 billion. In the same year, approximately 440 thousand people worked in accommodation and food service activities, equivalent to 4.9% of total employment, primarily women. The country's regions with the highest proportion of people employed in the sector are the extreme zones: Arica and Parinacota, Tarapacá and Magallanes, and Chilean Antarctica. On the other hand, the supply of services in the sector comprises more than 177 thousand companies with related activities, among which, for example, there are 12 thousand tourist accommodation companies, 53 thousand food and beverage companies, and 2 thousand seven hundred tourism agencies. The supply of beds in the sector amounts to more than 266 thousand. The Metropolitan Region represents a significant portion of the tourist offer, with more than 70 thousand related companies that employ more than 200 thousand people and receive more than 3.5 million arrivals and 7.5 million overnight stays.

Geographical Proximity.

Different theoretical approaches highlight that geographical proximity (physical distance) is a critical element in facilitating the innovation process through formal and informal interactions of other agents in a territory, such as the Innovation Ecosystem (Oh et al., 2016), National Innovation System (Fagerberg & Sappasert, 2011), Regional Innovation System (Asheim & Isaksen, 2002), Cluster (Porter, 1998), and Triple Helix (Etzkowitz & Leydesdorff, 2000). In this sense, the economics of geography proposes the approach of proximity to explain formal and informal interactions within a territory (Balland et al., 2022). Boschma (2005) states, "Proximity implies more than geography. It is a broad concept that incorporates the similarity between actors and organizations, including spatial and non-spatial dimensions". These dimensions of proximity are geographical proximity (spatial) and non-spatial proximities such as social proximity (decoupling), cognitive proximity (learning), organizational proximity (integration), and institutional proximity (institutionalization). Although there are different classifications of proximities, the Boschma classification is the most accepted (Knoben & Oerlemans, 2006; Balland et al., 2022). This means that geographical proximity (physical distance) facilitates formal and informal interactions between actors facilitating innovation. Considering the theoretical model proposed, the hypothesis H1.1 and H1.2 (Figure 1):

H1.1 Geographical proximity facilitates interaction with Business organizations.

H1.1 Geographical proximity facilitates interaction with Business support organizations.

Types of Innovation.

Innovation has been studied from different approaches, such as innovation ecosystem (Oh et al., 2016), sectorial innovation (Marasco et al., 2018), and business innovation (Heredia et al., 2019). In the case of business, innovation has been extensively studied, generating multiple definitions and classifications of types of innovations such as administrative and technical, incremental and radical, and others (Crossan & Apydin, 2010; Rowley et al., 2011; Geldes et al., 2017). However, some consensus has been achieved with the definition proposed in the Fourth Version of the Oslo Manual (OCED, 2018, page 20): “An innovation is a new or improved product or process (or a combination thereof) that differs significantly from the unit’s previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process).” This definition includes two types of innovation: product innovation and process innovation. This classification differs from the Third Version of the Oslo Manual, which includes product, process, marketing, and organizational innovations (OECD, 2005). Specifically, product and process innovations are defined as: “A product innovation is a new or improved good or service that differs significantly from the firm’s previous goods or services and that has been introduced on the market.” “A business process innovation is a new or improved business process for one or more business functions that differ significantly from the firm’s previous business processes and that has been brought into use by the firm” (OCED, 2018, page 21).

Regarding business innovations, several studies relating internal and external determinants of innovation differ according to economic sector and territory (Crossan & Apydin, 2010; Hall & Rosenberg, 2010). Some internal determinants are sales, employees, research and development, purchases of capital goods, leadership, resources, and capabilities. The external determinants are collaboration/cooperation, funding, information access, informality, and others (Lazonick, 2006; Heredia et al., 2017; Geldes et al., 2017; Heredia et al., 2019; Ortiz et al., 2023). In the specific case of the tourism sector, Divisekera & Nguyenm (2018) identifies collaboration, human capital, foreign ownership,

and firm size positively influence service innovation. In addition, collaboration, firm size, information technology, funding, and market competition positively influence marketing innovation. Although collaboration is identified as a determinant of business innovation in the tourism sector, more research is needed, for example, by identifying with innovation actors or partners should collaborate (De Faria et al., 2010; Shin & Perdue, 2002). In general, it is determined that cooperation with business organizations such as suppliers, buyers, consultants, and other competing companies directly favors business innovation processes. Also, it has been observed that business innovation is facilitated with the collaboration of support organizations such as technology centers, universities, public agencies, and trade associations, which are favored (Etzkowitz & Leydesdorff, 2000; Gallaud, 2013; Cantù et al., 2015b; Marasco et al., 2018; Fuentes et al., 2019; Castillo-Vergara & Torres, 2019). Considering the previous antecedents, and the exploratory nature of this study of firms in the tourism sector in Chile, the following hypotheses are proposed (Figure 1):

H2: Business support organizations (public agencies, universities, technology centers, and trade associations) contribute to the Business organizations.

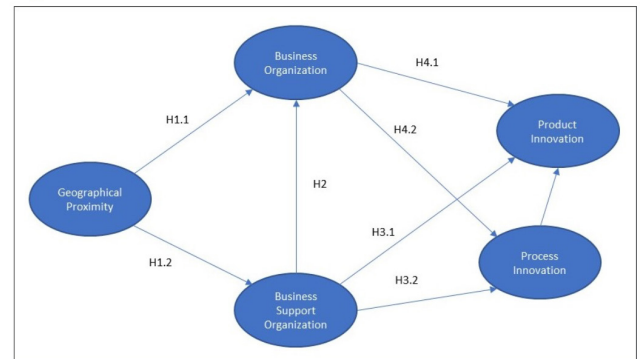
H3.1 Collaboration with business support organizations facilitates product innovation.

H3.2 Collaboration with business support organizations facilitates processes innovation.

H4.1 Collaboration with business organizations facilitates product innovation.

H4.2 Collaboration with business organizations facilitates process innovation.

Figure 1. Theoretical Model



METHODOLOGY

Sample and data collection

A survey was designed and applied to 257 companies in the tourism sector located in Santiago, Chile. For the design of the instrument, antecedents of the Oslo Manual (OECD, 2005; 2018) were reviewed to define the types of agents to collaborate in innovation and the types of innovation defined. Regarding geographic proximity (Boschma, 2005), an approximation of perception was used using the Likert scale. Before the application, five experts were consulted, and a pilot of 10 surveys was applied. Two persons were trained as a field team for the application and instructed to present an ethical protocol, "informed consent," to the respondents. The sampling is by "snowball," which seeks to contact relevant actors so that they can then indicate other actors who can be surveyed (Parker et al., 2019).

From the sample, 111 (43.2%) stated that their main line of business is directly linked to tourism, such as tour operators and hotels. On the other hand, 136 (56.8%) identify as suppliers of tourism companies' products and services. Regarding the size of the companies, a total of 115 (44.7%) have less than ten workers (micro companies), 124 (48.2%) between 11 and 49 workers (small companies), 16 (6.2%) between 50 and 250 workers (medium companies) and 2 (0.8%) more than 250 workers (large companies). In addition, only 6 companies (2.3%) reported belonging to a trade association, and 47 (18.3%) companies reported having foreign capital, mainly less than 25% for 40 companies.

Measures

The measurement variables were defined considering the related literature. The detail of the items considered for each variable is shown in Table 1. All the variables were evaluated on a five-point Likert scale: "very low," "low," "indifferent," "high," and "very high." Specifically, in the case of geographic proximity, a qualitative and alternative approach is used based on the valuation of the physical distance to the different actors of the tourism ecosystem. It was based on the question, "Value the geographical proximity (physical distance) to collaborate with the following actors..." (Geldes et al., 2015). In the case of partners of collaborative innovation, consider the Oslo Manual (OECD, 2005; 2018). They are grouped into two types: "Bu-

siness organizations" (suppliers, buyers, consultants, and similar companies) and "Business support organizations" (universities, public bodies, technology centers, and trade associations). In this case, the question is, "Value your level of collaboration with the following stakeholders..." Process and product innovations (goods and services) are considered according to the last definitions of the Oslo Manual (OECD, 2018). We have considered the constructs in the reflective mode for analysis (Hair et al., 2019).

Analysis

The method used is Partial Least Square Structural Equation Modelling (PLS-SEM); the estimations are performed with SMART-PLS software (version 4.0.0.3) (Ringle et al., 2022). Two models are calculated: the measurement (or outer) model shows how the observed variables link to the latent variables, and the structural (or inner) model shows how strong and in which direction the relationships between the latent variables are (Hair et al., 2014).

In the case of the measurement model, the items of each construct present in the theoretical model proposed are selected with factor loadings above 0.700. In the case of the composite reliability of the constructs, Cronbach's alpha, rhoA, and rhoC values over 0.700 are accepted. In the case of convergent validity, AVE ≥ 0.500 . Discriminant validity is evaluated with the heterotrait-monotrait ratio (HTMT) statistic $\leq 0.85 \leq 0.9$. Regarding multicollinearity, the "collinearity statistics" (VIF) ≤ 3.0 for all variables. The model fit indicator is SRMR ≤ 0.10 , and the exact fit test is based on bootstrap $d_ULS \leq HI95 \leq HI99$ and $d_G_d_ULS \leq HI95 \leq HI99$ (Henseler et al., 2016; Hair et al., 2017).

About the structural model. A bootstrapping with 10,000 subsamples is performed. Then, we evaluate the model fit indicators. The collinearity VIF ≤ 3 . Sign coefficient path: compare with sign postulated in hypothesis. Path coefficient value between -1 and +1. Path coefficient significance by bootstrapping: i) signed hypotheses 1-tailed test: $p < 0.05$; CI percentile: 5% - 95% (no change of sign at the extremes), ii) unsigned hypothesis 2-tailed test: $p < 0.05$; CI percentile: 2.5% - 97.5% (no change in sign at the extremes). 97.5% (no change of sign at the extremes). Determinant Coefficient ($0 < R^2 < 1$). Total effect: i) small effect $0.02 \leq f^2 < 0.15$; ii) moderate effect $0.15 \leq f^2 < 0.35$; iii) significant effect $f^2 \geq 0.35$ (Cohen, 1988).

RESULTS AND DISCUSSION

The measurement model results are presented in Table 1. For each construct, the items are selected with factor loadings over 0.700. Concerning composite reliability, Cronbach's alpha, rhoA, and rhoC values are above 0.700, except for "business organizations" with rhoA

0.661, accepted considering the exploratory nature of the classification of collaborative partners to innovate. In addition, the constructs present discriminant validity with AVE < 0.500. They show the convergent validity of the measures.

Table 1: Measurement model

Construct	FL	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Business Organization		0.633	0.661	0.843	0.729
Buyers	0.813				
Suppliers	0.893				
Consultans					
Competitors					
Business Support Organization		0.809	0.813	0.874	0.635
Technology centers	0.777				
Universities	0.843				
Trade organizations	0.763				
Public organizations	0.801				
Geographical Proximity		0.885	0.892	0.916	0.685
GP-universities	0.873				
GP-trade organizations	0.859				
GP-public organizations	0.820				
GP-consultans	0.805				
GP-competitors	0.777				
GP-technology centers					
GP-buyers					
GP-suppliers					
Product Innovation					
Goods innovation					
Services innovation	1.000				
Process Innovation					
Process innovation	1.000				

Source: Prepared by the authors by SMART-PLS.

Table 2 y Table 3 shows that discriminant validity with HTMT all values are lower than 0.885. Regarding multicollinearity, the "collinearity statistics" (VIF) is checked with values minus 3,000 for all variables. The Fornell-Larcker criteria (Fornell & Larcker, 1981) are also met, fulfilling the requirements for discriminant validity.

Table 2: HTMT

Constructs	(1)	(2)	(3)	(4)	(5)
Business Organization (1)					
Business Support Organization (2)	0.293				
Geographical Proximity (3)	0.184	0.490			
Process Innovation (4)	0.461	0.179	0.138		
Product Innovation (5)	0.463	0.097	0.064	0.333	

Source: Prepared by the authors by SMART-PLS. HTMT statistic.

Table 3: Fornell-Larcker Criterion

Constructs	(1)	(2)	(3)	(4)	(5)
Business Organization (1)	0.854				
Business Support Organization (2)	0.192	0.797			
Geographical Proximity (3)	0.144	0.428	0.828		
Process Innovation (4)	0.376	0.157	0.106	1	
Product Innovation (5)	0.375	0.085	0.021	0.333	1

Source: Prepared by the authors by SMART-PLS. Fornell Larcker Criterion.

The overall goodness-of-fit indicators of the model meet the expected thresholds. The SRMR value is below 0.08 (Cho et al., 2020), obtaining a value of 0.058. The values of the unweighted least squares discrepancy and the goe-desic discrepancy are below the threshold $d_{ULS} (0.325) \leq HI95 (0.570) \leq HI99 (1.193)$ (Henseler et al., 2016).

The results of the path coefficients of the structural model are shown in Table 4. First, geographic proximity is significant and positive (0.428) for collaboration with "Business support organization," supporting hypothesis 1.2. In contrast, geographic proximity is significant and negative (-0.277) for the case of collaboration with "Business organizations." Then hypothesis 1.1 is not accepted. This result can be explained by the low levels of cooperation and collaboration that companies perform with other companies due to a strong focus on competition rather than on collaboration (Bengtsson & Raza-Ullah, 2016), generating effect lock-in (Balland et al., 2022). Also, it can be explained by the differences in collaborative innovation according to the economic sector and territory (Fuentes et al.,

2019; Lopes et al., 2021). In Chile, social closeness negatively impacts company-organization innovation cooperation due to reputation, prior knowledge of the actors, and common experiences, probably due to low social capital (Geldes et al., 2015; Geldes et al., 2017). Additionally, the relation between "Business support organizations" and "Business organizations" is positive and significant, with a path coefficient of 0.310, supporting hypothesis H2. It means real support for innovation from universities, technological centers, and public organizations. This support could be forming sectorial professionals, public funding, research, and others (Lopes et al., 2021).

Complementarily, the results state that "Business support organizations" is positive (0.088) and significant to "process innovation" (confirming hypothesis H3.2), and it is not significant to "product innovation" (hypothesis H3.1 is not confirmed). This result can be explained by some public or government programs oriented to improve the process in the tourism companies such as "quality programs and certification of tourism services," financial support for training, support guide for the commercialization of rural tourism, and others. In the case of "Business organizations," the relation between "process innovation" (0.359) and "product innovation" (0.292) are positive and significant, confirming hypotheses H4.1 and H4.2. In addition, these results confirm cooperation's effect on developing innovations (Geldes et al., 2017; Heredia et al., 2019).

Table 4: Structural model

Relation	Path coefficients	P values
Business Organization → Process Innovation	0.359	0.000
Business Organization → Product Innovation	0.292	0.000
Business Support Organization → Business Organizations	0.310	0.000
Business Support Organization → Process Innovation	0.088	0.042
Business Support Organization → Services Innovation	-0.006	0.848
Geographical Proximity → Business Organization	-0.277	0.000
Geographical Proximity → Business Support Organization	0.428	0.000
Process Innovation → Product Innovation	0.224	0.000

Source: Prepared by the authors by SMART-PLS.

Table 5 shows the effects on innovations, where all are significant except geographic proximity. Also, it is observed that the total effects of "business organization" on process and product innovations are significant with $f^2 \geq 0.35$. In the case of "business support organization," it is significant for process innovation ($f^2 \geq 0.35$) and moderate for product innovation ($0.15 \leq f^2 \leq 0.35$). Also, the significant effect of geographic proximity on "business support organization" and moderate and negative on "business organization" is highlighted. These findings support

hypotheses validation.

About indirect effects, small ($f^2 \leq 0.15$) and significant effects are observed for the relationships: business organization to product innovation ($f^2=0.080$); business support organizations to process ($f^2 = 0.113$) and product innovations ($f^2=0.136$); and geographic proximity to business organizations ($f^2 = 0.141$). The business support organization mediates the geographic proximity-business organization link. Innovation proximity has no major secondary impacts.

Table 5: Total effects

Total effects	Original sample	Sample mean	P values	Type of effect
Business Organization → Process Innovation	0.359	0.360	0.000	Significant
Business Organization → Product Innovation	0.373	0.373	0.000	Significant
Business Support Organization → Business Organization	0.310	0.313	0.000	Significant
Business Support Organization → Process Innovation	0.200	0.200	0.000	Significant
Business Support Organization → Product Innovation	0.129	0.130	0.001	Moderate
Geographical Proximity → Business Organization	-0.144	-0.141	0.017	Moderate
Geographical Proximity → Business Support Organization	0.428	0.440	0.000	Significant
Geographical Proximity → Process Innovation	-0.014	-0.012	0.358	
Geographical Proximity → Product Innovation	-0.048	-0.047	0.057	
Process Innovation → Product Innovation	0.224	0.223	0.000	Significant

Source: Prepared by the authors by SMART-PLS.

CONCLUSIONS AND IMPLICATIONS

First, it is concluded that collaborative innovation is a relevant strategy for companies in the tourism sector to develop process and product innovations. This would allow companies to maintain and increase their competitiveness levels.

It is also concluded that different effects depend on the type of organization with which collaboration occurs. It is established that collaboration with a "Business organization" directly affects the development of product innovations (services) and process innovations. This is the result of direct links with buyers and suppliers. On the other hand, collaboration with "Business support organizations" favors process innovations. The services and support programs of public organizations, universities, and technology centers explain this. This also explains the positive relationship between "Business support organization" and "Business organization."

Regarding geographic proximity, it is observed that the

perception of proximity to the "Business support organization" is relevant for innovation in tourism companies because these institutions have evident local roots, such as public organizations and institutions, universities, and technology centers. It also stands out that geographical proximity hurts the "Business organization." This can be explained by focusing on competition rather than collaboration with other companies, such as buyers and suppliers. Implications.

First, the need to continue deepening and expanding studies on collaborative innovation in the tourism sector is highlighted, as it is a relevant strategy for the growing competitiveness and complexity companies face.

From the point of view of policymakers, it is necessary to implement policies and programs that favor collaborative innovation among the different actors in the tourism sector in Chile and emerging economies. This could be addressed by developing systemic approaches to innovation

and stimulating interactions among all the actors in the innovation ecosystem. It also highlights the need to favor trade organizations' role in channeling tourism companies' challenges.

Companies and their managers must disseminate the benefits of collaborative innovation and develop strategies that allow tourism companies to develop programs and capabilities to innovate together with other organizations.

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An analysis of the tourist demand of Pehuen C6 (Argentina) in times of post-pandemic

Un análisis de la demanda turística de Pehuen C6 (Argentina) en tiempos de post-pandemia

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ABSTRACT

Since the emergence of COVID-19, one of the sectors most affected has been tourism. However, the scenario and measures such as restrictions of movement abroad, led to a growth of regional tourism. The objective of this research is to determine how the COVID-19 pandemic has affected the tourist demand of Pehuen C6 (Argentina). From there, the opportunity arises to position itself as a regional tourist destination considering the proximity to Bahía Blanca and the attractions that the resort has. The methodology consists of a bibliographic review of relevant concepts, a characterization of the town and an analysis of the surveys carried out by the Tourism Directorate of Coronel Rosales in the summer periods from 2015 to 2021 (between 900 and 1200 annually), considering a sample error of 3%. The results show that Pehuen C6 has greater resilience than other tourist destinations and has competitive advantages in the post-pandemic tourism context. The conclusion reached is that the pandemic has been an opportunity to revalue local tourist spaces, with proposals focused on the development of creative, sustainable and responsible tourism.

Keywords: Pehuen C6, tourist demand, post-pandemic, regional tourism, resilience, competitiveness advances.

RESUMEN

Desde la aparición del COVID-19, uno de los sectores más afectados ha sido la actividad turística. Sin embargo, el escenario y medidas como las restricciones de circulación hacia el exterior, propiciaron un crecimiento del turismo regional. El objetivo de esta investigación es determinar como la pandemia COVID-19 ha afectado la demanda turística de Pehuen C6 (Argentina). A partir de allí, se plantea la oportunidad de posicionamiento como destino turístico regional considerando la cercanía a Bahía Blanca y los atractivos que posee el balneario. La metodología consiste en hacer una revisión bibliográfica de conceptos relevantes, una caracterización de la localidad y un análisis de las encuestas realizadas por la Dirección de Turismo de Coronel Rosales en los períodos estivales desde el año 2015 al 2021 (entre 900 y 1200 anuales), considerando un error muestral del 3%. Los resultados obtenidos reflejan que Pehuen C6 presenta mayores posibilidades de resiliencia que otros destinos turísticos y que posee ventajas competitivas en el contexto turístico pos-pandemia. La conclusión arribada es que la pandemia ha resultado una oportunidad para revalorizar espacios turísticos de proximidad, con propuestas centradas en el desarrollo de un turismo creativo, sustentable y responsable.

Palabras clave: Pehuen C6, demanda turística, post-pandemia, turismo regional, resiliencia, ventajas competitivas

INTRODUCTION

The emergence of COVID-19 in 2019 has caused a strong negative impact on tourism activity, both in Argentina and the rest of the world, being one of the socio-economic activities most affected by the measures adopted to stop the spread of the virus (in Argentina, preventive and compulsory social isolation measures, Decree 297/2020. DECNU-2020-297-APN-PTE). In this context, tourism was restricted by its importance as a form of human mobility and, consequently, as a propagator of the COVID-19 at a global level. Haywood, (2020), Simancas Cruz et al. (2020) and Assaf and Scuderi, (2020) agree that measures taken to curb the pandemic, such as the closure of borders and disruption of transport, have harmed the sector causing a decrease in economic income generated through tourism flows and related activities, also impacting employment levels.

From our country's perspective, the context created by the pandemic could be beneficial for economic growth. It is known that the balance of national tourist services has been historically negative: Argentines consume more tourist services abroad than foreigners in Argentina (Rojas et al, 2020). In the face of movement restrictions, and because of the prohibition or difficulty of crossing borders, people could choose destinations close to their habitual residence, reducing the risk of contagion and accessing services according to their current purchasing power, strongly affected by the economic crisis. In this way, the trend to consume foreign tourism would be reversed, impacting positively on local tourism activity, posing as an alternative of economic development and strengthening of the activity the Local Tourism and the National Tourism. Data provided by the Ministry of Tourism and Sports of Argentina (2022), endorse the above by reporting that the records of the 2022 summer season show that 32.3 million people mobilized throughout the country (2.4% more than in the 2020 season). In addition, 3 million people did so during the long carnival weekends (26 February to 1 March) and holy week (14 to 17 April).

In consideration of the above, it is possible to analyze certain tourist places in Argentina. In particular, the town of Pehuen C6 stands out as a spa town that has among its most important attractions its extensive beaches with the warmest waters of the Buenos Aires coast (21° C on average), paleontological tourism thanks to the presence of fossil traces of extinct animals that inhabited the area more than 12,000 years ago, added to the scheduled

events, the nature that surrounds it and the tranquility of the town.

The objective of this work is to analyze the variations in tourist demand in the town of Pehuen C6 considering the impact of the COVID-19.

The importance of conducting this study is that it is possible to identify the possible advantages of domestic demand capture in the current context of post-pandemic, which will result in the generation of greater economic movement and therefore, in benefits for the local community.

METHODOLOGY

In the first instance, a bibliographical investigation was carried out in relation to the impacts that COVID-19 has caused on tourism, on the concepts of tourist demand, resilience and competitive advantages by consulting specific scientific and technical articles and web pages. Then, a fieldwork was carried out in order to characterize the town and the development of tourist activity in it.

With regard to the tourist demand of the resort town itself, the data obtained from surveys carried out by the Coronel Rosales Tourist Office in Pehuen C6 in the summer periods (January and February) were considered from 2015 to 2021, in order to know its composition, determine the profile of the visitor and how its behavior has varied over the years. The number of surveys carried out varies between 900 and 1200 per year, it has been considered a sample error of 3% since the size of the representative sample of the population is determined in 1061 average people (Nogales, 2000). The surveys are organized in blocks of information that are not uniform in all periods. It is clarified that the one for the period 2020-2021 was made online given the limitations due to the health situation. The variables are divided into the socio-demographic profile (composition of the group, age, gender, place of origin, frequency of visit, level of education and occupation); reports and reservations (sources of information, reservation, and means of reservation); characteristics of the trip (services used in destination such as transport, accommodation, gastronomy, and recreation, value for money, second residences, means of transport); finally, behaviour in destination (frequency of visit, perception of quality and prices of information and beach services, general aspects such as safety, beach conditions, green spaces, cleanliness, public spaces, positive and negative reviews of the tourist destination and attractions visited). Greater relevance was given to

information on the origin of tourists and visitors, as well as on consumption in the resort, the reason for choosing the destination and the image and satisfaction with it.

BIBLIOGRAPHIC REVIEW

Tourism in times of post-pandemic

Due to its high interaction with all aspects of society, tourism is very vulnerable to crises of any nature, being affected by natural disasters, economic recessions, political instability, public health problems, etc. In this way, the tourist system is faced with the need to adapt continuously to diverse and complex shocks, which strongly impact the profitability and survival of the sector.

It could be argued that the COVID-19 crisis has been one of the deepest for tourism (Hiernaux-Nicolas, 2020b; Škare, Soriano, and Porada Rochoń, 2021) which led to the implementation of major restrictions on mobility globally, and tourists in particular. Haywood, (2020), Simancas Cruz et al. (2020) and Assaf and Scuderi, (2020) agree that measures taken to curb the pandemic - such as the closure of borders and disruption of transport -, have harmed the sector causing a decrease in the economic income generated through tourism flows and related activities, also impacting employment levels. Moreover, as reported by the World Tourism Organization (2020), during the year 2020, tourism activity has regressed for 30 years, with falls of more than 70% in visitor arrivals: destinations received about 1 billion fewer international tourists.

Although 2020 was not a favourable year for tourism, in Argentina the records of the 2021 season show that more than 12 million people mobilized throughout the country since the beginning of the season in December 2020 (Ministry of Tourism and Sports, 2021). The measures of care taken, such as the conditioning of destinations and access to medical assistance centers distributed throughout the territory, generating confidence in tourists unfavorable socio-economic conditions, the tourism sector has largely managed to adapt. UNWTO (2020) proposes as expanded scenarios for 2021-2024 an upturn in global tourism in the second half of 2021, taking between two and a half years to four, to return to 2019 levels. It also states that more than 900 million tourists made international trips in 2022, double that, in 2021, although it is still at 63% of the levels before the pandemic (OMT, 2023). All regions of the world recorded significant increases in international tourist numbers.

According to the latest surveys of the Ministry of Tourism

in Argentina were recorded (2023) 33.8 million tourists in the summer season 2023, 4.5% more than the previous season and representing an approximate economic impact of \$1,3 billion, 12% more than last season, measured at constant prices.

For its part, the World Economic Forum (WEF), in its report "Global Competitiveness Report: How Countries are Performing on the Road to Recovery" (2020), argues that 37 countries are best prepared for recovery and future economic transformation. In Latin America, Argentina, Brazil, Chile, and Mexico stand out.

In most countries it is possible to see that a new model of tourism policy has been configured that encourages the promotion of domestic tourism, prioritizing the preservation of the environment, the interest in digital advice, flexibility to cancel trips, and a destination-preference based primarily on health policies and protocol monitoring. Therefore, one of the keys to increasing the dynamics of the activity would be the national promotion of short stays, consolidating a trend where the choice of tourists is strongly influenced by the possibility of having contact with nature and being able to maintain distance to avoiding contagion.

A key factor in the reconfiguration of post-pandemic tourism is the psycho-sociological nature in relation to the tourist's behavior: who has greater caution when deciding how much, where, and how to travel.

Both destinations and companies engaged in tourism must adapt in order to respond to new scenarios by modifying their strategies, since the massive hegemonic tourism model is in question and health security is an even more important attribute than it already was. It has been resigned what involves tourism, promoting proximity tourism and the emergence of alternative tourism development. Therefore, the challenge would be to consolidate tourism modalities that consider in addition to the economic factor, social and environmental aspects (Fraiz Brea and Tarrés Falcó, 2020; Flores Vázquez, 2021).

Local tourism proposals are considered as an opportunity to reactivate tourism activity (Beni, 2020; César Dachary, 2020; Delgado del Castillo, 2020; Martínez Quintana, 2020; Rondón García, 2020) and, also, as an instrument to compensate for the loss of income from international tourism (Araújo Vila and Toubes, 2020; Hall et al, 2020; Simó et al 2020;), encouraging a strategy in which a greater integra-

tion of the tourist with the territory and its values prevails; (Pitarch Garrido, 2020 and Palomo Ortega et al, 2020).

Consistent with the above paragraph, Izcara and Cañadas (2020) refer to the concept staycation by virtue of the trend of holidays at home and manifest when investigating the literature, that there are two definite positions on it:

"The first refers to a holiday period in which instead of going on a trip you stay at home. Here, excursions to nearby destinations and leisure activities would be included, but staying at the usual residence (Breslow, 2019; Fox, 2009; Moltz, 2009; De Bloom et al., 2016; Heimtun, 2017). In the second position, they are considered a practice of proximity tourism and, therefore, would include overnight stays in tourist accommodation in nearby localities or in second residences (Bronner and Hoog, 2013; James et al., 2017; Yesawich, 2010)" (Izcara and Cañadas, 2020: s/p)".

Added to the above, trends indicate that it would be important to cultivate the concept of regenerative tourism (Vargas Sánchez, 2020) not only as a regenerator of the environment but also as a regenerator of the tourist after the period of confinement, who will seek to have contact with nature, the outdoors and with other people, but without falling into the agglomeration. These aspects are valued positively and will benefit the destinations that own them.

Although tourism has shown a high degree of resilience, rapidly recovering from the negative impacts of the COVID-19 pandemic and becoming an engine of overall economic recovery, its effects should not be underestimated. It is, therefore, necessary to address the impact of the crisis on domestic tourism because it constitutes the largest share of international tourism and its ability to compensate for the loss of revenue from international tourism (Hall, 2010).

Demand, resilience and competitive advantages of the tourism sector

Studying the demand of a tourist destination is important because its analysis allows the design of proposals to improve the satisfaction of the needs and desires of the tourist. The tourist demand includes the goods and services that travelers consume during their stay, among the main ones can be mentioned: transport, accommodation, catering, leisure activities and recreation. In this way, it can be argued as mentioned by Narváez and Fernández (2010), that tourist demand analyzes the characteristics of visi-

tors and tourists according to the segment to which they belong, the level of satisfaction with the attractions of the destination, tourism spending, among others.

Mochón (2004) affirms that the desires that people have to consume tourism shapes the tourist demand, which confronts what the authors say Parra and Calero (2006) which argue that the demand approach starts from visitors consumers of goods and services, typical of tourism activities as for other activities.

Therefore, destinations that do not meet the demands of travelers, granting the expected experiences, risk being excluded from the sector (Vargas, 2005).

Establishing the competitiveness of a tourist destination is a complex task since it requires combining diverse elements that are sometimes not easy to measure. For a destination to be competitive, it must have competitive and comparative advantages, or, in other words, it must have a wide variety of resources and products managed effectively and efficiently in the medium and long term (Castro, Giraldi and Galina, 2014; Domareski-Ruiz et al., 2015).

The competitive advantages are influenced by the characteristics of the territorial context (environmental, landscape, and cultural) and include the environments that determine the perception of tourists regarding image, quality, satisfaction, and competitiveness of the service infrastructure (Murphy et al., 2000). They include access and travel infrastructure, accommodation and catering, tourist attractions, leisure, entertainment and shopping.

In relation to comparative advantages refer to the ability to use in the long term, or not, the resources of a destination and are achieved by offering tourists satisfactory experiences, achieving their loyalty (Castro, Giraldi and Galina, 2014; Carmona, Costa and Ribeiro, 2014).

When achieving tourism competitiveness, important aspects should be considered such as: local culture, availability of recreational activities, reception of the local population, tourist safety, price level and shopping options (Reitsamer et al., 2016; Cracolici and Nijkamp, 2009) as well as environmental and landscape aspects (Murphy et al., 2000; Cracolici and Nijkamp, 2009).

According to Estevão and Nunes (2015), the experience of

tourists is related to the characteristics of the destination, influenced by perceived and therefore subjective aspects. Thus, Ayikoru (2015) states that, if a person travels to a destination motivated by its environment and landscape, it will tend not to return if it perceives predation or poor visual quality.

In reference to the concept of resilience, it can be said that it constitutes the ability of individuals to overcome crises successfully. His study has been approached by psychology adding later, other disciplines. It is important to delve into the resilience that tourist destinations may have, given the possibility of natural disasters, weather, economic events, war, or terrorist attacks. This concept then emerged to describe and explain the reasons why some cities that suffered crises and/or disasters, managed to revitalize their economy and renew spaces, while other cities could not achieve (Ponce et al., 2018). Tourist destinations must be able to resist the changes that the environment gives them, responding adequately to adverse situations, with the intervention of local actors (public and private) who participate in the activity.

When analyzing the existing literature, it is noticed that resilience is a complex and subjective phenomenon, resulting in an ambiguous, imprecise and operative concept, which leads to various authors (Pérez y Hernández, 2018; Gutiérrez Vega, 2018; Ponce; Civitaresi y del Valle Colino, 2019) affirm that there are disagreements about the best mechanisms for their measurement.

Martin et al. (2016) in carrying out resilience studies, identify four stages considering the depth, nature, and duration of the disturbance, which influences the scale and duration of its effects on the(s) economy(s):

- 1) vulnerability or risk of firms, institutions, and workers to shock, understood as the sensitivity or propensity of a region to different types of disturbances;
- 2) the initial impact of the disturbance;
- 3) adaptive reorientation (or robustness), i.e., the ability to adjust and adapt to restore key functions and performances;
- 4) the recoverability or renewal (Martin, 2012), which includes the degree and nature of the recovery and the characteristics of the development path towards which the territory recovers.

As argued by Hernández Martín (2020), the challenge has emerged to move towards strengthened governance of

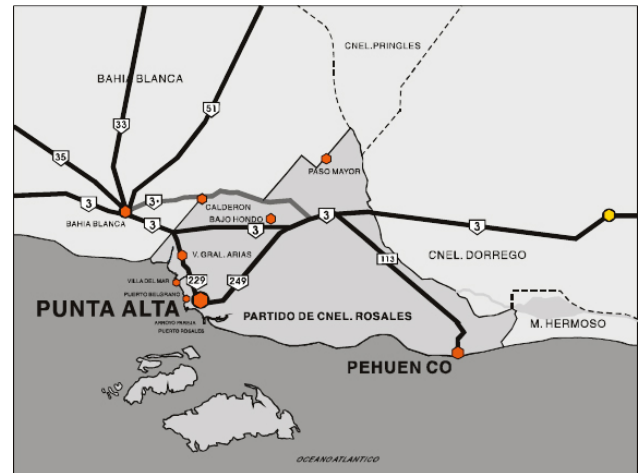
tourism activity with the aim of addressing the effects of the pandemic, but without discarding the agenda in terms of sustainability and the incorporation of knowledge in decision-making. It aims to activate knowledge by creating synergies that can align administrations and agents in the same direction. Likewise, Pitarch-Garrido (2020) asserts that, like all crises, this can also be considered an opportunity.

RESULTS AND DISCUSSION

Characterization of the location of the locality

Pehuen C6 is located in the 38° 59' 51" latitude South and 61° 36' longitude West, on the Atlantic coast southwest of the province of Buenos Aires, 650 km from the Federal Capital, 86 km from Bahía Blanca, and 68 km from Punta Alta, capital of the Coronel de Marina Leonardo Rosales party, Province of Buenos Aires, to which it belongs. The entrance to the spa is done by Provincial Route N°113/2, which connects with the National Route N°3. (Figure 1).

Figure 1. Geographical location of the Coronel Rosales and Pehuen C6



Source: Fucile, G. (2008)

This urban nucleus, whose name comes from the Araucanian language meaning pine and water, was founded on December 16, 1948 by Don Avelino González Martínez. It has all its unpaved streets and most of them very forested mainly with pines and eucalyptus, it is located in an irregular plane at 15 meters above sea level, on the ledge known as Punta Pehuen C6, located on the urban center and its development is parallel to the coast which has an orientation East - West. The highest buildings do not exceed three floors and the houses have a garden or park around them (Figure 2).

Figure 2. Photograph street Rosales and Fragata Sarmiento, Pehuen C6



Source: author (2021)

According to the National Census of Population, Households and Housing (2010) of the National Institute of Statistics and Censuses (INDEC), Coronel Rosales' party has 62,152 inhabitants. According to data provided by the Directorate of Tourism of Coronel Rosales, currently, Pehuen C6 has 900 permanent inhabitants who are added, mainly in the summer, thanks to the presence of residents who have a second residence in the resort and tourists and visitors, about 20,000 (Coronel Rosales Tourist Board, 2021), before the emergence of the COVID-19.

The beach is approximately 10 km long and 143 meters wide (Figure 3), at the top of which is a group of low dunes and at the bottom is a fossiliferous deposit (Bustos, 2012). The beaches present sediments composed of fine sand in the spa sector (Bustos, Piccolo and Perillo, 2011). In the vicinity of the coast, they reach a height of 10 m approximately with unripe dunes, dunes covered by tamarisks (*Tamarixgallica*), cat's claw and endemic species such as the *Neosparton Darwinii*, artificial cliffs and cemented sand outcrops (Calo et al., 1998; Bustos, 2012).

Figure 3. Pehuen C6 beach



Source: author (2021)

Below the sandy beach is a clayey platform that has fossil traces of the Pleistocene, which are exposed at low tide (Figure 4). In the western sector, the cliffs predominate

and towards the east the dunes.

Figure 4. Photograph Photograph of traces of Glyptodonte



Source: author (2021)

In the populated areas introduced vegetation such as pines, tamarisks, eucalyptus, ash, elm, aromatic, among others.

The temperate climate predominates with an annual average temperature of 14.6° C. The sea water temperature averages 21° C, which makes it next to the town of Monte Hermoso, the warmest waters of the Buenos Aires coast. The summer and winter seasons differ well thermally, the months from April to August have an average temperature of 10°C. Summer is hot and the average temperature for the months of September to March is 19°C (Bustos et al., 2011). With regard to rainfall, they occur in spring-summer and autumn, being minimal in winter.

It has been noted that the spa has no industrial sector and the commercial sector is small, with few businesses open all year.

Regarding the development of tourist activity in Pehuén C6, sun and beach tourism represents the most important economic activity. Several studies have been carried out in the town regarding various aspects of tourism, among which we can mention: analysis of the tourist potential of its supply and demand (Cutidiano, 2010; Bustos and Piccolo, 2012), resurfacing the access route to the town (Sánchez, 2010; Santarelli and Campos, 2013), tourism of second residence (Larreche, 2015), ecological tourism (Bartelucci, 1994; Del Pozo et al., 2000), cultural (Ausili, 2005), scientific (Fucile, 2008; Giulietti, 2010; D'Amato, 2011) and rural (Bustos et al., 2016).

Pehuen C6 has a varied tourist-recreational offer, based on its natural and cultural tourist attractions, as well as the tourist plant and available equipment that can be enjoyed

by tourists, visitors and second residents during their stay. Thanks to its wide beaches, the warm waters and the existence of extensive dunes, it is suitable for various activities such as sport fishing, kitesurfing, windsurfing, kayaking, horseback riding, trekking, cycling and ecotourism. It also has various cultural attractions, scheduled events and sporting and theatrical shows. A summary of these can be seen in Table 1 considering the classification proposed by Boullón (1985), which is based on the Center for Tourism Research and Training and the Organization of American States (CICATUR - OEA).

Table 1: Tourist Attractions of Pehuen C6

Tourist attractions		
Categories	Subcategories	
Natural	Natural sites	Beach
		Enchanted forest
	Museums and cultural events, testimony of past cultures	Provincial Geological Reserve, Paleontological, Archaeological Pehuen C6 -Monte Hermoso Natural Provincial "Pehuen Co - Monte Hermoso"
		Paleontological Interpretation Room "Florentino Ameghino"
Cultural		Theme park "Plaza Carrasco"
		Sunken ship
		Boat house
	Folklore and popular and spontaneous architecture	Mill house
		Chapel "The Holy Family"
		"La boya"
Scheduled events		Municipal nursery "Pablo Gunther Lorentz"
		Artisan fair
		National Meeting of Sculptors
		Party until the sun comes up
		Party of the Meeting
		Party at sea and countryside
		Competition "Tria Adventure"
		Sport fishing contest

Source: author (2021)

The spa has hotel accommodation (aparts hotel, hotel) and extra-hotel accommodation (large second homes, rental cabins and campsites) and basic services for both the permanent population and tourists. For general infrastructure and equipment, see Table 2 and 3 respectively.

Table 2: General infrastructure of Pehuen C6

Basic services	Features	Borrowers
Light	Coverage throughout the locality	CEPA
Water	The second phase of installation of the running water network in the central area of the town. Extraction of water for human consumption through wells by pumps	SPAR
Gas	gas packaged in bottles or tubes is used	
Residue recollection	Constant collection. There are clean points with three identified pockets for plastics, paper and cardboard, and glass and aluminum	Municipality of Coronel Rosales
Accessibility	From the National Route 3 that connects with the Provincial Route 113/2, which is in perfect condition and with an optimal signage. Existence of a "La Soberana" rubble road used by rural workers and tourists to travel to and from Monte Hermoso	
Ground transportation	A bus company provides services all year, the tour connects Punta Alta, Bajo Hondo, Bahía Blanca and Pehuen C6. Taxis and remises also operate	Puntal Tour
Communications	Cable TV and internet service Telephone exchange and three cell phone antennas. 4G service FM local	Pehuen C6 Diffuser Movistar Radio Mas repeater
Education	Kindergarten No. 915 Pehuen C6 Provincial School N°. 18 Francisco N. Laprida Technical Education School N°. 1 Pehuen C6 Annex	

Source: author (2021)

Table 3: Equipment of Pehuen C6

	Features	Borrowers	
Hotel Accommodation	470 places		
	hotel aparts	Oasis Apart Hotel, Terrazas Apart Hotel, Alojamiento Pehuen	
	hotel	Cumelcán	
	3000 seats		
Non-hotel accommodation	Campsites	Don Horacio, Enchanted Forest, UNS, Union of Municipal Workers of Punta Alta, ATE, Road, Gas Industry Workers Union, La Costa	
	second homes, cabins, departments		
	5 fast food outlets	El Patio Cerveceros y Súper Pancho, Buena Vida, Rey Lomo, The Festival Food & Beer Truck, UP Beer & Food	
	1 delicatessen	Los Abuelos	
	4 hostels	Eco Hub de Playa, "El Estacionamiento", Occasus, Punto Oeste	
	10 restaurants	Darwin Marisquería, Dino Tenedor Libre, Dos Banderas Parrilla, Kankawe, La Toscana, La Tranquera, Monte Verde Marisquería, Papo Resto Bar, Varela Vareleta, Zona Verde	
	2 breweries	Barone, Normandía	
	1 pastry shop	Dulce Any	
	Recreation	Danceable bowling, zoom of the Development Society, covered patio of School No. 18 (capacity 60 people), multipurpose room of the Sagrada Familia Chapel with (capacity 90 people), Shopping promenade with 4 stands: sale of handicrafts, video games, beach store and resto-bar, Craftsman's Fair, Florentino Ameghino paleontological interpretation room	
		37 shops (kiosks, self-service stores, ice cream parlors, pharmacy), Public bath batteries, 6 control towers for lifeguards, Tourist Office, service station, a mechanical workshop and a tire shop, medical room	

Source: author (2021)

The tourist facilities on the beach are scarce and precarious: the parador "Punto Oeste" has a sector of tents. In the Paleontological Reserve areas 2 and 3, which belong to the town, have boxes for rangers, but there are no marked trails.

In relation to connectivity to the villa it was found, thanks to the study conducted by Santarelli and Campos (2013), that the resurfacing of the access road made in 2010 has meant an increase in the flow of tourism, demand for accommodation and, simultaneously, an increase in the offer of this service in both quantity and diversity.

Analysis of the tourist demand of Pehuen C6

The data provided by the Coronel Rosales Tourism Directorate allowed us to make a comparative table in order to observe the behavior of the various variables consulted from the 2015-2016 season to the 2020-2021 season (Table 4).

Table 4: Comparison of survey variables, seasons 2016-2021, Pehuen C6

Variable		Percentages						
		2016	2017	2018	2019	2020	2021	Dif. 20/21
Group type	Families	56%	59%	51%	60%	62%	72%	10%
	Couples	29%	21%	20%	25%	19%	17%	-2%
	Friends	12%	13%	15%	10%	12%	7%	-5%
	Alone	3%	7%	14%	5%	7%	4%	-3%
Group composition	2 people	33%	30%	35%	33%	28%	24%	-4%
	4 people	21%	20%	19%	20%	21%	30%	9%
	3 people	14%	20%	18%	19%	19%	25%	6%
	5 people	12%	10%	9%	10%	13%	8%	-5%
	1 people	3%	6%	14%	5%	7%	3%	-4%
	6 people	8%	6%	3%	5%	5%	2%	-3%
	+ than 7 people	6%	3%	1%	4%	5%	5%	0%
	7 people	3%	5%	1%	4%	2%	3%	1%
	Average	4	3	3	3	4	4	
Origin	Buenos Aires	72%	76%	80%	76%	75%	82%	7%
	Bahía Blanca	28%	34%	44%	39%	29%	49%	20%
	Punta Alta	16%	20%	20%	19%	28%	23%	-5%
	Rest Southwest	S/D	S/D	6%	7%	3%	3%	-4%
	Interior rest B.A.	15%	15%	5%	6%	6%	3%	-3%
	C.A.B.A	8%	5%	2%	4%	3%	1%	-2%
	G.B.A	5%	3%	3%	2%	2%	3%	1%
	Cuyo (La Rioja, San Juan, San Luis, Mendoza)	3%	2%	1%	2%	3%	3%	0%
	Center (Córdoba)	2%	3%	2%	2%	3%	1%	-2%
	Patagonia (La Pampa, NQN, RN, Sta. Cruz, TDF)	19%	15%	15%	17%	18%	13%	-5%
	Coast (S. Fé, E.R, Ctes, Misiones, Chaco, Formosa)	3%	2%	1%	25	1%	1%	0%
North (Jujuy, Salta, Sgo. del E., Tucumán, Catamarca)	1%	1%	1%	1%	0%	0%	0%	
Stay	2 a 5 días	50%	25%	33%	34%	38%	32%	-6%
	1 día	17%	36%	29%	30%	32%	15%	-17%
	6 a 10 días	17%	24%	18%	21%	17%	20%	3%
	11 a 15 días	5%	6%	5%	5%	5%	12%	7%
	Más de 30 días	3%	4%	7%	4%	4%	7%	3%
	21 a 30 días	6%	4%	5%	4%	3%	10%	7%
	16 a 20 días	25	2%	3%	2%	1%	4%	3%
Consumption at the destination	Tourist	S/D	S/D	83%	65%	77%	S/D	
	Hiker	S/D	S/D	11%	16%	15%	S/D	
	2° resident	S/D	S/D	6%	19%	8%	S/D	
Would he return next season?	Yes	S/D	95%	97%	96%	96%	S/D	
	No	S/D	1%	1%	1%	1%	S/D	
	Doesn't know	S/D	4%	2%	3%	3%	S/D	
Would I go back out of season?	Yes	S/D	58%	66%	53%	60%	S/D	
	No	S/D	26%	26%	31%	27%	S/D	
	Doesn't know	S/D	17%	8%	16%	13%	S/D	
Reason for choice of destination	Beach	64%	40%	73%	75%	60%	S/D	
	Tranquility	55%	70%	71%	72%	59%	S/D	
	Proximity	25%	30%	49%	42%	45%	S/D	
	Own home	S/D	11%	18%	20%	17%	S/D	
	Friends	14%	8%	22%	13%	13%	S/D	
	Family		14%	26%	19%	12%	S/D	
	Security	S/D	9%	24%	18%	7%	S/D	
	Economic	2%	8%	23%	8%	6%	S/D	
	Other	14%	10%	2%	10%	5%	S/D	
	Work	S/D	S/D	5%	4%	4%	S/D	
	Footprints	S/D	S/D	7%	3%	3%	S/D	
	Fishing	S/D	S/D	8%	3%	1%	S/D	
Did it meet your expectations?	Yes	S/D	97%	95%	80%	88%	S/D	
	No	S/D	-	-	17%	9%	S/D	
	Doesn't know	S/D	3%	5%	3%	3%	S/D	

		Scores						Dif. Average 20/21
Quality in services	Oficina de turismo y stand de informes	9,13	9,01	8,80	8,13	8,47	S/D	-0,24
	Alojamiento	S/D	8,10	8,05	8,06	8,07	S/D	0,00
	Atractivos turísticos	9,06	8,75	8,45	8,26	8,06	S/D	-0,46
	Gastronomía	S/D	7,96	7,86	7,97	8,80	S/D	-0,10
	Seguridad	7,39	8,73	8,72	8,27	7,77	S/D	-0,41
	Entretenimientos (actividades culturales y recreativas)	S/D	8,44	7,59	7,47	7,58	S/D	-0,19
	Centro de compras (supermercados y artesanos)	S/D	7,83	7,45	7,39	7,50	S/D	-0,04
	Comunicaciones	S/D	6,44	6,23	5,84	6,78	S/D	0,46
	Contaminación (cuidado ambiental)	S/D	8,04	7,15	7,17	6,71	S/D	-0,56
	Transporte de media distancia	S/D	7,45	7,52	7,33	6,69	S/D	-0,56
	Cartelería y señalización (urbana y rutas)	8,03	7,60	7,31	6,46	5,81	S/D	-1,23
	Iluminación	S/D	6,46	6,24	5,52	5,56	S/D	-0,39
	Baños públicos (limpieza e higiene)	S/D	6,99	5,40	5,20	5,17	S/D	-0,52
	Cajero automático	S/D	7,65	5,19	6,03	4,15	S/D	-1,61
PROMEDIO	S/D	7,82	7,28	7,08	6,87	S/D	-0,4	

Source: author (2021) Own elaboration based on Coronel Rosales Tourism Directorate

The result of the surveys reveals that most of the people who chose Pehuen C  as a destination had a stay of 2 to 5 days being the type of family predominant, consisting of 2 people. Then, the recreationists are located, that is, those who only came to spend the day (usually Saturdays or Sundays). The average of the analyzed seasons shows a group of between 3 and 4 people.

The main place of origin corresponded to the province of Buenos Aires where the cities of Bah a Blanca and Punta Alta stand out, although visitors from other municipalities of the interior and even other provinces predominated the Patagonia region, which marks the role of the resort as a regional, provincial and/or national resource.

In the period 2020-2021, a negative variation was observed in the vast majority of variables, however, the number of visitors from the province of Buenos Aires, especially from Bah a Blanca, increased. This situation could be explained by the outbreak of the pandemic, which caused the election of Pehuen C  for its proximity and favorable conditions for the development of tourist activities.

The main motivations for visitors to the resort were the beach, the search for tranquility, and proximity. In relation

to the expense that people make on the destination, it is the tourists who spend the most, followed by hikers and, finally, the second residents.

The query to visitors about whether their expectations regarding the destination were met, an average of 90% answered affirmatively so also on whether they would return to Pehu n Co the following summer season, above 95% answered yes in all the analyzed seasons. Also, the average 59% of respondents said they would return after the high season. These results show a positive change in demand regarding the view of the resort as a tourist attraction. The knowledge of the characteristics of the demand that Pehuen C  meets helps to diversify its tourist offer. Therefore, it is feasible to diversify the offer of sun and beach to other activities that point, for example, to paleontological or sports tourism; especially during the times of the year in which it is not possible, for meteorological reasons, to enjoy the sun and the beach during the whole stay planned by the tourist (Garc a S nchez and Alburquerque Garc a, 2003).

Finally, with regard to the quality of services when performing an average of the scores collected in all the analyzed seasons and then, a comparison with the last summer sea-

son, negative results are observed in most of the variables, except in accommodation and communications, yielding an average result of -0.4. This allows us to know the key points to improve, in order to achieve a better positioning and competitive advantages in the post-pandemic tourism context. It is clear from the surveys that the service of ATMs should be optimized, signage and signage both urban and on the routes, the environmental care of the spa, medium distance transport, entertainment and attractions especially on unfavorable weather days in which it is not possible to perform outdoor activities, as well as cleaning and hygiene of public bathrooms.

CONCLUSIONS

In the face of events such as the COVID-19 pandemic, creativity can be used as a way to find new ways of acting that respond to the challenges posed by the conjuncture. In the present context, tourism is one of the sectors most affected, not only by the absolute brake on activity during the peak of the pandemic, but by the very concept of mobility and human relationship that tourism implies.

In addition to the restrictions introduced from the health point of view, we must add the consequences of the economic recession and the fear of moving away from the areas of the comfort of users, which are and will undoubtedly continue to be present. This scenario caused local/regional tourism to converge a series of circumstances that could reverse, at least partially, the consequences of this crisis, and that the return to "normalcy" is more accelerated.

The current conditions of tourism activity are changing towards prospects for greater appreciation of sustainable tourism products, a trend towards proximity travel and a rationalization of travel, as people in their search for rest and enjoyment are opting for places further away from the big urban centers, surrounded by nature and with minimal agglomeration.

Given this general scenario, it can be assumed that at least this time, domestic tourism, whether local or regional, in this case, that of the town of Pehuen C , presented greater possibilities to increase its activity than other tourist segments (for example, congress and convention tourism, group travel, cruises, business travel, and urban tourism). Among the reasons that can support this statement considering the analysis (Hall, 2010; Izcara and Ca adas,

2020; Vargas S nchez, 2020) of the literature and destination, can be highlighted: a position of proximity to the issuing points such as Bah a Blanca and Punta Alta, what can encourage demand to select Pehuen C  for reasons of security and tranquility; being tourism developed in a low population density environment; developing largely outdoors and in open spaces (beaches, squares, forest, nursery, reserve); having good ground accessibility thanks to the resurfacing of the access road in 2010; having a good image as a healthy and sustainable product.

This may give the resort under study not only a comparative advantage in overcoming the crisis more quickly but also an opportunity to reposition itself in the market. However, in order for this to occur, it is necessary to consider, when applying preventive measures and the control of possible contagion, the special characteristics of the vast majority of services linked to tourism, ensuring maximum prevention of regrowth, this being the priority that should predominate in all actions currently implemented as in possible future scenarios.

The analysis of the demand shows that certain points must be strengthened in order to meet the new demands that passengers will have since the current health crisis, such as greater environmental care, hygiene of public spaces and medium-distance public transport, among the most relevant.

By way of closure, it is important to highlight that the pandemic produced by the COVID-19 could constitute an opportunity to revalue tourist spaces of proximity, which present proposals focused on the development of creative, sustainable, and responsible tourism.

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Bird watching to promote ecotourism in the Ricuricocha lagoon in Peru

Observación de aves para fomentar el ecoturismo en la laguna de Ricuricocha en Perú

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ABSTRACT

Bird watching is a booming type of tourism that attracts a market segment with high purchasing power. The objective was to identify bird species to promote ecotourism in the Ricuricocha lagoon, Peru. The investigation was basic of exploratory level. Birds were inventoried through point counts, direct counts, intensive searches, and linear and strip transects. The results were the identification of 167 species of birds belonging to 48 families and 22 orders, 17 are of interest for bird watching, 10 migratory species, the most representative being the Tyrannidae family. It is concluded that the Ricuricocha lagoon has great potential to promote the ecotourism thanks to the variety and quantity of bird species it houses.

Keywords: inventory, specialized tourism, environment, sustainable development.

RESUMEN

La observación de aves es una modalidad de turismo en auge que atrae un segmento de mercado con alta capacidad adquisitiva. El objetivo fue identificar especies de aves para fomentar el ecoturismo en la laguna de Ricuricocha, Perú. La investigación fue básica de nivel exploratorio. Se inventario aves mediante puntos de conteo, conteo directo, búsqueda intensiva y de transectos lineales y de franja. Los resultados fueron la identificación de 167 especies de aves pertenecientes a 48 familias y 22 órdenes, 17 son de interés para el aviturismo, 10 especies migratorias, siendo las más representativas la familia Tyrannidae. Se concluye que laguna Ricuricocha tiene gran potencial para fomentar el ecoturismo gracias a la variedad y cantidad de especies de aves que alberga.

Palabras clave: inventario, turismo especializado, medio ambiente, desarrollo sostenible.

INTRODUCTION

Ecotourism is an activity that takes place in all natural spaces with tourism potential based on biodiversity, especially endemic flora and fauna, aimed at a specialized market segment, both due to the high level of thematic domain and the high capacity purchasing power of the participants (González Kuk & Muñoz-Marquez Trujillo, 2021). In this context, a new paradigm called bird tourism has emerged, which constitutes a strategy to promote the sustainability, appreciation and conservation of birds, make tourism management viable, and improve society-nature interaction (Cajas Bravo et al., 2021; Calderón Leytón et al., 2021; Cuevas et al., 2018).

Costa Rica and Ecuador, countries with low bird wealth, have discovered purchasing power in bird tourism that attracts thousands of tourists with purchasing power. In Colombia, on the contrary, despite having great biodiversity and a variety of bird species, bird tourism is wasted due to the lack of planning instruments that make it impossible to identify tourism potential (Mora Forero & Ramírez García, 2019).

In Peru, there are few census and bird registration works specifically in wetlands, however, 151 species between residents and migratory species were recorded (Pulido Capurro et al., 2021); As is the case of Lake Titicaca, which has a Ramsar category of global importance, 135 species included in 17 orders, 33 families and 83 genera were found there, which demonstrates its relevance by evidencing resident, migratory, Nearctic, southern and native species. Peruvian Andes towards its coasts (Pulido Capurro, 2018).

The Ricuricocha lagoon, located in the city of Tarapoto, San Martín region, Peru, is a potential ecotourism attraction where the presence of birds that live, nest and reproduce around the wetlands has been discovered. Although inventories have been carried out at the learning level and contests such as the Global Big Day that takes place twice a year in the world, there is a need to identify accurate information on the species that inhabit this space for a long period of time.

The only documented formal record of the avifauna in the San Martín region is the case of Altamirano-Guerrero et al. (2010), who found 311 bird species, of which four were

endemic to Peru and one to the Alto Río Mayo, 15 were of restricted distribution, and a considerable number of rare species; declining to this relevant area to develop ecotourism activities in addition to its easy accessibility.

The insufficient registration of birds at the national level and the little information on the places restricts the tourist offer and the specialization of bird tourism that, according to Carrillo García & Enríquez Rocha (2017), would generate socioeconomic, environmental and even political benefits because they encourage the creation of conservation areas that contribute to their protection and the development of sustainable tourism. It is important to emphasize that the lagoons, as is the case of the Ricuricocha lagoon, are potential nesting points for other species or, in any case, resting places for seasonally migratory species (Tobar et al., 2021).

On the other hand, bird species have characteristics of endemism, migration and nesting, which provides ecosystem importance for species threatened or in danger of extinction due to the loss of their habitats and forests due to human interventions due to population growth (Azurduy & Maillard, 2022).

The importance of wetlands and the species that inhabit them generate scientific, educational and economic benefits that sustain the ecosystemic advantages of the population, directly and indirectly (Estévez, 2020). Thus, the objective of the study was to identify bird species in order to promote ecotourism in the Ricuricocha lagoon, which in turn has information for their awareness, education and ecotourism promotion, and finally contribute to the Peruvian North Amazon circuit.

MATERIALS AND METHODS

Basic research was chosen because it had the purpose of filling a gap in the knowledge about birds with tourism potential in the study area. Likewise, it corresponded to the exploratory level since a subject little treated was investigated.

The population was made up of all the avifauna species of the Ricuricocha lagoon and its surroundings. The sample consists of the avifauna species of the Ricuricocha lagoon with sufficient tourist potential for their use and inclusion in the tourist offer of the San Martín region.

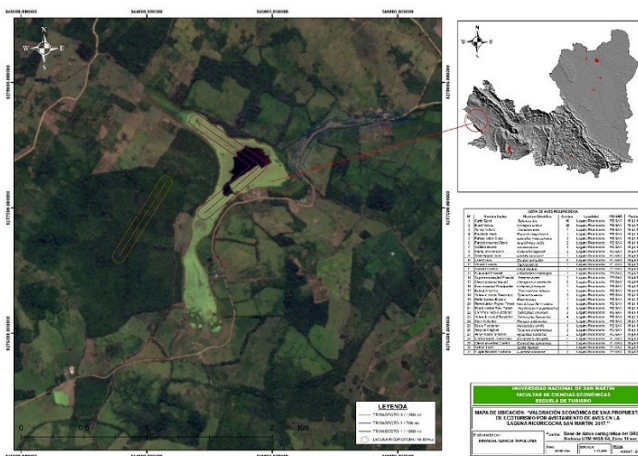
The tools used were the telescope, binoculars, camera, recorder and accessories, GPS. Recordings of bird sounds from the xenocanto digital library were also used, through the moderate use of playback, Peru bird guide, notebook and data collection form as a format to record birds, either by sighting or hearing.

It was necessary to request access to the adjoining land around the lagoon to facilitate the study. The Ricuricocha lagoon was recognized to carry out the inventory, verifying in situ the favorable environment for the investigative purpose.

The bird inventory was carried out through field work where the tours were carried out during the months of June to November 2017 in the vicinity of the Ricuricocha lagoon, with two field trips per month. For the elaboration of the inventory, the technique of counting points, direct counts, intensive search, lists of species, linear transects, strip transects and playback were used.

For the identification of species of tourist and scientific interest, the methodology of the taxonomic key run was applied, through the collation, review and comparison of the characteristics of the species of the study area, for which the Birds of Peru Guide (Schulenberg et al., 2010). Regarding the proposal for new bird watching points in the Ricuricocha lagoon, the georeferencing of the bird watching places was carried out using GPS and then the circuit sketch was prepared for the identification of the species (Figure 1).

Figure 1. Location sketch of the Ricuricocha lagoon



RESULTS

It was possible to register 167 species of birds, of which 17 were of interest for bird watching because they are endemic, and scientific because they are species related to the most threatened forest habitats in the San Martín region. Table 1 presents the description of the 17 species based on the criteria noted in the Birds of Peru Guide by Schulenberg et al. (2010).

Table 1. Species of avituristic and scientific interest

N°	Scientific name	Name in english	Name in Spanish	P.
1	<i>Crypturellus tataupa</i>	Tataupa Tinamou	Perdiz Tataupá	38
2	<i>Laterallus melanophaius</i>	Rufous-sided Crake	Gallineta de Flanco Rufo	128
3	<i>Pardirallus nigricans</i>	Blackish Rail	Rascón Negruzco	124
4	<i>Anurolimnas viridis</i>	Russet-crowned Crake	Gallineta de Corona Rufa	128
5	<i>Sarkidiornis melanotos</i>	Comb Duck	Pato Crestudo	44
6	<i>Columbina minuta</i>	Plain-breasted Ground Dove	Tortolita Menuda	164
7	<i>Galbula cyanescens</i>	Bluish-fronted Jacamar	Jacamar de Frente Azulada	264
8	<i>Phaethornis pretrei</i>	Planalto Hermit	Ermitaño del Planalto	216
9	<i>Thamnophilus punctatus</i>	Northern Slaty-Antshrike	Batará-Pizarroso Norteño	354
10	<i>Myrmotherula longicauda</i>	Stripe-chested Antwren	Hormiguerito de Pecho Listado	360
11	<i>Formicivora rufa</i>	Rusty-backed Antwren	Hormiguerito de Dorso Rojizo	364
12	<i>Hylophilus thoracicus</i>	Ashy headed greenlet	Verdillo de cabeza ceniza	434
13	<i>Casiornis rufus</i>	Rufous Casiornis	Casiornis Rufo	482
14	<i>Neopelma sulphureiventer</i>	Sulphur-bellied Tyrant-Manakin	Saltarín-Tirano de Vientre Azufrado	502
15	<i>Pheugopedius coraya</i>	Coraya Wren	Cucarachero Coraya	528
16	<i>Cantorchilus leucotis</i>	Buff-breasted Wren	Cucarachero de Pecho Anteadado	528
17	<i>Schistochlamys melanopis</i>	Black-faced Tanager	Tangara de Cara Negra	546

Likewise, 10 migratory species were registered according to the classification of the book of Birds of Peru, among them the most representative were of the Tyrannidae family with 3 species. Southern migratory species (Rufous Casiornis) were also appreciated, which has a high value to promote bird watching due to its restricted and boreal range. Table 2 describes each species following the criteria noted by Schulenberg et al. (2010).

Table 2. List of migratory bird species in the study area

N°	Scientific name	Name in english	Name in Spanish	P.
1	<i>Coccyzus melacoryphus</i>	Dark-billed Cuckoo	Cucillo de Pico Oscuro	186
2	<i>Chordeiles minor</i>	Common Nighthawk	Chotacabras Migratorio	204
3	<i>Actitis macularius</i>	Spotted Sandpiper	Playero Coleador	142
4	<i>Pandion haliaetus</i>	Osprey	Aguila Pescadora	114
5	<i>Tringa melanoleuca</i>	Greater yellowlegs	Chorlo Mayor	142
6	<i>Empidonax alnorum</i>	Alder Flycatcher	Mosquerito de Alisos	450
7	<i>Tringa Flavites</i>	Lesser yellowlegs	Playero Pata Amarilla	142
8	<i>Casiornis rufus</i>	Rufous Casiornis	Casiornis Rufo	482
9	<i>Contopus vivens</i>	Eastern Wood - Pewee	Pibí Oriental	452
10	<i>Catharus ustulatus</i>	Swainson's Thrush	Zorzal de Swainson	538

Proposal of tourist circuits

Route zero: This route is designed for the generic bird watcher, with no major demands, who only need a pair of binoculars to better appreciate the birds and a camera to take the images observed. The displacements are minimal, because the distance to travel is approximately 200 m on level ground. This observer could settle for seeing only the species found on the banks of the lagoon in the vicinity of the main house. This route is suitable for local visitors, schoolchildren or national tourists, without major requirements or demands to know some birds. In general, it is oriented to groups of up to 20 passengers or visitors. Route P1-P2: This route includes a trip to the north-east end, skirting the lagoon, following a 500 m stretch along the trail and then a detour to the left to walk 200 m to start the sighting of the species (P1). Depending on the time available and the expectations of the bird watcher, you can continue to the observation point P2, which involves going up the hill to have a panoramic view of the lagoon and observe the birds more closely. This route is suitable

for visitors with a certain level of mastery of the species, since it is aimed at those who have a specific purpose of seeing or hearing certain species of birds.

Route P3-P4: To locate this route, it is necessary to return to the fork in the road and follow the path to the left, towards the north-west, advance four kilometers and then turn to the right, that is, enter the edge of the lagoon at the end west (this stretch can be done by motorized vehicle). When deviating from the road, you walk closer to the lagoon until you reach observation point P3 and if you have higher expectations, continue walking up the hill, to have a better view of the panorama from observation point P4.

In both cases and according to the requirements of the bird watcher, the environmental conditions and the time available, the time and direction to follow in search of the birds will be chosen as the sighting objective. The referred observation points are oriented for a small number of specialized bird watchers (up to five), who are looking for defined species and have no economic limitations, or available time, or instruments, that is why, with the purpose of seeing or listen to the song of the bird of their choice, they could make long waits at dawn or during sunset, even take long walks.

Figure 2. Birds present in the proposed tourist circuit



DISCUSSION

The results are similar to what was reported by Madrid Ibarra & Elías Cruzado (2018) on the campus of the Ricardo Palma University, Lima. The richness of bird species was 22, belonging to 15 families and 8 orders. Most belonging

to the order Passeriformes. Due to the same number of species, this university campus is considered an interesting point for bird watching within an urban ecosystem. The Ricuricocha lagoon, for its part, identifies 167 species of birds, 17 of which have scientific importance for this market segment.

Loera-Casillas et al. (2022) recorded 129 species in Mexico; 19 were endemic, 13 in some risk category and 21 considered indicators. They point out that the elevation will decrease the distribution and abundance of the species, and the lowest altitudinal strips will have the highest values of richness and abundance. Similarly, Gómez-Cardona et al. (2019) determined the bird watching potential in the Boca de Guacamaya Park from the ecosystem services approach; substantiated the possible potentiality of bird tourism in the Ricuricocha lagoon given the record of 167 species.

Quiñonez & Hernandez (2017) observed 68 species in the El Paraíso wetland; being the abundant families the Anatidae, Laridae, Phalacrocoracidae and Rallidae with 19.2%, 18.0%, 16.8% and 16.1%, respectively. In relation to the most abundant species, they recorded Phalacrocorax brasilianus and Fulica ardesiaca with 16.7% and 13.0%. The frequent activity for the sighting was resting (73.9%), feeding (23.4%) and reproduction (2.73%). It is inferred that wetlands are favorable spaces for bird watching given their vegetation and determinants of wild habitat.

On the other hand, Cabanillas-Trujillo et al. (2021) state that bird inventories make it possible to quickly and accurately identify the ecological characteristics and the conservation status of species, which coincides in our case with the number of species recorded in the Ricuricocha lagoon where the family predominates. of species of Tyrannidae that are of restricted range as well as southern and boreal species that are very difficult to observe in other places but that in this area of the San Martín region are unique as dry forest species that could very well serve to promote and motivate tourists as bird-watching spots.

In this line, De Oliveira Silva & Marques Leite Dos Santos (2022) found in Vitória da Conquista – the third largest city in Bahia – a large floating audience of tourists, among those activities are trade and sustainable tourism as part of the use of its green areas, having ecotourism as an activity through bird watching along ecological trails, which is compatible with the proposal in Ricuricocha that propo-

ses three circuits or tourist trails with great potential for special birds and that can be the perfect complement to enjoyment of the lagoon without altering their habitat.

In Ecuador, Pozo-Zamora et al. (2022) recorded 501 species of birds, in a range between 500 - 2300 m altitude, 13 species with new extensions of altitudinal and/or latitudinal distribution, 26 in some category of threat to their conservation. The authors point out that this remote area protects an important diversity, as well as threatened bird populations, water resources, as well as the territory and culture of the communities that inhabit it. However, the entire mountain range is under concession for exploration of mining projects. Therefore, the attention of regional and national authorities is required to join efforts to ensure its conservation and biological exploration. Fact that is related to the Ricuricocha lagoon, that although it is true that most of the properties around it are private property, it continues to belong to the state, but it is not demarcated by the authorities.

Limitations

The study had a limitation in relation to the short time of recording birds, since it only covered six months of field work, having to be inventoried throughout the year to know the birds in the Ricuricocha lagoon according to the seasons; thus promoting an alternative to bird watching based on seasons.

CONCLUSIONS

This research made it possible to inventory the main birds in the Ricuricocha lagoon, registering 17 species of birds with tourist potential and scientific interest, most of them endemic and related to habitats of the most threatened forests in the San Martín region. It was also possible to propose an ecotourism proposal for bird watching with four main points that can be graduated for observers based on their subject matter, time availability and purchasing power.

The study in the wetland frames the availability of information on birds of the Peruvian Amazon for their use for ecotourism, educational and scientific purposes, opening the possibility of future research regarding the environmental economic valuation of bird tourism and proposals for strategies that increase this kind of service.

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Marketing metrics in generalist social networks in travel agencies. The case of Spain

Métricas de marketing en redes sociales generalistas en agencias de viajes. El caso de España

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ABSTRACT

Social networks are ideal tools for developing relationship-marketing activities in companies and achieving consumer engagement. Its use is widely spread, as evidenced by the figure of 3.8 billion users all over the world. This figure represented 59.4% of the total inhabitants of the planet who use them regularly in 2019. The main objective of this research is to know the state-of-the-art in the development of relational marketing activities in social networks in Spanish travel agencies. A quantitative methodology was used to achieve this objective, focusing on the effects of marketing initiatives implemented in Spain by 10 agencies on YouTube, Instagram, Twitter and Facebook for 1 year, from August 1, 2019, to August 1, 2020. The results obtained show valuable information related to total engagement, number of publications, total average engagement per publication, audience, conversation rate, amplification rate and approval rate reached by the different travel agencies analysed. Among the main conclusions achieved, the results show the existence of great disparity and lack of homogeneity in the actions carried. Due to this, it is necessary for travel agencies to plan their relationship marketing actions in social media better, to improve the degree of customer engagement, the customer confidence and customer loyalty to the brand.

Keywords: Customer engagement, KPI, online marketing, social media marketing, travel agencies.

RESUMEN

En 2019 se alcanzaron globalmente más de 3.800 millones de usuarios de redes sociales; el 48% de los habitantes del planeta las utilizan regularmente. Por ser interactivas y colaborativas son herramientas idóneas para desarrollar actividades de marketing relacional en las empresas y lograr el compromiso del consumidor. El principal objetivo de esta investigación consiste en averiguar el estado de la cuestión sobre el desarrollo de actividades de marketing relacional en redes sociales en las agencias de viajes españolas. Para alcanzar dicho objetivo se emplea una metodología cuantitativa analizando los efectos de las actividades de marketing digital realizadas por 10 agencias de España en YouTube, Instagram, Twitter y Facebook durante 1 año; desde el 01 de agosto de 2019, hasta el 01 de agosto de 2020. Los resultados muestran información valiosa al respecto de audiencia, participación total, número de publicaciones, participación promedio total por publicación, tasa de amplificación, tasa de conversación y tasa de aprobación alcanzados por las diferentes agencias analizadas. Entre las principales conclusiones destaca la existencia de gran disparidad y falta de homogeneidad en las acciones desarrolladas; resultando necesario mejorar la planificación para aumentar el grado de compromiso del cliente y su confianza y lealtad a la marca.

Palabras clave: Compromiso del consumidor, KPI, marketing digital, marketing en las redes sociales, agencias de viaje

INTRODUCTION

Social media users in the world surpassed 3.80 billion in 2019. If this figure is changed into a percentage, it can be stated that 48 % of people worldwide use social media actively (Hootsuite, 2020). In January 2020 Spain reached 29 million of social media users, with a penetration rate of 62 % (Kemp, 2020). Social media networks, whose unique feature is being able to create and distribute user-generated content, have become popular in the travel and tourism industry as travellers can share their experiences online in many ways. They also evidence that they make markets interact faster and make customers an active part of marketing exchanges, demonstrating that consumers purchasing decisions can affect other consumers purchasing decisions (Abou-Shouk and Hewedi, 2016).

Now that we are living in the Information and Communication Technology era (ICT), social media networks have become essential for an organization to be competitive, allowing to manage interactions with consumers and keeping them closer to the corporation. Implementing marketing in social media networks becomes key in the development of consumer relationship management (CRM) strategy, which considers the consumer a strategic part of the organizations' businesses, guiding the marketing policy in that direction. For this reason, it is necessary for companies to analyse the need to evolve from traditional CRM to a social CRM, benefiting from the use of social media networks to boost profitability and sales, creating advertising campaigns as well as in the processes of acquisition, retention and building loyalty of new clients (Cerchia, 2016).

In the business world, there has been an evolution in how marketing is thought of and used, leaving the approach of passive or transactional marketing, focused on the sale and production of services and products to adopt relationship marketing, a more proactive marketing strategy focused on the consumer, in satisfying their needs and seeking to improve and establish lasting relationships with clients and with the rest of the actors present in the process (Monferrer, 2013). All of this is developed in an environment where social media generates benefits related to the ability to collect information and peer reviews prior to a trip; allowing the maintainance of relationships within a community by sharing information during and after the journey (Pérez-Vega et al., 2018). Therefore, in travel agencies the traditional system of value creation centered on the organization becomes obsolete in a new

stage in which the consumer has evolved from isolation to connection, from unconsciousness to information, from a passive to an active attitude in a context of interaction with companies co-creating value (Marques et al., 2011). The integration of CRM systems in social media networks and vice versa allows organizations to increase the efficiency of work in the new digital social environment and to better understand the changes in customer behavior introduced by ICT. For this reason, social media marketing in the travel industry is being used more frequently by allowing the increase of borders that influence relationship marketing models (Kayumovich, 2020).

THEORETHICAL FRAMEWORK

Social media marketing

Consumers rely on the Internet for advice while online social media networks create collective knowledge as reliable sources for tourists to consult when making travel decisions and when purchasing travel-related services and goods (Süli and Martyin-Csamangó, 2020). In this sense, social media is transforming the marketing practices of tourism companies due to changes in traveller's behaviour and the trend toward a demand for personalized products together with the co-creation of experiences. For this reason, tourism companies are forced to modify their marketing strategies to meet the needs of different market niches that require a more personalized and customer-oriented product in a context in which adaptability, flexibility and agility take centre stage (Sigala and Gretzel, 2018).

Social media marketing is a comprehensive idea that includes five components (word of mouth, personalization, trend, interaction, and entertainment) that contribute positive effects to the value of brands via its two primary components: brand awareness and brand image (Godey et al., 2016). Software, channels and social media technologies are all used in social media marketing to create, communicate, deliver and exchange offers that generate value for the interested parties of an organization (Tuten and Solomon, 2017). They expand rapidly as a complement to traditional marketing communications due to their efficiency and low cost. In addition to this, social media offer commercial applications as a tool for managing relationships with consumers, attracting their attention, developing new product ideas, promoting brands, boosting both in-person and online traffic of a business or to help in processes of loyalty and conversion of consumers into

clients. However, the effectiveness of social media marketing is viewed with certain skepticism due to the lack of evidence that confirms the return on investment (ROI) for companies (Rishika et al., 2013).

Social media networks generate huge amounts of qualitative data that cannot be evaluated using traditional metrics (Fisher, 2009) affirms that. Therefore, it should be considered that there is no one way to parameterize and calculate the ROI for the impact of social networks, so it is important to find metrics that enable their proper calculation. This is because the role of the social media marketing function is connected to businesses' capacity to obtain positive value in both the long and long term. Consequently, through Key Performance Indicators or KPI, variables associated with an objective in social media, organizations can monitor the level of fulfilment of their objectives in these media and from their analysis they can obtain valuable information about how to continue applying their social media strategy as well as optimize and enhance their channels. In this sense, three categories of metrics to be developed are identified and they allow: identifying possible prescribers and people who influence the community, observing the relationship of the brand with users and quantifying the effect of the different activities in social networks on the sales of the company (Kingma and McClure, 2015).

In this way, the concept of Impact of Relationship or IOR (impact of relationships between brands and their followers) emerged, quantifiable through four variables: the influence of the brand in the media, the authority of the brand's content, the interaction and participation of followers in the brand's social profiles, and objectively measurable traffic variables (Castelló-Martínez, 2012).

Strategies: online reputation management, reverse marketing and engagement in the tourism industry

Online Reputation Management

Reputation management in the tourism sector requires organizations to be authentic and transparent about the services provided and the use of consumer comments to identify areas or aspects to improve as it influences business performance. For that purpose, travel agencies should benefit from their online presence by staying active on the top review sites and well-known social media platforms, participating in user-generated content creation,

responding to user comments, protecting their reputation and building consumer trust to achieve the commercial objectives of the company and gaining in competitive advantages (Kamel, 2017; Pinto and Castro, 2019).

Reverse marketing

The potential information published on the Internet is important to improve service management and the competitive advantages of organizations in the tourist industry; being able to accurately and more fully comprehend consumer needs in order to improve service quality (Hou et al., 2019). Derived from this co-creation of value, reverse marketing is developed (Levesque and Boeck, 2017). And through mass customization processes, this type of marketing seeks to increase the personalized experience of each client through the service by allowing their participation in the creation of the totality of the product, looking for elevating their individual experience and trying to make them perceive a feeling of total control over their purchase (Munaf, 2022; Sheth, 2021).

Customer engagement

There is no unanimity on the definition of consumer engagement (Brodie et al., 2001) as there are different approaches to categorize it according to cognitive, emotional, and behavioural aspects. Marketers consider engagement as the most important online result that companies must achieve through their activity in social media to achieve competitive advantages to generate consumer loyalty beyond a rational sense (Roberts, 2015). This becomes a strategic imperative to achieve the improvement of corporate performance, sales growth, superior competitive advantages and sustainable profitability (Elgarhy, 2022; Rather, 2019).

Social media applications and their use in travel agencies The creation of interactive Internet communication interfaces, has been greatly invigorated through web 2.0 technologies, where users generate content and travel experience are shared. Among others, this is possible through multiple networking sites like Twitter or Facebook, portals for sharing videos and photos like Instagram or through travel-themed blogs and websites that are more specifically about tourism, like TripAdvisor (Süli and Martyin-Csamangó, 2020). Due to this, it is possible to affirm that the decision-making process of customers when travelling has been radically transformed and that these interfaces

have positioned themselves as dominant communication channels (Guerreiro et al., 2019). These technologies have been adopted by travel agencies as one more marketing method (Chillembwe et al., 2019). In this sense the most popular applications used as sources of unstructured data in the tourism industry, in other words sources which are not specifically developed for the field of travel, are: Facebook, Instagram and Twitter (Vargas-Sánchez and Saltos, 2019) and YouTube can be added to the previous list as the main solution for sharing online videos in tourism environment (Briciu and Briciu, 2020).

Below it can be seen the generalist social media networks that are most frequently employed in travel industry with the marketing strategies of travel agencies and tourism in general, considering that social media is the best extension for activities related to relationship marketing due to their nature both collaborative and interactive (Rekhter, 2012).

Facebook

Facebook is the most popular platform among travellers (Apple Tree Communications, 2019). Born in 2004 as a social networking site by Harvard University, in 2009 it became the most popular social network on earth with more than 1.59 billion users per day and over 2.4 billion members (Mariani et al., 2019). It is considered a useful platform when it comes to sharing travel-related information, during and after it (Kim and Fesenmaier, 2017) and to plan and make decisions prior to the trip (Lo and Fang, 2018).

On Facebook, the key performance indicators (KPI) in the digital marketing strategy through this platform are the following: the number of posts made, total and weekly followers reached, posts shared by users, organic growth, traffic received from Facebook, the comments generated, and the level of engagement achieved (Florida, 2019).

Twitter

This social media platform has 1.3 billion open accounts and daily registers more than 500 million comments or tweets posted by its 336 million active users (Karami et al., 2020). So, users show their reaction and commitment to a tweet or publication by republishing it on their Twitter account (retweet or RT), tagging a user, clicking "like", or replying to the writer of a tweet (Ćurlin et al., 2019). Twitter is identified as a very valuable platform to develop business strategies and planning and study decision-

making processes, being useful to examine electronic word of mouth by allowing the compilation of qualitative comments or establishing reference points; and where monitoring the messages is beneficial for businesses due to their ability to spread quickly. Although due to the massive volume and variety of the messages, it takes a lot of time to complete the task, it is expensive and often impossible to carry out; without ceasing to be an interesting source for companies to also obtain quantitative data (Philander and Zhong, 2016).

The main KPIs of Twitter in the digital marketing strategy are the following: the number of publications (tweets), the number of followers, the number of "likes", visits and interaction to the profile achieved, retweets, mentions of published tweets, traffic generated, the tone used and the types of posts (Florida, 2019).

Instagram

Instagram is a platform that has acquired great relevance, surpassing Twitter in the number of active users and in which influencers (people who have a notorious presence and influence) are becoming more and more representative (Barbe et al., 2020). It was created in 2010 as a social media network to share photos and videos and since 2014 it multiplied its use by five, reaching more than one billion active users (Carpenter et al., 2020). It can be affirmed that the arrival of Instagram improved in the exchange of tourist information and multiplied its presence in social media networks. Instagram has also positioned itself as an efficient, productive and essential marketing tool in the tourism sector in which the different forms of virtual interaction are the sign of defined objects and in the context of user-generated content, help other users and marketing to generate interest and desire towards the promoted products and destinations (Saxena and Kumar (2020).

The main KPI in the digital marketing strategy on Instagram are, the number of publications, the engagement and the "likes" reached, the number of followers and weekly followers, the comments generated and the type and tone of the publications (Florida, 2019).

Youtube

Video content has been positioned as the most consumed by users on social media networks, with a larger audience than traditional television, directly influencing

purchase decision-making processes. In this sense, in the tourism industry it has been shown that 66% of travellers view videos when they decide to take a trip and 65% of travellers look for specific destinations to travel to (Griffin and Tung, 2018). YouTube, launched in 2005, is a reference tool for viewing online videos that allow companies and amateur creators to disseminate diverse and global content to a wide audience (Burgess and Green, 2018). In 2019, YouTube recorded 2 billion users per month (Yun et al., 2020), more than 500 hours of content loading per minute, and more than 5 billion videos viewed per day (Hedeshy et al., 2020). In 2017, YouTube was the second most used search engine in the world, after Google and became important when defining any search engine-positioning strategy (Burgess and Green, 2018). YouTube offers tourists, who are not looking for passive entertainment, but rather to determine and control what happens during their vacation, the opportunity to view reviews, look for particular activities, and look for advice and help on destinations, making decisions on the basis of the experience of other travellers, who do not seek to sell a product or a destination but to be actively constructing their personal experiences (Reino and Hay (2011).

The main KPI in the digital marketing strategy through YouTube are the following: the number of videos published, subscribers and views achieved, impressions (generated when a user locates the thumbnails of the videos on the platform and is defined as the number of times that these thumbnails appear) as well as the number of comments, recommendations, the traffic generated, the time of visualization and the type and tone of the publications (Florida, 2019).

METHODOLOGY

In our research we have undertaken a quantitative analysis of the effects of marketing initiatives implemented in the generalist social media networks that are most frequently employed in travel industry: Instagram, Twitter and Facebook, by a total of 10 travel agencies from Spain or that operate within the national territory; both OTA (online travel agencies) and brick and mortar. Five brick and mortar travel agencies with sales networks in Spain were selected (Carrefour Viajes, Viajes Nautalia, B Travel, Viajes Halcón and Viajes El Corte inglés) and 5 online travel agencies. Three of them with either headquarters or origin in Spain (Atrápalo, e-dreams and Logitravel) and the other 2 (Booking.com and Expedia) as examples of large international

OTA that capture the largest market share both in Spain and worldwide. We have used Rival IQ, as it is a powerful marketing intelligence tool that allows us to carry out a solid in-depth analysis of the impact of activity on the main social media networks of the target brands related to total engagement, number of publications, total average engagement per publication, audience, conversation rate, amplification rate and approval rate (Durrani et al., 2019).

One year has been taken as the reference period, between August 01, 2019 and August 01, 2020 to carry out this analysis. In this sense, it should be clarified that the comparison highlights the effects of the global health crisis brought on by the new SARS-CoV-2 coronavirus which has impacted the global tourism industry.

RESULTS

We proceed to analyse how each social media network considered in this study (Facebook, Twitter, Instagram, and YouTube) is related to the marketing strategies of 10 selected travel agencies from Spain or that operate within the national territory. We have analysed of audience, total engagement, number of posts, total average engagement per post, conversation rate, amplification rate and approval rate at a global level or together for the four most important social media networks in tourism (YouTube, Instagram, Twitter and Facebook) as well as the amplification rate on Facebook and Twitter, taking as a reference the one-year period between August 01, 2019, and August 01, 2020, and with results obtained in August 01, 2020.

Global audience in generalist social media networks of brick-and-mortar travel agencies and OTA operating in the Spanish market.

As can be seen in table 1, among brick-and-mortar travel agencies that stand out the most for having a greater audience among the four social media networks analysed are El Corte Inglés Viajes with an audience of 363,159 people and B travel with 298,870 people; both reaching a larger audience on Facebook with 238,790 people and 217,516 people respectively.

Among the OTA, the following ones stand out for being the ones with the highest total audience: Booking.com with an audience of 16,534,790 people and Expedia with 8,755,521 people; reaching both the largest audience on Facebook with 14,947,235 and 7,138,599 people respectively. At this

point, it should be noted that both OTA generate data at an international level, and it is impossible to extract national data in isolation. Logitravel, the largest of the national OTAs, reaches an audience of 1,111,294 people, standing out on Facebook with a total of 989,313 people.

Number of global publications in generalist social media networks of brick-and-mortar travel agencies and OTA operating in the spanish market

Regarding the number of publications among all social media networks (table 2), the most active of the brick-and-mortar travel agencies, B travel, made 2,498 publications, with a decrease compared to 2019 of -41.50% and registering higher activity in Twitter with 1,608 posts, followed by Facebook with 517. There is a great difference with respect to Viajes Halcón, positioned in second place with 911 publications, an interannual decrease of -54.30% and being more active on Twitter and Facebook with similar data.

The most active of the OTA, Expedia, makes 1,530 publications among all social media networks, registering the highest activity on Twitter with 932 publications, followed by Facebook with 306 publications. There is a great diffe-

rence with respect to the OTA positioned in the second place, Atrápalo, with 880 publications and being more active on Twitter with 348 publications and Facebook with 330 publications.

Total engagement in generalist social media networks of brick-and-mortar travel agencies and OTA operating in the spanish market.

Regarding the total multichannel engagement achieved (see figure 1) the OTA that offers international data, Expedia and Booking.com, is located at the top. Expedia reaches 527,000 participation actions, with more participation on Instagram, followed by Facebook. Booking.com reaches 428,000 participation actions with a decrease compared to 2019 of -23.4%, achieving the highest participation in Instagram, followed by Facebook. The third place is the brick-and-mortar travel agency El Corte Inglés Viajes with 383,000 participation actions; with a decrease compared to 2019 of -43.60%, and with the highest participation on Facebook, followed by Instagram. In the fourth position is for the brick-and-mortar travel agency B travel with 296,000 participation actions and similar participation ratios on Facebook and Instagram.

Table 1: Global audience Facebook, Instagram, Twitter and Youtube of brick-and-mortar travel agencies and OTA operating in the spanish market

The type of travel agency	Name of travel agency	Total multichannel audience as of August 01, 2020	Variation % since August 01, 2019	Audience by channel under analysis as of August 01, 2020			
				YouTube	Twitter	Instagram	Facebook
Brick & Mortar	Carrefour Viajes	163,952	+ 1.81 %	2,100	36,883	4,873	120,096
	Viajes Nautalia	58,006	+ 8.03 %	1,320	11,470	8,137	37,079
	B travel	298,870	+ 20.10 %	981	27,144	53,529	217,516
	Viajes Halcón	180,290	n. a.	117	29,165	8,665	142,343
	El Corte Inglés Viajes	363,159	+ 13.50 %	8,500	40,984	74,885	238,790
OTA	Expedia	8,755,521	+2.44 %	884,000	425,026	307,986	7,138,599
	Booking.com	16,534,790	+2.81 %	36,600	171,661	1,379,294	14,947,235
	Logitravel	1,111,294	+6.31 %	73,200	16,433	32,348	989,313
	e-Dreams	1,325,047	+2.63 %	4,290	11,401	81,796	1,227,560
	Atrápalo	464,863	n. a.	1,670	60,173	21,622	381,98

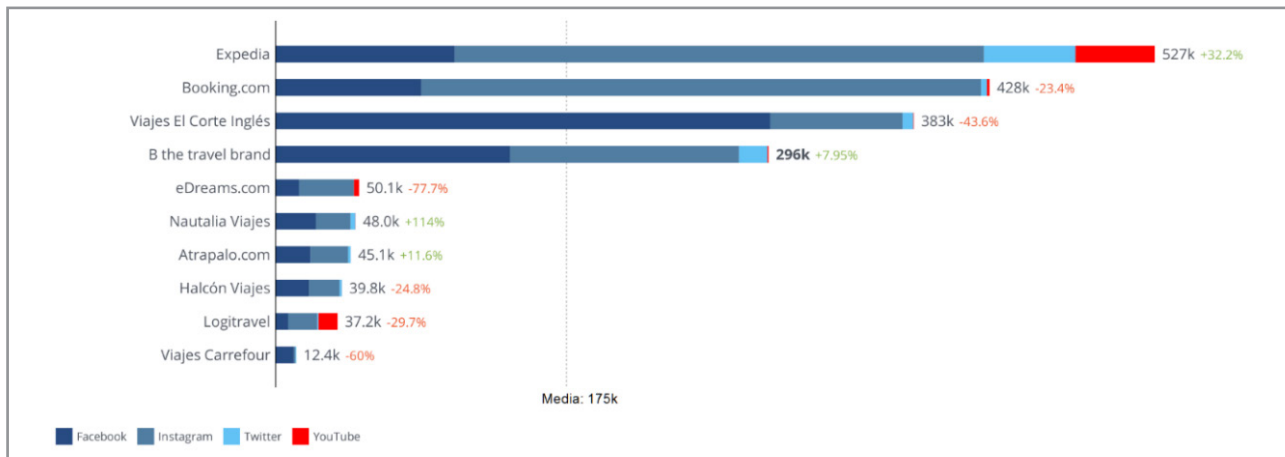
Source: Prepared by the authors.

Table 2: Number of global publications, Facebook, Instagram, Twitter and Youtube of brick-and-mortar travel agencies and OTA operating in the spanish market

The type of travel agency	Name of travel agency	Total multichannel publications August 01, 2020	Variation % since August 01, 2019	Audience by channel under analysis August 01, 2020			
				YouTube	Twitter	Instagram	Facebook
Brick & Mortar	Carrefour Viajes	610	- 66,50 %	51	279	123	208
	Viajes Nautalia	491	- 26,50 %	5	355	246	305
	B travel	2,498	- 41,50 %	82	1608	291	517
	Viajes Halcón	911	- 54,30 %	24	181	127	159
	El Corte Inglés Viajes	661	- 22,20 %	8	264	25	313
OTA	Expedia	1530	+ 0,86 %	15	348	187	330
	Booking.com	306	- 2,86 %	27	23	88	37
	Logitravel	426	- 40,80 %	48	133	75	170
	e-Dreams	175	- 89,20 %	7	79	109	111
	Atrápalo	880	+ 3,65 %	33	932	259	306

Source: Prepared by the authors.

Figure 1. Global data on total engagement in Facebook, Instagram, Twitter and Youtube of brick-and-mortar travel agencies and OTA operating in the spanish market



Total average engagement by post in generalist social media networks of brick-and-mortar travel agencies and OTA operating in the spanish market

Regarding the total average engagement per publication (see figure 2) we can see that the international OTA Booking.com is at the top with 1,400 participation actions per publication, with a decrease compared to 2019 of -21.10%, followed by the brick-and-mortar travel agency Viajes El Corte Ingles, with 579 participation actions per

publication and presenting a decrease compared to 2019 of -27.40%.

Applause rate in generalist social media networks of brick-and-mortar travel agencies and OTA operating in the spanish market

All social media networks have systems that allow the user to show their approval of the content published by a company; making it possible for organizations to assess whether

that content is on the right track by allowing them to analyze the level of attraction and approval that content has reached among brand followers. In this way, the applause rate or approval rate measures the number of "likes" obtained from each publication on Twitter, Instagram and YouTube and the number of "reactions" obtained from each publication on Facebook (Kaushik, 2011). In Figure 3, we see that the highest applause rate is achieved by the international OTA Expedia and Booking.com. The first one obtained 447,000 approval reactions and a greater activity on Instagram, followed by Facebook. In the second position, Booking.com achieved 376,000 approval reactions with a decrease compared to 2019 of -27.6%. The third position is held by the brick-and-mortar travel agency El Corte Inglés Viajes, with 340,000 approval reactions and a decrease, compared to 2019, of -42.4%.

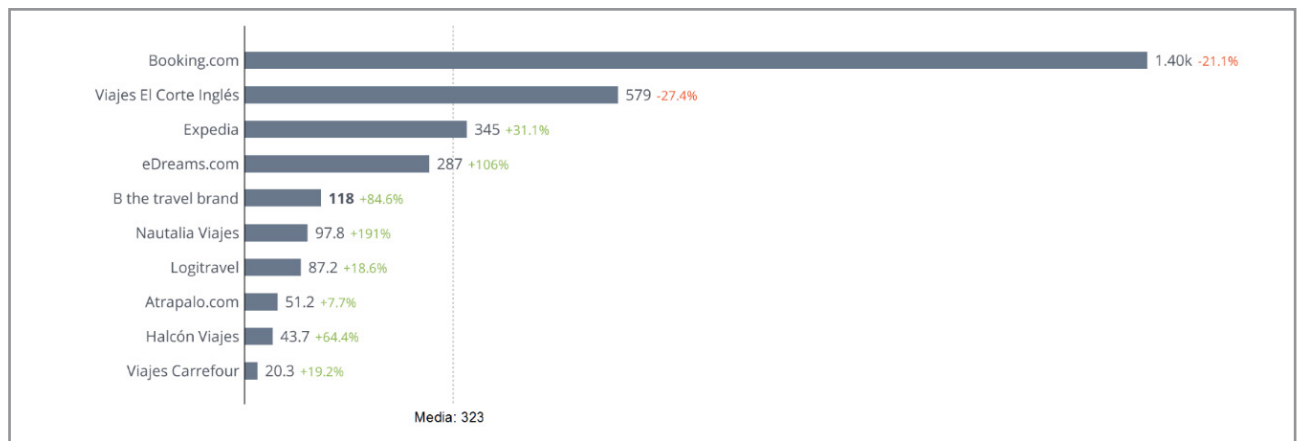
Conversation rate in generalist social media networks of brick-and-mortar travel agencies and OTA operating in the spanish market

The next step is the assessment of the conversation rate on Facebook, Instagram, Twitter, and YouTube to count

the number of comments or responses issued by a brand's followers based on the publications it makes. Therefore, a high conversation rate necessitates a deeper comprehension of the target market, our brand's qualities, what it excels at, the value it can provide to its audience, and the ecosystem in which it operates.. Therefore, achieving significant conversation rates with the audience has a high value for companies and in terms of marketing strategies it has a cost that cannot be bought (Kaushik, 2011).

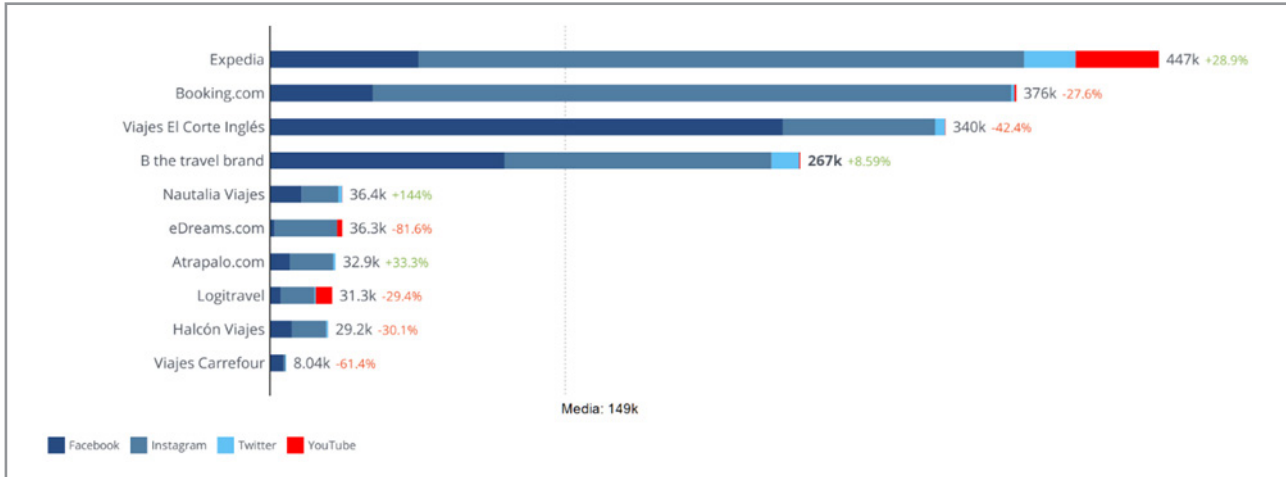
As shown in figure 4, we observe that the international OTA Expedia and Booking.com are at the top, followed by the brick-and-mortar travel agency El Corte Inglés Viajes. Expedia reaches 447,000 comments and / or responses issued by its followers to the publications made by the company, with Instagram being the social network with the highest activity. Booking.com reached 376,000, with a year-on-year decrease of -27.6% and concentrating the bulk of the activity on Instagram. In the third position, El Corte Inglés Viajes, reached 340,000 with a decrease compared to 2019 of -42.4% and concentrating the activity on Facebook.

Figure 2. Total average engagement by post in Facebook, Instagram, Twitter and Youtube of brick-and-mortar travel agencies and OTA operating in the spanish market



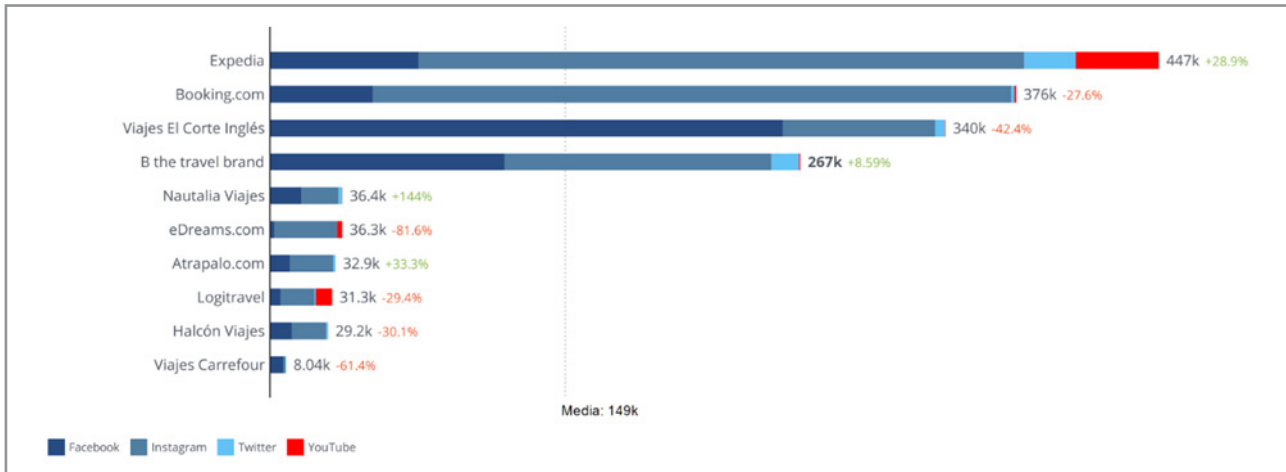
Source: Prepared by the authors.

Figure 3. Applause rate in Youtube, Twitter, Instagram and Facebook of brick and mortar travel agencies and OTA operating in the spanish market



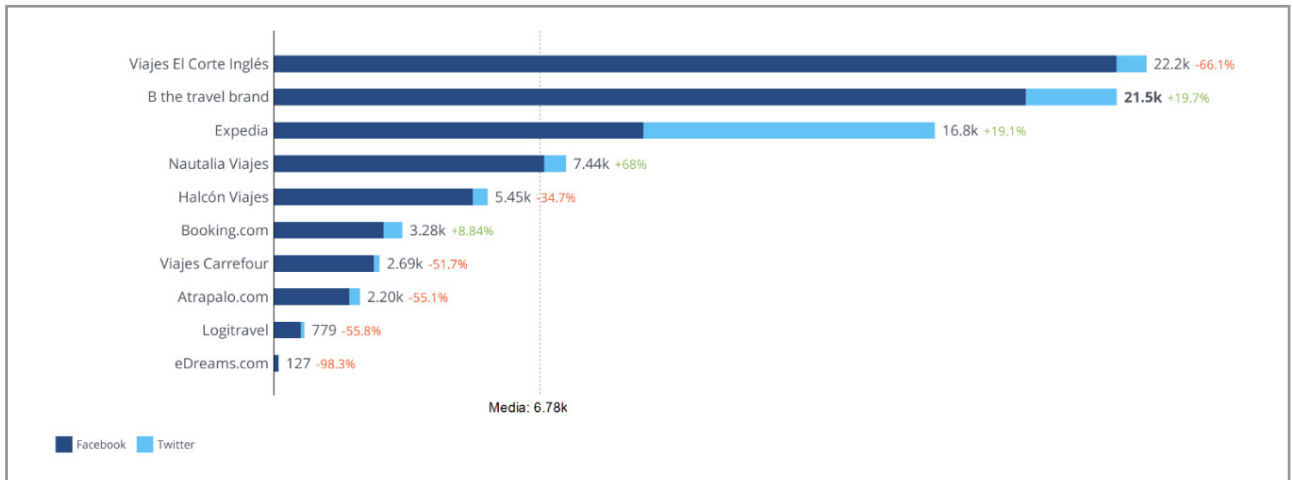
Source: Prepared by the authors.

Figure 4. Conversation rate in Youtube, Twitter, Instagram and Facebook of brick and mortar travel agencies and OTA operating in the spanish market



Source: Prepared by the authors.

Figure 5. Amplification rate in Facebook and Twitter of brick-and-mortar travel agencies and OTA operating in the spanish market



Source: Prepared by the authors.

Amplification rate in generalist social media networks of brick-and-mortar travel agencies and OTA operating in the spanish market

Finally, we must pay attention to the amplification rate, which quantifies how the followers of a brand take content from it and share it with other users; exposing it to new audiences without the need for the company to have to make an economic investment. Thus, a high amplification rate indicates that a brand's followers have decided to actively engage with the organization by sharing content among their peers (Kaushik, 2011). In figure 5, we observe in terms of the amplification rate for Facebook and Twitter, that the brick-and-mortar travel agency El Corte Inglés Viajes leads the way with a total of 22,200 shares between Facebook post shares and retweets on Twitter; with an interannual decrease of -66 10% and with Facebook as the protagonist of these interactions. In second place we have the brick-and-mortar travel agency B travel with 21,500 shares and Facebook as the main social media networks. The third position is the OTA Expedia, with 16,800 shares and almost identical activity on both Facebook and Twitter.

DISCUSSION

Given that a penetration rate of 62 % was achieved in Spain in January 2020 with more than 29.00 million social media network users (Kemp, 2020); it is necessary for travel agencies to plan the relationship marketing actions implemented in social media better since, in the travel

agency sector, the degree of customer engagement with the participation in social media networks and customer loyalty have a partially positive relationship, according to a company's social media activity. It is equally significant for the organizations to involve and connect with consumers to develop their value towards a business since this fact generates loyal customers, lasting in time and ready to spend more money (Van Asperen et al., 2018). Therefore, travel agencies promote their brand image and must improve their reputation by using social media networks to increase customer loyalty and help to increase their confidence in the decision-making process (Abou-Shouk and Hewedi, 2016).

CONCLUSIONS

After the quantitative analysis of the effects of marketing initiatives implemented in the generalist social networks that are most frequently employed in travel industry, YouTube, Instagram, Twitter and Facebook by a total of 10 travel agencies that are from Spain or that operate within the national territory both OTA (online travel agencies) and brick and mortar; we can conclude that there is no uniformity in the digital marketing strategies carried out through social media networks between travel agencies that are from Spain or that operate within the national territory. It has also been observed that there is a great disparity between the different commercial brands in the brick-and-mortar and online fields examined and related to number of publications, audience, total engagement as well as

total average engagement per publication, conversation rate, amplification rate and approval rate. Due to this, it is necessary for travel agencies to plan their relationship marketing actions in social media better to improve the degree of customer engagement, as well as the customer loyalty and customer confidence in the decision-making process.

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Endangered rural economies in the periurban area of Bosque La Primavera, Guadalajara, Mexico

Amenazas contra las economías rurales en el área periurbana del Bosque La Primavera, Guadalajara, México

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ABSTRACT

Urban expansion often replaces forest and farmlands. In Mexico, cities like Guadalajara have become metropolitan areas, and the nearest forest reserves are constantly menaced by urban expansion, loss of farmland and the increase of touristic activities. The aim of this paper is to analyze the main causes and consequences of the transformation of rural economies around the periurban fringe of Bosque La Primavera (BLP), focusing on three key elements: (1) the Metropolitan Area of Guadalajara (MAG) replacing rural areas; (2) the dispossession of rural farmland on the urban fringe; and (3) the environmental deterioration of BLP caused by touristic activities. The methodological procedure is based on the logic framework and the Theory of Change (ToC). The dataset 2020-2021 was obtained from the records of the program implemented by the OPD-BLP. In addition, qualitative data was obtained from 12 key actors interviewed. Findings show three menaces to rural economies: urban pressure on the forest interface is a consequence of fragmented planning in the MAG; agricultural economies are substituted by industrial practices and soil/water deterioration; the increase of touristic amenities into the forest area demand new services, generate new menaces, and modify rural ordinary lives.

Keywords: Rural economies, urban sprawl, urban forest, periurban forest, Guadalajara.

RESUMEN

La expansión urbana a menudo reemplaza bosques y tierras de cultivo. En México, ciudades como Guadalajara se han convertido en áreas metropolitanas, y la zona forestal más cercana está constantemente amenazada por la expansión urbana, la pérdida de tierras de cultivo y el aumento de las actividades turísticas. El objetivo de este artículo es analizar las principales causas y consecuencias de la transformación de las economías rurales en torno al bosque periurbano de La Primavera, centrándose en tres elementos clave: (1) la metropolización de Guadalajara y la desaparición de las zonas rurales; (2) el despojo de tierras agrícolas rurales en la interfase urbana; y (3) el deterioro ambiental del Bosque La Primavera por el aumento de las actividades turísticas. El procedimiento metodológico se basa en el marco lógico y la Teoría del Cambio (ToC). El corpus se obtuvo de los registros del programa implementado por el OPD-BLP 2020-2021. Además, se obtuvieron datos cualitativos de 12 actores clave entrevistados. Los hallazgos muestran tres amenazas para las economías rurales: la presión urbana sobre la interfaz forestal; economías agrícolas transformadas por la demanda urbana y la presión turística sobre la vida rural ordinaria.

Palabras clave: Economías rurales, expansión urbana, bosque urbano, bosque periurbano, Guadalajara.

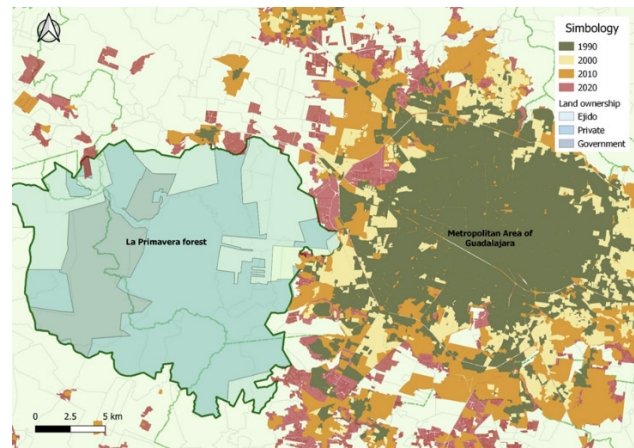
INTRODUCTION

Urban expansion often replaces forest and farmlands. The expansion of built environment on periurban forest modifies land use, hydrology, climate, and surface energy balance. According to some authors, urban sprawl will result in a loss of 1.8 - 2.4% of global farmland by 2030, with substantial regional disparities (Bren d'Amour et al., 2017). Under these predictions, in Mexico 683,000 hectares of farmland will be lost by 2030, which means a loss of 4,130 thousand tons of food production.

Since most of the urban expansion will take place in Latin America, Asia and Africa, governance of urban contention is a key element in securing the rural economies of the Global South. Containing urban expansion is crucial in managing urban areas and protecting forest buffers. Urban policy makers and planners must focus in preserving agricultural land and forest area by designing economic incentives and policy instruments that effectively protect agricultural activities, periurban green areas and rural development.

In Mexico, cities like Guadalajara have become metropolitan areas, and the nearest forest, Bosque La Primavera (BLP), is constantly menaced by urban expansion, loss of farmland and the increase of touristic activities. On December 27th, 2019, was published a decree whose content disclosed the budget of the Organismo Público Descentralizado "Bosque La Primavera" (OPD-BLP). Before the OPD-BLP, there was a Plan de Conservación y Manejo (Urban Conservation Areas Management Plan), but this instrument is obsolete, and every hazard is treated on de daily basis according to each particular incident, which could be different from those of other Natural Protected Areas (ANP). Because of the lack of agreement on which indicators should be used to evaluate the performance of the OPD-BLP, the monitoring and evaluation platform was never clearly established (figure 1).

Figure 1. Bosque La Primavera and urban pressure from Guadalajara Metropolitan Area



Source: Authors

The lack of interest of the ejidatarios, the legal figure for communal property, results in their little awareness of the transformation of the forest processes, their little presence in restoring practices, and the low benefits of the conservation budgets on their domestic economies. The aim of this paper is to analyze the main causes and consequences of the transformation of rural economies around the periurban forest of La Primavera, focusing on three key elements: (1) the metropolization of Guadalajara and the disappearing of rural areas; (2) the dispossession of rural farmland on the urban interphase; and (3) the environmental deterioration of Bosque La Primavera by the increase in touristic activities.

BACKGROUND

The most common approach to environmental planning of the periurban fringe does not respond to the specific problems of the peripheries. Adriana Allen (2003) affirms that "rural and urban characteristics tend to coexist more and more within cities and beyond their limits" (p. 135); then, the urban-rural dichotomy is inadequate to deal with planning system in the periurban area. Study cases in Calcutta and Kumasi, cities of the Global South, have revealed the periurban fringe as a loss of 'rural' aspects and the lack of 'urban' attributes. Moreover, periurban areas are usually surrounded by dense, generally impoverished slums and other forms of informal and/or irregular housing, characterized by inadequate infrastructure, low quality or no public services, and high rates of criminality (Mukherjee 2016; Simon, McGregor & Nsiah-Gyabaah 2004).

In Mexico, researchers have pointed to the role of the ejido in land policies, highlighting the legal and financial frames. Together with indigenous communities and immigrants, ejidos have resisted urbanization in Mexican territories with high rates of urban expansion, like Aguascalientes, Coahuila, Chihuahua, Oaxaca, Puebla, San Luis Potosí, Sonora, Veracruz and Yucatán. The strategies of resistance and negotiation are applied in a heterogeneous way, according to specific demands and the development of each one of the communities (Escobar et al, 2017).

Rural and urban features tend to co-exist within cities and beyond their limits. Some researchers have carried out a study with a sample of cases at the national level on the transformations of property relations and land tenure of ejidos and agrarian communities 25 years after the reforms to constitutional article 27 of 1992 (Torres-Mazuera; 2012; Torres-Mazuera & Appendini, 2020). There is a great heterogeneity within the ejidos and communities, despite sharing the same space, rural groups maintain different rights and interests, which puts at risk social ownership. The authors show the transformation of the ejido and agricultural communities at a time when neoliberal policies have left the field in the hands of the market.

Jean-François Prud'homme (1995), argues that Mexican agriculture has been subjected to constant pressures from agricultural policy reforms and land tenure legislation, impacting the economy of agricultural communities. The commercial opening and the deregulation of the economy displace the struggles for land tenure by the struggles for agricultural productivity. The 1990s are characterized by "crisis and adjustment" of the rural world in Mexico in the economic, social sphere and the network of micro and macro relations of the sector with the Agrarian Reform and the North American Free Trade Agreement (NAFTA).

Kirsten Appendini and Gabriela Torres-Mazuera (2008) point out that "peasants and the countryside are conceived as residual factors of a global, competitive, high-tech economy, in which small rural producers no longer have a place, being classified as inefficient and non-competitive" (2008, pp. 13–14). According to the authors, the agricultural dimension is characterized by the end of State action regarding the production, distribution, and consumption of agricultural products.

Urban forests are being considered for their environmen-

tal value that they offer to the city. With this item, the urban forest becomes relevant in terms of a rich variety of psychological, aesthetic, sociocultural, ecological, environmental, and economic issues (Ordóñez and Duinker 2014). Urban forests are necessary components for the general sustainability of a city, in this sense it is necessary to plan their management and their future (Steenberg, Robinson, and Duinker 2018).

RESEARCH STUDY

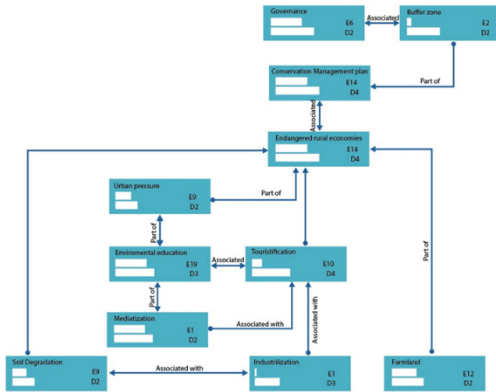
The methodological procedure is based on the logic framework and the Theory of Change (ToC). This method evaluates the designing of indicators, the sources of verification, and the final scores. The dataset 2020-2021 was obtained from the records of the program implemented by the OPD-BLP. In addition, qualitative data was obtained from 12 key actors interviewed, such as researchers from the scientific committee of the OPD-BLP (Marciano Valtierra Azotla, Jesús Gutiérrez Cacique, Josué Oliverio Alvarado Guzmán & Ma. Cruz Carrillo Rodríguez), public agents from the Secretaría de Medio Ambiente y Desarrollo Territorial (SEMADET) (Daniel Arcadio Gutiérrez Ramírez, Diego Eden-Wynter Blanco, Miguel Arturo Vázquez Aguilar & Marco Antonio Berger García), and scientific experts from the University of Guadalajara (UdeG) (Arturo Curiel Ballesteros, Carla Delfina Aceves, Salvador Peniche & Ana Isabel Rodríguez Quintana). Interviews were applied online between March and April 2022. The recorders were transcript and the final corpus includes official OPD-BLP documentation, geographical information, and translated interviews.

Once the interviews were done, the analysis of the collected data was processed by a qualitative software: ATLAS.ti This software generates a network analysis including five strategies:

1. Identification and classification of data source
2. Synthesis and clustering according to ToC
3. Labeling: selecting texts describing context, interactions, actors, and institutions
4. Coding: indicators associated with a theoretical category (a priori-deductive coding based on theory) and coding emerging directly from the case study (a posteriori coding based on fieldwork). As a result, a book of codes was built, where each code is assigned to a textual unit.
5. Networks creation: Linking categories (codes) and measuring the frequency of indicators verified in both, revised

documents, and the interviewed actors. Networks are formatted in diagrams, facilitating their treatment in a visual way (fig. 2).

Figure 2. Networks creation on Rural economies in the periurban forest of La Primavera.



Source: Authors

FINDINGS

Findings are organized into three main topics: urban pressure on the forest interface; agricultural economies transformed by urban demand and touristic pressure on rural economies.

4.1 Urban pressure on the forest interface

Although urban pressure is the first of the problems identified by the local government, the capacities of the existing governance structures are very limited. Urban sprawl in Guadalajara is caused by a city growing up “without any real planning”. Besides, the planning institute IMEPLAN has not intervene to stop land speculation form private owners nor informal settlers. Then, urban pressure has two main consequences for La Primavera: lack of a buffer-zone, and ineffective governance on the periurban forest and farmland.

4.1.1 Lack of a Buffer-Zone

Even though the Bosque La Primavera does not contemplate a buffer area, the government representatives of the OPD-BLP have tried to protect the forest perimeter in each of the municipalities. There are some unbuilt areas as buffer zones that could fulfill this function and mitigate the impact of the urban sprawl towards the forest (figure 2).

Figure 3. Urban pressure on Bosque La Primavera



Source: Authors

On the other hand, the weak articulation between municipalities, the metropolization planning of IMEPLAN and the scientific voices of academics limits the convergence in actions against urban pressure. First, because there is a disagreement on urban planning between the environmental primacy and the economic priorities. Therefore, the ecological problem of La Primavera, without an integrative political perspective is reduced to gardening (Peniche). Urban development as managed by IMEPLAN is not compatible with the interest of the sustainability of cities, so that the priorities of political entities tend to justify urban expansion (Curiel).

The existing alternatives to prevent the urbanization and agro-industrial activities from affecting the forest La primavera are determined by the following factors:

- a) No one takes responsibility for a Buffer-zone. Everyone avoids responsibility, while state actors argue that the buffer zone is outside the perimeter of the forest, and then they can't do anything”, on the other side, municipalities sharing the border of the forest say that their competence is from the forest limits to the outside (Aceves). It is the power of the municipality to determine the land use, the municipal development plans regulate the land use in small and intermediate cities, [...] to the municipality it is not so much about giving incentives, but more about surveillance, control, supervision, and management (Vazquez). Therefore, [municipalities] have no interference in the forest but rather [the municipalities must] think about the needs of the population and the needs of the municipality (Aceves).
- b) The buffer-zone is a closed file. The buffer zone is no longer an issue that could be added to another file within

new facts coming to light. Research and discussion on an intermediate space between urban, rural and forest areas have already been moved to the closed files (Vázquez).

c) There is no regulation for houses built inside the forest. There are two types of houses in the forest, one is associated to rich urban people within a high purchasing power, these houses are usually big luxury cabins, built in the middle of the forest (figure 3). The other type of house is a great contrast and expresses the social inequalities because those houses are built as informal settlements in the forest, living in poor conditions (Aceves).

Figure 4. Urban pressure on Bosque La Primavera



Source: Authors

4.1.2 Lack of governance on the periurban forest and farmland

The lack of governance is associated with the following problems:

a) Dissimulation and nepotism. Corruption, political patronage, and fraud are evident in many examples, but the most serious example is when they took away five thousand hectares of protection from the forest with CONANP doing absolutely nothing and that somehow created a precedent to violate the constitution, because protected areas are based on Mexico's constitutional article 27 (Curiel).

b) Lack of operating instruments. Legislation is not going to walk alone; it needs people to implement it [...] and obviously it needs a framework to be able to be applied (Aceves)

c) No public consultation and little citizen participation. When the Conservation Areas Management Plan was updated, there was not public consultation so that the docu-

ment had a consensus and acceptance by all the parties (Vázquez). Local people do not participate because urban elite groups discourage local periurban people; and local people are afraid of being prosecuted (Peniche). There is an ejidal commissioner that is renewed every 3 years, so there are many people who consider that it is complicated to have their own ejidal plans implemented in a short period of time (SEMADET).

d) Crime. There is also drug trafficking in La Primavera, which interferes and combines with environmental crime. Drug groups [...] limit not just government, but the landowners (SEMADET). There are places where drug traffickers are tentatively meeting or acting [...] So, La Primavera defends itself as best it can. But we can no longer think of the forest as a pristine area because it is also a crime scenario (Aceves).

4.2 Agricultural economies replaced by urban development

According to SEMADET, the two underlying problems in la Primavera are urban development and agricultural activity. The problem of agriculture is associated to three main determinants:

4.2.1 The industrialization of agriculture

More and more agricultural practices get closer to the transfer of agricultural production from rural economies to industrial levels, like avocado orchards, and agave production. Traditional farmland was conceived as a complete system where forest, little cattle ranching, and little agriculture coexisted. But nowadays the current population pressure defies forest because those activities have scaled through industrial massive production system.

Land ownership is also a problem because different types of ownership have also different goals. The landowners of La Primavera have different objectives. There is a large combination of land ownership related to different management of the territory. The complexity gets complicated, because there are some who do want to conserve the forest area, others who want to make sustainable use of their territory and others who have managed their property for public use and have an extra benefit by allocating their territory to public visitors (SEMADET).

The profitability of the land is the most important thing for

the landowners, who want to make usufruct of their heritage. This usufruct is closely linked to the popular idea of greater profitability in alternatives such as urban development (SEMADET). Besides, poverty and social exclusion are a constant problem in almost every ejido, and land sale is perceived as the solution to economic and social problems. Consequently, urban developable land is put for sale, not only the ejidal farmland, but the private farmland (Curiel).

4.3.2 Soil degradation due to water extraction and fire

Regarding the origin of the fire, SEMADET identifies that most of the fire accidents in the forest La Primavera come from outside the protected area and are generally linked to agricultural burning, because the fire goes away or is not controlled. In addition, fire incidents that occur in the spring season are very large and they are difficult to attend to due to the slopes and the topography of the place.

The second aspect refers to the OPD-BLP fire management plan by controlled burning. The geologist Arturo Curiel considers that it is a technique that has negative implications, because the surface layer formed by organic residues is fundamental for the forest soil. The biodiversity of the forest to fulfill the functions, in terms of water capture, in terms of regulation, and including cultural practices is lost when any type of fire happens. Any fire that destroys that surface substantially alters the ecological function in the forest, and therefore, it doesn't exist a beneficial fire because there can be no benefit when this layer is destroyed (Curiel).

Water appears as a problem that is often hidden in the management discourses of La Primavera. There are thermal waters in La Primavera, which are clearly interconnected with the forest life (Aceves). There have also been some reports of a water pollution. Tourism is concentrated in areas where there is water and touristic attractions are mainly associated with areas where there are sites with water.

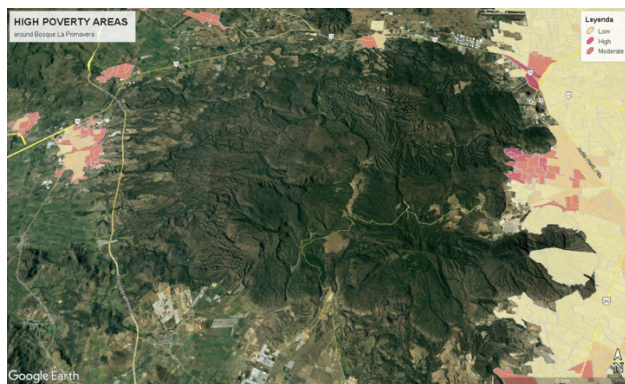
4.2.3 Subsidized activities are rarely obtained by rural economies

The initial idea of the OPD-BLP program is that subsidized activities for restoration and conservation of Bosque La Primavera could benefit the rural communities among the forest area, favoring social ownership because in the ejido

there are many more people who benefit, who belong to the ejido, in such a way that the social impact ends up being greater (SEMADET).

Although there are large metropolitan areas where poverty is not present and the land values of the urban land are constantly growing, while more than 17,000 people live in places with the highest percentage of poverty (figure 5). Distributed in 12 different areas, the neighborhoods located within Bosque La Primavera, like Colinas del Tizate and Lomas de la Primavera are one of the urban zones with the highest rank of poverty and lack of public services. According to the Statistical Institute INEGI (2020), on these two neighborhoods between 90 and 100 percent of the houses lack basic services, more than 50 percent do not have decent housing spaces, around 40 percent of its population do not have access to health services, and 50 percent have some educational gap.

Figure 5. High poverty areas around Bosque La Primavera.



Source: CONEVAL, 2020

Even when there is a program to benefit landowners if they participate in conservation activities, the operation rules to become a beneficiary tend to privilege ejidos over small landowners without distinction of gender, race, ethnicity, religious creed, socioeconomic condition, or any other cause that implies discrimination. However, since most of the forest area is a private area, private individuals with small properties in the forest area have difficulties to receive federal public funds such as the programs of the National Forestry Commission, which generally focus on social property (SEMADET).

The Program has coverage for 11 ejidos with a potential

population of 2,991 people in the ejido property regime within the area, and 2 ejidos in its limits without endowment validation within the ANP with an estimated potential population of 187 people. In addition, it offers coverage to an undetermined number of private owners. The population benefited in the 2020 and 2021, in terms of ejidos, only 4 of 13 have participated. On the side of private owners, 9 of them have been subsidized by the program. In 2020, a subsidy was assigned to 8 projects, with the participation of 3 ejidos and 5 small owners. One activity for cleaning up trees infested with mistletoe and 7 for the creation of brigades for conservation and restoration actions, of which one assignment was not exercised. In 2021, a subsidy was assigned to 8 projects, with the participation of 5 ejidos and 3 private owners.

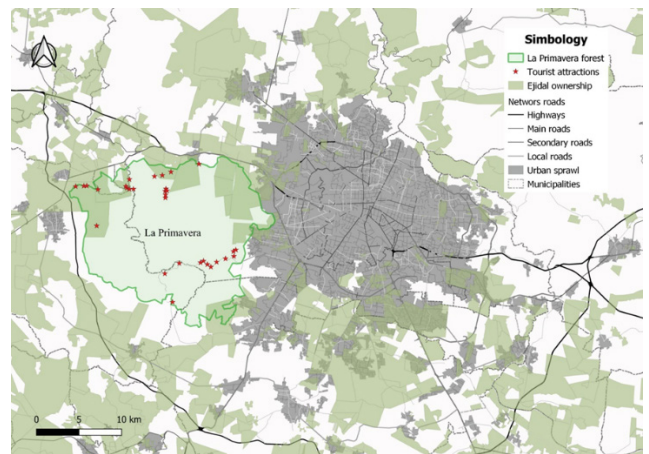
The results regarding the total requests and approvals show that in 2020 there were 3 requests for sanitation but only one was approved; while of the 13 requests for community brigades, 7 were approved. With the diversification of actions into 4 categories, in 2021 3 projects for sanitation were presented and 2 of them were approved; for brigades only 4 were presented and 3 were approved; for promoters 2 and 1 was approved; Regarding eco-techniques, of the 10 applications that were submitted, only 2 were approved.

As can be seen, one of the central factors for the distribution of the resource depends on the type of subsidy, with the privilege for investment in sanitation activities and the requests of ejidatarios and agrarian communities. However, the amounts that were exercised in 2021 diversified the actions to grant a percentage to other actions such as promoters and eco-techniques.

4.3 Touristic pressure on farmland and forest areas

Over the last decade, different attractions in Bosque La Primavera have increased the presence of visitors in the area. However, it is necessary to point out the touristification bias and the negative impact on rural and forest ordinary lives. There are 3 or 4 tourist service provider sites by the Mariano Otero entrance, and they are more aimed at these people who go up to do sports activities, more as individual visitors. On the other side of the forest, crossing La Primavera Village, there are rivers, cabins, picnic areas, aquatic parks, so it is more of a visiting as a group, a family of friends (figure 6).

Figure 6. Urban pressure on Bosque La Primavera



Source: Authors

The government budget to protect and restore La Primavera also promotes the generation of tourist services by subsidizing eco-techniques, seeking to strengthen those that receive visits from people, in places that are in high demand. Unlike the social and ejidal bias of the program, most of the benefits on tourist services are received by private landowners to adapt their houses for recreational use, terraces for social events, and Bed & Breakfast lodging. In contrast, ejidatarios require bigger support to implement tourist attractions in their territories, but they don't have the money to build touristic centers without risking domestic capital for their subsistence.

4.3.1 Negative impact from visiting and recreation activities

The Bosque La Primavera plays a fundamental role with respect to environmental education in the Guadalajara Metropolitan Area. However, environmental education has not been able to overcome 3 fundamental barriers: there is not a socio-environmental perspective in urban planning, it doesn't exist an eco-literacy in key authorities of different municipalities involved, and the programs have failed in promoting a healthy relationship between the Guadalajara inhabitants and their forest

Tourist attractions have omitted environmental education as a condition for visitors to enter in the forest area. There are park rangers and security patrols in certain areas, but it is more a plan to control negative behavior than introducing a socio-environmental perspective, not to help the forest, but

to preserve the forest because it plays an indispensable role for living conditions in Guadalajara (Aceves). The need for an eco-literacy in authorities is a key element in environmental education where forest programs have failed (Peniche).

Environmental education stays absent in the OPD-BLP, but a strong and consistent educational program is needed, because visitors will not always be the same, so it must be a permanent educative program (Aceves). The presence of visitors and leisure activities has a negative impact on La Primavera. First, because visitors are mainly weekend tourists, planning to have a picnic in the Río Caliente but who do not have an appropriate education to interact with the forest. Secondly, it is necessary to reinforce the control for cycling practices, because they leave the established routes and cause soil erosion. Motorcycling activities are even worse, because riders also leave the roads and generate erosion because the soil of La Primavera is not consolidated (SEMADET).

4.3.2 Introduction of exotic species

Fauna in La Primavera is constantly altered by exotic species introduced by visitors. People who enter for sporting activities like walking or hiking are almost always accompanied by pets. Other people who go to La Primavera to have a picnic there usually leave their pets going around and cause problems, they defecate, they bring bacteria infecting the fauna and sometimes they get lost and are left in the forest. The park rangers have detected the presence of different groups of dogs living in La Primavera that may be attacking the fauna in one way or another, but the problem should have also extended to other species, having a negative impact on the ecosystem.

V. DISCUSSION

The actual management initiatives of the OPD-BLP have had a positive impact in conservation and restoration of La Primavera, sometimes having also a positive economic impact on rural population around the forest. Listing some of the subsidized actions, there has been a control sanitation in public areas with local ejidatarios trained to do it and with a financial compensation of their work. As an example, in the Ejido San Francisco, there was a process of training a brigade of ejidatarios. They bought all the climbing and safety equipment and learned to climb with the appropriate measures to minimize the risks of climbing and pruning.

Training for climbing and pruning was provided by a group of arborists, and that is how the technical capacities were strengthened on landowners and ejidatarios, but different activities for restoring and conserving the Bosque La Primavera have specific skills needed which are usually absent in rural inhabitants of the periurban forest of Guadalajara. Among the negative impact on rural economies, the activities disposed by the plan present multiple barriers for local people to be eligible. First, timing for working in forest activities does not consider agricultural calendar and rural rhythm in farmland. Second, because the small landowners have it difficult to restore trees in their properties when it is localized in a hillside with very little accessibility, so it represents a lot of labor and the transfer of the same people to high places. Third, because many applications do not proceed due to lack of complete documentation, sometimes because they did not prove legitimate ownership, and sometimes because their properties are not in an area for public use.

Everything that happens in La Primavera is taken to the political arena (Peniche). The relevance of the Bosque La Primavera on public opinion is due to its media status and its closeness to the GMA, because it is the most important area in terms of social perception, it is highly visible to the public and there is very significant social and media pressure on every incident happening around the forest (SEMADET, Curiel). On the other side of the media and specialists, decisions on different actions towards La primavera are mostly imposed on landowners and ejidatarios. There is no public consultation of landowners and ejidatarios, who would be interested in protecting and preserving this natural area (Vázquez).

Rural landowners near the forest are underrepresented in tourist attention services because it often requires an initial capital to invest. Besides, the OPD-BLP considers that it is easier to work with private owners than ejidatarios, even if the aim of the program is that the collective benefit is greater than the individual benefit (Curiel). There would have to be a differentiated treatment, to begin with, for the use and enjoyment that each one has of the space. It is not the same to depend on the space to eat than to depend on the space to put your feet up on a cushion and watch the first steps on Saturday night. [...] it is very difficult for a totally abstract legislation to fit everyone, because in effect, within the forest not everyone is the same, there are some common needs, we should all understand the forest in a similar way, but it is a fact that we do not (Aceves).

CONCLUSION

Rural economies in the peripheries of metropolitan areas are constantly facing urban pressure and lack of governance. An approach is needed that contemplates the diversity of circumstances of the people inhabiting in rural areas close the cities, from farmers to those who have elegant cabins and weekend houses. There is a lack of economical support from the government to the landowners and ejidatarios of the Bosque La Primavera; the planning policies, programs and instruments are partially implemented due to the influence of private property over the social and rural landowners.

The Bosque La Primavera as a zone of impact and territorial influence on the rural/urban border reflects problems of urban pressure exerted by the city on the periphery in response to the demand for housing. The interaction between rural families and Bosque La Primavera is limited both in conservation activities and exploitation of resources. First, because subsidized activities to recuperate forest areas require technical training to be eligible. For example, there is a specific expertise for sanitation projects and conservation practices which is not from the common practices among rural and ejido-people from the area.

Furthermore, peri-urban area is characterized by the mixed use of the land, which implies tensions by interposing interests, norms, representations and values on the space. The regulations of land use and land values have a direct effect on socioeconomic dynamics. Besides peri-urban localities are strongly focused in their history, identity and traditions more than new economic opportunities on the touristic and forest sectors. As a result, precarization of rural areas and farmland are strongly related to the industrialization of agricultural production, the touristification of the forest area of Bosque La Primavera and in the unequal access to public programs offering financial benefits to people who preserve and restore green areas.

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Electronic word-of-mouth associated with customer loyalty in the Peruvian tourism sector

Boca a boca electrónico asociado a la lealtad de los clientes en el sector turístico peruano

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ABSTRACT

This research proposes to determine the relationship between electronic word of mouth and customer loyalty in a company in the Peruvian tourism sector. A basic, quantitative, correlational, non-experimental and cross-sectional study was carried out; the sample corresponded to 384 tourists. Spearman's rho correlation was applied for categorical data. Among the results, the existence of a positive and significant correlation of credibility ($\rho=0.722$), information quality ($\rho=0.744$), trust ($\rho=0.727$) and perceived usefulness ($\rho=0.723$) with the loyalty of the clients stands out. It is concluded that electronic word of mouth is moderately associated with loyalty, making it an efficient alternative to increase the intention and loyalty of visitors to tourist sites.

Keywords: eWOM, tourism, loyalty, digital media, information.

RESUMEN

Esta investigación propone determinar la relación entre el boca a boca electrónico y la lealtad de los clientes en una empresa del sector turístico peruano. Se realizó un estudio básico, cuantitativo, correlacional, no experimental y transversal; la muestra correspondió a 384 turistas. Se aplicó la correlación de rho de Spearman para datos categóricos. Entre los resultados se destaca la existencia de correlación positiva y significativa de la credibilidad ($\rho=0,722$), calidad de información ($\rho=0,744$), confianza ($\rho=0,727$) y utilidad percibida ($\rho=0,723$), con la lealtad de los clientes. Se concluye que el boca a boca electrónico se asocia moderadamente a la lealtad, por lo que es una alternativa eficiente para incrementar la intención y lealtad de visitantes a sitios turísticos.

Palabras clave: eWOM, turismo, fidelización, medios digitales; información.

INTRODUCTION

The World Tourism Organization estimates that between June and July 2022, 207 million international trips were registered, favoring the post-pandemic recovery of the tourism sector (World Tourism Organization [WTO], 2022). This panorama reflects that tourism is an important and vital source of revenue for different countries, being considered a significant factor in the growth and diversification of the local economy (Caldevilla-Domínguez et al., 2021; Momani et al., 2022). With the digital era, this sector has taken greater momentum in the integration of Information and Communication Technologies (ICT) as a key element of competitiveness, generating advantages in the management and commercialization of tourism services (Gössling, 2017, 2021).

Thus, among the various digital components incorporated in the tourism industry, electronic marketing and electronic word-of-mouth (eWOM) are widely discussed topics worldwide (Cunha et al., 2022; Kerdpitak, 2022; Khalayleh and Al-Hawary, 2022; Mohanty et al., 2022), because they play an active role in attracting the attention of tourists through the use of the internet or social networks, and create a bidirectional communication that can influence consumer behavior (Fuaddah et al., 2022; Verma and Yadav, 2021).

In this context, the tourism market faces the need to incorporate, use and adequately leverage technological tools, given the demands of online consumers who request to acquire or compare tourism packages, products or services in real time (Zambrano Paladines et al., 2019). This impact of ICT is also an influential factor in tourist loyalty, as it determines satisfaction and positive disposition and future willingness to re-require a service or recommend it (Santos Roldán et al., 2021).

Villarroel Puma and Berenguer Contri (2020) confirm the positive impact of eWOM on brand trust and capital, generated in virtual social networks, sustaining that its diffusion about positive experiences contributes to the good perception and trust of new consumers. Meanwhile, Moliner-Velázquez et al. (2019) state that the adoption of ICT positively affects customer loyalty, and especially, eWOM behavior; the latter also promotes satisfaction and loyalty, a reality that Kanwel et al. (2019) also report regarding the positive relationship between destination image, tourist loyalty, intention to visit, eWOM, and tourist satisfaction. In Peru, there is scarce research and almost no publication

of scientific articles on eWOM in the tourism sector, creating an information gap. This reality led to scientific intervention through the study of eWOM and loyalty variables in the Taytamaki tourism company, located in the district of Tarapoto, San Martín region, Peru. Among the services provided, bird watching and extreme sports stand out, being highly visited by locals and international tourists. Taytamaki uses Facebook as the main social means of tourism promotion, and given the literature (Hatta et al., 2022; Hoskins and Watts, 2022; Khoa, 2022; Lee et al., 2022), it is proposed that eWOM has a positive effect on customer loyalty.

This research proposes as the main objective to determine the relationship between eWOM and customer loyalty in Taytamaki, and the specific objectives of establishing the relationship of the dimensions of quantity of information, credibility, quality of information, trust, attitude towards the seller, intention to repurchase, and perceived utility with loyalty.

eWOM

Hennig-Thurau et al. (2004) point out that eWOM is "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions through the internet" (p. 39). For their part, Forman et al. (2008) indicate that eWOM is "positive or negative information about a product obtained from other consumers" (p.291). Litvin et al. (2008), on the other hand, define eWOM as "all informative communications directed to X consumers through internet-based technologies related to the use or characteristics of goods and services, or their sellers" (p. 461).

Babić Rosario et al. (2020) identified, based on the analysis of 1050 articles published between 1996 and 2019 in 86 different media, differences in diffusion. 59% of publications on eWOM are focused on market and consumer research, 23% on information systems and informatics, 11.5% on economics and management, and 6.5% on tourism. The authors affirm that the wide literature on eWOM has led to definitions and theorizations that differ in scope and reference to the particular elements of eWOM: message, source, receiver, and channel. Therefore, they offer the following revised definition: "eWOM is consumption-related communication generated by the consumer that employs digital tools and is primarily directed at other consumers" (p. 6).

eWOM is not simply a way of sharing general information;

on the contrary, it should be conceptualized as useful for transmitting content, with or without commercial implications, even if the content generated by the online consumer is not a recommendation about a product or service for other consumers (Babić Rosario et al., 2020).

Customer loyalty

Historically, the concept of customer loyalty was defined as frequent purchases, but the literature has since evolved to consider multiple dimensions, including behavioral, attitudinal, and composite. The attitudinal component has been defined as a deeply ingrained commitment to repurchase a specific product, service, or brand (Oli-ver, 1999), and has been linked to a sense of emotional, psychological, and attachment-based commitment (Aksoy et al., 2015).

Customer loyalty is a constant concern. In the current competitive environment, where switching costs are low and customers can compare offers and price levels more transparently (Grewal et al., 2017), customer loyalty seems increasingly difficult to achieve. However, customer loyalty is often considered one of the key outcomes of a successful customer relationship management program. In the retail context, where customers make repeated purchases, understanding customer loyalty and how to influence it is essential.

Customer loyalty, as a theoretical construct, has also been recurrent in marketing literature (Audrain-Pontevia and Vanhuele, 2016). Loyalty according to Watson et al. (2015), based on a meta-review of previous research, is a collection of attitudes aligned with a series of purchasing behaviors that systematically favor an entity over competing entities. Nevertheless, loyalty has been defined from the perspective of the company, and has been discussed as a dependent variable (i.e., as an outcome) rather than examining the construct at a deeper level from the customer's perspective (Närvänen et al., 2020).

Based on the conceptualizations outlined, the general hypothesis was formulated: The relationship between eWOM and customer loyalty in Taytamaky is positive and significant; and the specific hypotheses are:

- H1: There is a positive and significant relationship between the amount of information and customer loyalty.
- H2: There is a positive and significant relationship between credibility and customer loyalty.
- H3: There is a positive and significant relationship between

the quality of information and customer loyalty.

- H4: There is a positive and significant relationship between trust and customer loyalty.
- H5: There is a positive and significant relationship between attitude towards the seller and customer loyalty.
- H6: There is a positive and significant relationship between intention to repurchase and customer loyalty.
- H7: There is a positive and significant relationship between perceived usefulness and customer loyalty.

METHODOLOGY

The research was of a basic nature, with a quantitative approach, correlational level, and non-experimental - cross-sectional design, based on Hernández Sampieri et al. (2014). Since it aimed to expand and deepen existing theories on eWOM and customer loyalty in the tourism sector, it relied on data collection and processing, and sought to correlate variables and dimensions without manipulation at a specific moment.

The sample population consisted of 384 local and international tourists selected through intentional non-probabilistic sampling, who responded to the instruments in the field during January and February 2023. Tourists over 18 years of age participated, of whom 68% were male, and the average age was 27 years.

The survey was used as a data collection technique, and two questionnaires were employed as instruments. For the eWOM variable, 29 items were defined, distributed across seven dimensions (information quantity, credibility, information quality, trust, attitude towards the seller, repurchase intention, and perceived usefulness), adapted from the study by Matute Vallejo et al. (2015). Regarding the customer loyalty variable, 19 items were defined, distributed across four dimensions (cognitive loyalty, affective loyalty, conative loyalty, and action loyalty), adapted from the study by Hinson et al. (2016).

The instruments were validated by the judgment of five experts using the Delphi method, obtaining an average score of 4.7 on a scale from 1 to 5 (Likert scale). The reliability test of Cronbach's Alpha was also applied through a pilot test with 50 individuals sharing the characteristics of the sample unit, resulting in 0.989 and 0.991 for eWOM and customer loyalty, respectively. Both questionnaires had an ordinal Likert-type rating scale with the following

options: 1) Always, 2) Almost always, 3) Sometimes, 4) Almost never, and 5) Never. The instruments can be requested from the corresponding author.

The collected data were coded and categorized in Microsoft Excel 2016 and then transferred to the statistical software SPSS v. 26. In SPSS, the correlation between variables was determined using the Spearman's rho test for categorical-ordinal data (Reguant-Álvarez et al., 2018).

RESULTS AND DISCUSION

Correlation between eWOM dimensions and customer loyalty

Table 1 summarizes the correlations found between the eWOM dimensions and customer loyalty at Taytamaki tourism company. The results confirm the existence of moderate to strong relationships (Martínez Ortega et al., 2009) between the quantity of information, credibility, information quality, trust, attitude towards the seller, intention to repurchase, and perceived usefulness with customer loyalty. The correlation coefficients were positive ($\rho > 0$) and significant ($p\text{-value} < 0.05$), thus supporting all the specific hypotheses proposed.

Table 1: Correlation of eWOM dimensions with customer loyalty

Dimensions of eWOM	Customer loyalty	
Amount of information	Spearman's rho	0.697**
	p-value	0.000
	N	384
Credibility	Spearman's rho	0.722**
	p-value	0.000
	N	384
Information quality	Spearman's rho	0.744**
	p-value	0.000
	N	384
Trust	Spearman's rho	0.727**
	p-value	0.000
	N	384
Attitude towards the seller	Spearman's rho	0.658**
	p-value	0.000
	N	384
Intention to repurchase	Spearman's rho	0.690**
	p-value	0.000
	N	384
Perceived usefulness	Spearman's rho	0.723**
	p-value	0.000
	N	384

** The correlation is significant at the 0.01 level (two-tailed).

The amount of information and customer loyalty showed a positive correlation coefficient of 0.697; a result that is related to the research of Otero Gómez and Giraldo Pérez (2020), who showed that there is a relationship between eWOM communications that young people hold and their intention to repurchase ($\beta=0.593$; $\beta=0.497$). According to Sharma and Aggarwal (2019), eWOM is an electronic means of disseminating information about a product or service among potential customers by customers who have used the same products or services. In this sense, the findings of Otero Gómez and Giraldo Pérez (2020) coincide in demonstrating that communication is fundamental within eWOM, since it affects user behavior, both in terms of repurchase intention and loyalty, and that it is a key element in promoting places of interest and creating loyalty bonds. Therefore, the more information, the greater the loyalty that can be obtained.

Regarding customer credibility and loyalty, a positive correlation coefficient of 0.722 was obtained; a finding that coincides with that reported by García Pascual et al. (2019), who identified that eWOM is a significant predictor of satisfaction ($\beta=0.28$), price value ($\beta=0.23$), and emotional value ($\beta=0.46$). Since credibility is a factor of eWOM evaluated by the user to determine their satisfaction and therefore obtain their loyalty, these elements converge in the same environment that determines both user satisfaction and loyalty. In agreement, for the user to be able to accept a new place through eWOM, they must have credibility obtained through the usefulness and ease of use that they perceived, which could generate satisfaction and, consequently, loyalty because their needs are met.

Regarding the quality of information and customer loyalty, a positive correlation coefficient of 0.744 was evident. Carpio Maraza et al. (2019) affirm that connectivity is the main marketing strategy that contributes to brand positioning on the Internet; however, 43.75% disseminate relevant topics, 18.75% attractive promotions, and only 12.50% respond to opinions and suggestions from users or customers, which contributes to moderate brand positioning of tourist restaurants by 50.0%. Theoretically, this can be explained because eWOM plays a role as a communicator of a particular product or service, which drives sharing messages about a brand to a wider audience. Under these ideas, the results show that the quality of information that users receive through eWOM is a crucial element to condition their loyalty.

Regarding the correlation coefficient between trust and customer loyalty, a positive relationship of 0.727 was found; a finding that coincides with the study by El-Baz et al. (2022), who showed that eWOM is a conditioning element of brand credibility ($p < 0.01$) and, for this to be possible, the user must have confidence in the organization and the provision of services, which leads to their loyalty. In this sense, trust is a predictor factor of user loyalty, but it is pertinent to consider elements such as quality, quantity, usefulness, and credibility of the data they perceive.

On the other hand, the attitude towards the seller and customer loyalty showed a positive correlation coefficient of 0.658; results that are related to the research by Rojas León and Calderón Fernández (2021), who demonstrated that phrases such as "The customer is always right," "Tell me what you need and we'll find it for you," "You order and I obey," among others, used to please the consumer, demonstrate that they are effective verbal strategies in the proper handling of customer service, producing success in satisfaction and loyalty with the service or product provider. This is explained in the study by Serra-Cantalops et al. (2018), who showed that positive emotional experiences have a positive effect on satisfaction, eWOM generation, and company reputation.

Regarding the intention to repurchase and customer loyalty, a positive correlation coefficient of 0.690 was identified. This reality is argued by Anaya-Sánchez et al. (2020), who indicate that the intention to repurchase is influenced by the credibility, quality, and quantity of eWOM, these being benefits from someone who depends on the transmitted message. The evidence from García Pascual et al. (2019) coincides with the reported finding, since the intention to repurchase is influenced by satisfaction, and the more purchases the user makes, the more likely they are to be loyal to the organization. Accordingly, the user's intention to repurchase is influenced by a number of factors that must be considered when offering a product or service, since it affects the loyalty that the customer may present.

The perceived usefulness dimension of eWOM also showed a positive correlation coefficient of 0.723 with customer loyalty, coinciding with the research of Kuo and Nakhata (2019) and Yen and Tang (2015), who demonstrate that while the experience through eWOM is positive, users perceive better usefulness and a higher degree of satisfaction, and this element conditions loyalty. From this, it is explained that the perceptions that the user has

about the usefulness of the product or service are essential in determining customer loyalty.

Correlation between eWOM and customer loyalty

Table 2 shows that it is possible to reject the null hypothesis (H0) and conclude that the eWOM variable is positively and significantly related to loyalty. The strength of the relationship is rated as a considerable positive correlation equal to 0.746, with a significance level of 0.000 and a 95% confidence level.

Table 2: Correlation between eWOM and customer loyalty

	Customer loyalty	
eWOM	Spearman's rho	0.746**
	p-value	0.000
	N	384

This finding is related to the research of Viera and Moreno (2020) who demonstrate that the influence of IAM on word-of-mouth communication is positive, as the shared information about a product or service is reflected in the consumer's response. Similarly, it agrees with the findings of García Pascual et al. (2019) who demonstrated that WoM is significantly predicted by satisfaction ($\beta=0.28$), as well as with the evidence of Fernández Bedoya et al. (2019), who showed that there is a relationship between both variables ($X^2=28.424$).

According to Black and Veloutsou (2017), customer loyalty is seen as the value of the co-creation experience outcome. From this, it can be inferred that loyalty is not only predicted by situations or factors, but it is a process of creation between the user and third parties that generate positive comments towards the place, product, or service of interest.

Limitations

This research identifies three limitations to consider for future studies: 1) The results obtained in the specific context of Taytamaki company may not be generalizable to other industries or tourism contexts, as different countries, cultures, and economic conditions can have variable influences on eWOM and customer loyalty; 2) The tourism sector is dynamic and subject to economic, political, and social changes, which can influence customer behavior and the effect of eWOM on their loyalty; and 3) It is essen-

tial to collect sociodemographic data and explore possible associations in tourist behavior, such as how gender, age range, or economic status influence eWOM and loyalty.

CONCLUSIONS

This research demonstrates the existence of a positive and significant relationship between eWOM via Facebook and customer loyalty in a Peruvian tourism sector company. This means that the greater the positive presence of eWOM, the greater the loyalty of tourists towards a product or service. For this, it is important that customer communication online satisfies other consumers through the amount of information, credibility, quality of information, trust, attitude towards the seller, intention to re-purchase and/or perceived usefulness.

The findings confirm the usefulness and effectiveness of eWOM as a digital mechanism to guide and retain customers in the acquisition of tourism products or services based on positive comments disseminated through social networks. Its strategic integration in the tourism sector, using platforms like Facebook, Instagram, Twitter, YouTube, etc., could generate great competitive advantages, by making available information on positive experiences and satisfaction that impact the decision-making of new customers.

Future research is recommended in the tourism sector involving the design and implementation of eWOM plans or strategies to increase customer loyalty, brand positioning, destination image, or other dependent variables. Likewise, the combination of consumer experiences through eWOM and influencers as digital marketing tools could improve brand management.

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Survival as a strategy for increasing adventure tourism in Ecuador

La supervivencia como estrategia para el incremento del turismo de aventura en el Ecuador

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ABSTRACT

Surviving in nature has become a key element in tourism activities related to risks. Unfavorable events in visits to various places in Ecuador have caused insecurity when considering the country as a destination for adventure and extreme sports. Through a recount of incidents, the difficulties that have been reported in the last decade due to the deficiency of knowing how to resist unusual environments are evidenced, as well as the need to include the survival technique among the actors of nature tourism. With the support of a qualitative, bibliographic, descriptive, critical approach methodology, and applying surveys to tourists or hikers who arrived in Bucay, as an example of a zone of high vegetation, it is shown that inserting practices of this technique through training for participants in tourist activities is key to attract tourism. It is expected that training will reduce the risk when visiting new habitats; guides, operators, and even the same tourist, would achieve a synergy between motivation and security when they wish to visit them, and that survival is the necessary basis to strengthen the preference of knowing natural areas and diversifying adventure tourism in Ecuador.

Keywords: Survival, Nature, Tourism, Adventure, Ecuador.

RESUMEN

Sobrevivir en la naturaleza, se ha convertido en un elemento clave dentro de las actividades turísticas relacionadas con riesgos; acontecimientos desfavorables en visitas a varios espacios del Ecuador, han provocado inseguridad al momento de considerar al país como un destino de aventura y deportes extremos. A través de un recuento de incidentes, se evidencian las dificultades que se han reportado en la última década por la deficiencia de conocer como resistir en ambientes no habituales, así como la necesidad de incluir la técnica de supervivencia entre los actores del turismo de naturaleza. Con el apoyo de una metodología de enfoque cualitativo, bibliográfico, descriptivo, crítico, y aplicando encuestas a turistas o excursionistas que arribaron a Bucay, como ejemplo de zona de vegetación alta, se demuestra que insertar prácticas de esta técnica mediante capacitaciones para los participantes en actividades turísticas es clave para atraer turismo. Se espera que al capacitar se disminuya el riesgo al recorrer nuevos hábitats; guías, operadores, incluso al mismo turista, lograría una sinergia entre motivación y seguridad cuando deseen visitarlos, y que la supervivencia sea base necesaria para que se fortalezca la preferencia de conocer áreas naturales y diversificar el turismo de Aventura en el Ecuador.

Palabras clave: Supervivencia, Naturaleza, Turismo, Aventura, Ecuador

INTRODUCTION

Safety has become a fundamental axis the moment of managing tourist activity worldwide, in Ecuador in the last years, it is a strategy more and more committed to the enjoyment of the tourists since motivated by the natural areas that the country possesses, many of the visitors and/or tourists face security difficulties at the moment of entering these areas. Many of them are not aware of the need to request accompaniment or a guide who becomes the mediator or support of external activities in nature despite not having the necessary knowledge about actions to coexist with the environment in harmony and without affecting its biodiversity. The lack of knowledge of survival techniques for adventure tourists or hikers and service providers threatens the country's already deficient tourism operations.

The problem is compounded by the fact that tourism professionals are not taking their knowledge to the vast majority of the country's continental sectors, since in the places they visit they do not have the guidance of trained people or an accompaniment with basic knowledge that would allow them to educate or give visitors a brief training. Service providers are very conformist with what is offered to those seeking recreational activities in these natural areas, which limits new alternatives or trends in tourism.

It is important to analyze the impact on tourism of learning survival techniques for nature activities. In the case of overnight stays in these areas, which are often dangerous for the hiker. Also for those who visit the place motivated by adventure and who do not master the displacement in open lands with lush vegetation or biomes that confuse the visitor who does not know these spaces.

Therefore, this study aims to identify the activities preferred by adventure hikers in coastal and highland forest sectors to determine survival techniques.

BACKGROUND

According to Wiseman (2001), man in the course of his evolution has sought different ways to survive either by developing tools for construction or protection, using elements provided by nature; being the human mind that allows it to adapt to different situations and begins to form groups with an orientation to survive; taking advantage of

research to develop tools in the technical and scientific field (page 12).

The Ecuadorian man has evidenced with the passage of history the use of survival techniques, times in which they settled in newly known areas, sectors that favored their existence, such as the inter-Andean alleys and the coast of Santa Elena; they understood that their resistance in unknown lands depended on strategies to stay safe from what the outside world possessed and the dangers they faced; managing to learn about the construction of camps that protected them from the weather, animals and any danger of a little-known world. "In order to make the weapons and instruments necessary for their survival, they later had to restrict their nomadism and even establish workshop camps (as in the case of El Inga)" (Mejia, 1975, p. 13). Little by little they discovered the art of designing and manufacturing tools that facilitated the use and manipulation of the resources provided by nature; they also understood that acting in groups and protecting each other offered them greater control over the situations they faced, and without realizing it, they began to use tools and techniques to survive. "Skilled men carvers of obsidian stone, basalt, and flint that were obtained from the Antisana, by men of the Inga who built: scrapers, knives, drills and many tools necessary for woodworking" (Mejia, 1975, p. 12).

Among the evidence found by historians, the Saraguros that settled between mountains, Jibaros or Shuar that settled in the East and/or in the limits of coast and highlands, the Cañaris of the highlands and the Shuar of the East, all of them through history have strengthened their survival techniques with the knowledge of their natural spaces, and of the flora and fauna that each place possesses.

"Technical study and formal training in survival, tracking and orienteering began in the Armed Forces at the end of the 19th century, and was refined during the 20th century, because of the world wars that exposed military and civilians to extreme situations." (Pleticha, 2009).

In the current XXI century, in tourist activity, survival has become a recreational activity, but it is still not very important, due to the lack of awareness of many visitors who, without knowing these techniques, risk facing danger eager to experience the contact with adrenaline, costing in many cases imminent death. Unfortunately, humanity

has forgotten that instinct to survive, because technology has distanced them from contact with nature, their new motives for adventure are linked to the simulated danger of video games and do not allow them to take seriously the moments of travel through natural areas, even risking to spend the night in places of little known nature, where their knowledge becomes inadequate or scarce to participate in those activities (Barahona, 2015).

City dwellers take their days off as the opportune time for outdoor activities, just like many tourists between nationals and foreigners, they usually go on excursions and walks in couples or groups of friends, they decide to visit mountains or open spaces for their distraction, unfortunately, these activities are complicated because they face unexpected weather conditions, either due to lack of knowledge of the site, the weather conditions and in most cases due to lack of foresight, since as hikers they do not have the experience or advice of a specialist, who could surely inform them of the actions to be taken before, during and after these tours, the appropriate elements, clothing, hiking techniques, or survival for these activities; In any case, a guide or specialist could avoid inconveniences that year after year are evidenced in the news, and that have repercussions on the quality of adventure tourism.

In this way, Saldaña (2014), mentioned in Carvache-Franco, Carvache-Franco, Carvache-Franco, Carvache-Franco, & Xavier (2018), points out that the elements that would identify the technical quality in different regions where adventure tourism is developed which are: Safety, environment, entity, client, human resources, activity and material resources; considering that the parameter that most should take into account would be safety, since protocols should be managed during the realization of activities and not when accidents happen for tourism companies and operators along with their suppliers.

In Ecuador, there are many places that offer adventure tourism, especially in climbing activities, which are poles of attraction for tourists many Ecuadorians seek to climb, but without taking the proper precautions, the vast majority of lost tourists are rescued safe and returned to their places of origin, although some do not have the same luck.

The present document intends to demonstrate the significant importance of knowledge and/or learning of survival techniques, when linked to the practice of activities

in nature or adventure tourism in Ecuador in little-known places or with a level of danger for hikers, considering it a priority at present to offer to cover these shortcomings to those who demand this type of tourism, "who do not master the displacement in open terrain with lush vegetation" as mentioned by Barahona (2015), and that day by day increases more since it becomes striking to spend the night in these areas, which are often extremely dangerous places if the terrain, its climate, and its physical or geographical instability are unknown.

Table 1 shows a summary of the latest problems that have occurred due to the lack of knowledge of survival techniques of hikers who have faced serious situations in some parts of the country.

Table 1: Eventualities faced by tourists or hikers in Ecuador in the last decade. In the country's National Parks.

Year	Eventuality	Place
2012	Hiker disappears, body found four days later.	Cotopaxi National Park
2012	14 hikers lost their way, but after an intense search.	Pasochoa Wildlife Reserve
2013	7 hikers went to see the place, but unfortunately, they got lost in the fog, thanks to the firemen and their cartographic knowledge they were found.	Garupamba Forest
2013	7 scouts went astray in the Toreadora and Burines Lagoon, they were not found.	Cajas National Park
2014	Elderly man went astray and was found disoriented and with signs of dehydration.	Toreadora y Burines Lagoon
2016	Two Ecuadorian tourists were rescued after two hours astray	Cayambe Coca National Park High Zone

2016	Two Austrians and an Ecuadorian woman, those who were lost were rescued safe and sound near this capital city.	Guagua Pichincha volcano mountain massif	2021	Three tourists were lost due to the weather and the fog was found.	El Ángel Ecological Reserve
2017	Twelve Ecuadorian tourists were rescued	From Cerro Ungüi, in the southwest of the Ecuadorian capital	2022	Two lost foreign tourists were rescued by the Laguna del Quilotoa (Cotopaxi) fire department	Quilotoa Lagoon (Cotopaxi)
2017	Two tourists were reported missing in Santa Cruz Island were found by park rangers and firefighters knowledgeable about the area's	Galapagos Province	2022	Three tourists were lost due to weather conditions were rescued the following day	Cerro Puntas, at Pichincha Province
2018	Five tourists went astray while on an unguided Tour managed to be rescued.	Podocarpus National Park	2022	Two foreigners and fifteen tourists got rescued after 24 hours of searching.	Cayambe Coca National Park
2019	Two mountaineers and 3 foreign tourists lost and rescued	Llanganates National Park	2022	Seven people were rescued after being lost for several hours.	Ilaó Volcano, in the Guango polo sector , at Valle de Los Chilllos
2019	Two lost tourists are rescued	Pululahua Vulcano	Source: Compiled from several sources		
2020	A group of 16 tourists went astray when starting a tour without a guide, they were located, but one of them died.	Seven waterfalls in the rural parish of Alluriquín, in Santo Domingo de los Tsáchilas	<p>Within the tourism activity in the present century, many changes have been evidenced, one of them being the new tourism products that along with the sun and beach tourism have come to stay, among them the so-called "Nature Tourism". This, in turn, has been broken down into very notable byproducts that day by day is gaining space in our Ecuadorian territory since it offers an "approach to the natural environment and knowledge of ecosystems, increased environmental awareness among the population or the creation of new markets for local and national economies" as mentioned by Donaire, 2002; Espejo, 2011; Luque, 2003; Muñoz, 2008 and which has been cited in (Ballesteros Pelegrín, 2014).</p>		
2020	Eleven hikers were rescued after several hours of straying	Santospamba waterfalls from Atacazo	<p>Protected areas are not only attractive for their nature, biodiversity, and flora and fauna, but also for hikers, as stated by Ballesteros Pelegrín (2014, p. 34), who identifies a new group of nature consumers as those who enjoy "Nature as an adventure. Nature is a challenge for tourists; that is why they practice risk sports".</p>		
2021	Ten lost tourists were rescued after 14 hours	Altar Volcano	<p>Ecuador is an attractive country for offering spaces to practice adventure tourism since, to its biodiversity and richness of climates and landscapes, it is accompanied by its famous attractive volcanoes such as the Ilinizas, Cotopaxi, Cayambe, and Chimborazo; spaces that attract locals and strangers to hike, and try to reach the snowy peaks of the Ecuadorian Andes (Carrasco Ruano, 2018).</p>		
2021	Five tourists lost and later rescued	Chimborazo Volcano			
2021	Five tourists were lost for nine days and managed to be located by using the strategy of creating a visible clearing in the vegetation.	Quijos Valley, of Orellana Province			

Nature tourism has become one of the favorite options for tourists who are motivated to visit our country "Ecuador" because its natural spaces have unique and special features for adventure sports, hiking, and activities such as hiking, mountaineering, caving, mountain biking, and horseback riding routes that are attractive to perform activities within natural spaces without causing any damage to nature and man. (García Cebrian & Olmos Juarez, 2011).

Ballesteros Pelegrín (2014), mentions that sports activities are those elements that make a tourist destination more attractive compared to another that does not have the capacity to host the practice of sports. (...) Sports activities, as a tourist product, are capable of attracting a certain type of tourist and, in addition, as a complement when choosing other products (p. 38). Returning to risk is a key element that distinguishes the aforementioned outdoor adventure activities.

There is little research on survival techniques that should be considered useful when planning to venture into adventure activities that involve risks, so it is of great importance to raise awareness of the need to strengthen knowledge as an indispensable tool for the practice of these sports activities. The preparation to carry out these activities does not only imply strength and physical capacity, it is also fundamental to instruct on the domain of territories in the open field and knowledge in survival techniques within the adventure sports to protect the tourist or visitor in case of getting lost or facing any situation that causes insecurity or extreme risk.

METHODOLOGY

For the present investigation, it was considered to use the design with a qualitative, bibliographic, descriptive, and critical approach; by means of the synthetic analytical method, the analysis of the knowledge of the need to include the survival technique as an indispensable element within the relationship between the environment and the human being, in the key moments of the practice of adventure tourism in mountainous or forest areas, so that the synthesis provides a vision of the causal factors that show why hikers face risks of incidents in their tours and frustrate their satisfaction when visiting Ecuador.

A survey was considered a useful tool to obtain information from tourists and hikers visiting high vegetation zones such as Bucay, coastal areas, mountainous areas such as Quito, and inter-Andean areas. According to figures from MINTUR

(2021), 434,620 tourists arrived in Ecuador by air, propitious dates were specified as the November holiday of 2021, yielding according to Quito in figures, the data of 69,984 arrivals to the capital, also inquired about the projections of visit in the sector of Bucay province of Guayas, by Mr. Roberto Bustamante, representative of the Ecuadorian Tourism Ministry. Roberto Bustamante, a representative of the "Dulce Aventura Association" owner of the Casa de Piedra Inn and Tourist Complex, mentioned that the place maintains an average of 150 visitors per month. Therefore, an infinite formula was applied to try to cover a representative sample group for the research, dividing the instruments into two groups, within a calculated population of 365 individuals, of which 60% were assigned to visitors and tourists from the Bucay sector and 40% to visitors and tourists from the capital.

RESULTS

Se realiza una investigación de recopilación de eventos A compilation research of events occurred through a documented review of various journalistic sources over a period of 10 years to the current 2022, surveys were conducted on tourists from the coast and mountains, whose analysis allowed us to determine the preferences of practicing adventure tourism in our country, and what would be the survival techniques demanding and timely in these activities.

As can be seen in Table 2:

Table 2: Categorías de análisis de los requerimientos y eventualidades de los turistas y excursionistas en el estudio.

Analysis categories	Affirmative response percentage	Negative response percentage	Total percentage consulted
Adventure preference	0.53	0.47	1.00
Need of knowledge of survival	0.93	0.07	1.00
Knowledge of survival in natural areas	0.99	0.01	1.00
Need for guides	0.99	0.01	1.00
Acceptance for training	0.95	0.05	1.00
With knowledge they can practice adventure	0.98	0.02	1.00

Source: Primary compilation

The results showed that 53% of those surveyed want to venture into the adventure of visiting natural areas such as forests and trails, while 37% do want to go on adventures when visiting mountainous areas in the highlands.

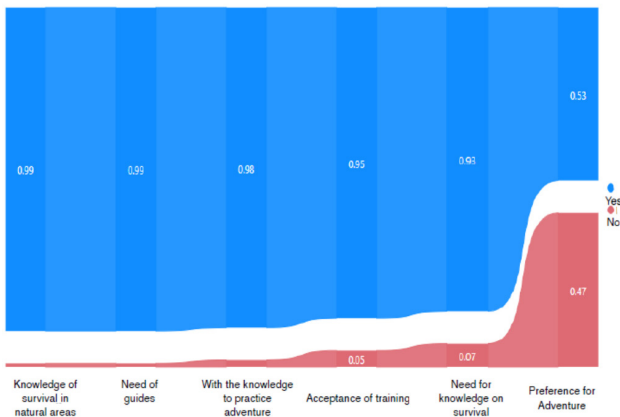
Also, 93% of the respondents accepted that it is necessary to have knowledge of survival techniques for the practice of excursions, whether on the coast or in the mountains, mountains, or vegetation.

Seventy-three percent totally agree that it is necessary to have knowledge of these techniques when participating in activities in nature; in addition to this result, 26% consider that they partially agree with the techniques, so it is understood that they consider the knowledge of these techniques a priority for 99%.

In addition, 99% said that there is a great need for guides to provide advice on survival techniques; and 95% said that there should be a place with equipment where theoretical and practical survival courses are given to visitors, at least the basic elements.

Finally, 98% of the tourists surveyed agreed that if they were trained in survival techniques, they would be able to practice any adventure sport, whether in the vegetation or in the mountains. Results are presented in Figure #1.

Figure 1. Statistical data of the respondents



Own elaboration based on the data collected.

Similarly, when considering a strategy to provide training courses to all key actors in the tourism activity, tourists or hikers were asked about what they consider to be the priority topics to include in possible training, obtaining as results the topics related to first aid (99%), elements rela-

ted to safety (95%) and the use of navigation instruments (90%), In a second point of importance, they also consider valuable to have basic knowledge about the handling of emergency signals (85%), construction of shelters (82%), obtaining food and water in nature (81%), use or handling of environmental elements (80%), and finally, reading signs (72%), as shown in Table 3 and represented in Figure 2.

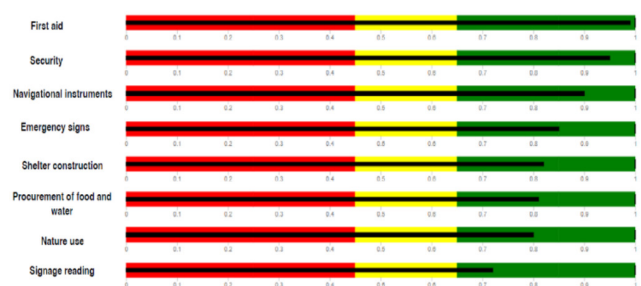
Table 3: Priority themes established by tourists and hikers.

Topic of interest per tourist	Percentage of requests	Percentage of no requests	Total
First aid	0.99	0.01	1.00
Security	0.95	0.05	1.00
Navigational instruments	0.90	0.10	1.00
Emergency signs	0.85	0.15	1.00
Shelter construction	0.82	0.18	1.00
Procurement of food and water	0.81	0.19	1.00
Nature use	0.80	0.20	1.00
Signage reading	0.72	0.28	1.00

Source: Primary compilation

Tourists or hikers who have preferred to visit these forest areas definitely expect to be included in activities related to survival training, since 97% would be willing to return to the place, get involved in the training, and put into practice the knowledge received to achieve the satisfaction of feeling safe when visiting these areas, not only in Ecuador but also in other countries with the same biome characteristics.

Figure 2. Preferred topics to be included in the training



Own elaboration based on collected data.

CONCLUSIONS

It is concluded that knowledge of survival techniques has a significant influence on visitors, tourists, or hikers to motivate them to visit little-known places with high vegetation or in the mountains, thus increasing the demand for nature tourism activities.

It is necessary to offer training on survival techniques so that this type of activity can be practiced in a basic or more specialized way, as appropriate, to reduce the number of incidents, losses, or possible human losses, thus preventing tourism, who are fearful of the insecurity of spaces or equipment, would prefer not to go or practice adventure activities in nature.

It is considered a topic of great value, so this knowledge is distributed as a key, vital, and basic element in many parts of the country, not only in the mountains but in other types of biomes in different regions of the country, especially considering that Ecuador has a great diversity of environments where you can practice variants of nature activities on the coast, highlands, east and island region.

Finally, the weakness of mountain adventure spaces was reflected, as well as the needs of hikers, who, despite the various fortuitous events that have occurred in the country in the last decade, however, are still motivated to visit our natural spaces and want to generate adrenaline by going into these places full of biological and climatic virtues.

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Astrotourism research landscape: a bibliometric analysis

Panorama de la investigación en astroturismo: un análisis bibliométrico

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ABSTRACT

Astrotourism, also known as stellar tourism, involves the development of recreational and educational activities related to the cosmos and astronomical phenomena. This type of special interest tourism focuses on nature, culture, and conservation, and stands out for its exceptional economic, social, and cultural benefits. The aim of the study was to analyze the scientific production on astrotourism based on PRISMA guidelines and a review of the Web of Science and Scopus databases (up to December 2022). The applied methodology consisted of bibliometric analysis and mapping of the literature, carried out using the Bibliometrix program, which found a total of 45 articles in 36 journals. The results revealed a growing scientific production, concentrated in few journals, scattered among multiple authors, and limited thematic diversity divided into twelve clusters, which were classified using the Callon algorithm (niche, motor, basic, and emerging/declining themes). It is concluded that astrotourism is a dynamic and consensual topic of study regarding its regional sustainable development contribution and educational capacity on the heritage and aesthetic value of the skies.

Keywords: Astrotourism, Stargazing tourism, Special Interest Tourism, Bibliometric analysis.

RESUMEN

El astroturismo, conocido también como turismo estelar, comprende el desarrollo de actividades recreativas y educativas relacionadas con el cosmos y los fenómenos astronómicos. Este tipo de turismo de intereses especiales se enfoca en la naturaleza, la cultura y la conservación, y se destaca por sus beneficios económicos, sociales y culturales excepcionales. El estudio planteó por objetivo analizar la producción científica sobre el astroturismo, con base en las indicaciones PRISMA y la revisión de las bases de datos Web of Science y Scopus (hasta diciembre de 2022). La metodología aplicada consistió en un análisis y mapeo bibliométrico de la literatura, mediante el programa Bibliometrix, que halló un total de 45 artículos en 36 revistas. Los resultados revelaron una producción científica creciente, concentrada en pocas revistas, disgregada en varios autores, y una diversidad temática limitada dividida en doce clústeres, que fueron clasificados mediante el algoritmo de Callon (temas de nicho, motores, básicos y emergentes/declive). Se concluye que el turismo astronómico es un tema dinámico de estudio y consensado respecto de su contribución al desarrollo sostenible regional y su capacidad educativa sobre el valor patrimonial y estético de los cielos.

Palabras clave: Astroturismo, Turismo de las estrellas, Turismo de Intereses Especiales, Análisis bibliométrico.

INTRODUCTION

Astrotourism is a type of special interest tourism (SIT) that focuses on observing and contemplating the night sky, including stars, planets, constellations, and other celestial bodies. It is understood as an emerging type of sustainable tourism based on the observation of dark skies, free of light pollution, and all the experiences offered around it (Araya-Pizarro, 2020; Escario-Sierra et al., 2022). This tourism activity has gained relevance due to the development of new technologies, general interest in outer space, and joint effort of astronomers, academics, ecologist, and associated groups to defend starry skies (Tapada et al., 2021). This has led to an increase in scientific studies related to stargazing tourism.

The multidisciplinary nature of astrotourism makes it a challenging subject for researchers, as it combines elements of astronomy, physics, geology, biology, and ecology, and other fields. By examining scientific production in this area, new related topics can be discovered that can contribute to a greater understanding of the universe.

In this regard, the bibliometric analysis of the literature is a recognized method for exploring and examining large amounts of data, providing an extensive perspective of the study are, evaluating the evolution of a specific field, and discovering new research opportunities (Donthu et al., 2021). This technique allows for determining the evolution of scientific production, the most relevant authors, the most cited journals, the most productive institutions, the geographical distribution of contributions, among other aspects. It is also possible to identify the main topics, challenges, and trends in research that have received attention from the scientific community in general.

In this context, this research aimed to analyze the scientific production on astrotourism (up to December 2022) based on PRISMA guidelines and a review of the most recognized databases worldwide, Web of Science and Scopus (Zhu & Liu, 2020). Its approach, based on clustering the themes derived from the study of global astrotourism, from a quantitative perspective, sets it apart from previous bibliometric analyses, allowing it to complement the existing scarce literature on the topic (Tapada et al., 2021).

The application of bibliometric analysis in astrotourism can offer a broad view of how this tourism activity influences the economy and the preservation of natural and cultural

heritage, as well as providing tourism professionals with a better understanding of the interests and needs of tourists, allowing for improved planning and offering of services related to astrotourism. Additionally, identifying gaps or deficiencies in scientific research in astrotourism can motivate new studies to address emerging issues in this field. For all of these reasons, bibliometric analysis can contribute significantly to deepening the challenges, trends, and methods associated with exploring the sky, as well as promoting the development of more research in this area.

This article is organized into three sections, following this introduction. First, the research methodology is described. Second, the findings of the applied bibliometric analysis are synthesized. Third, the results are discussed, and the main conclusions of the research are detailed.

METHODOLOGY

To analyze scientific production related to astrotourism, references and publication citation databases from Web of Science (WoS) and Scopus, two of the most renowned scientific repositories in the world, were reviewed (Zhu & Liu, 2020).

To data collection, words associated with astrotourism such as astronomical tourism, celestial ecotourism, star tourism, dark sky tourism, etc. The results were filtered applying inclusion and exclusion criteria listed in Table 1.

Table 1. Inclusion and exclusion criteria for the search and selection of scientific production

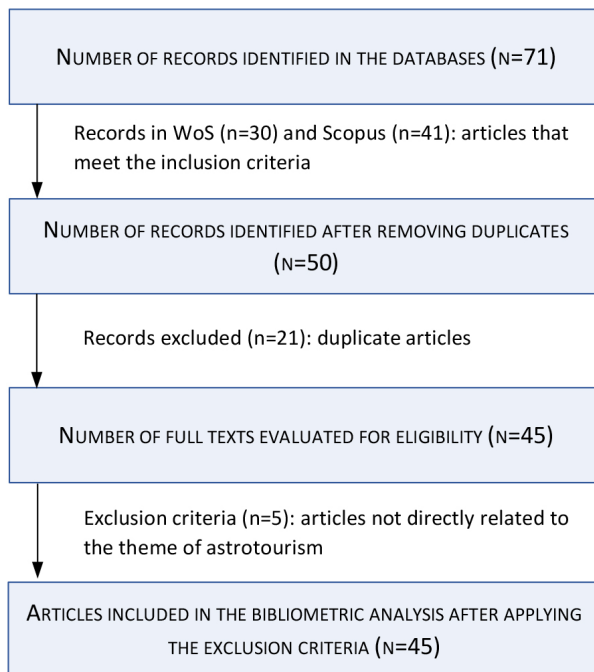
Criteria	Inclusion	Exclusion
Period	Until December 2022	Publications after December 2022
Document type	Scientific article,	Conference papers and publications, Reviews, Books, Book chapters, Notes, Letters, Editorial publications and abstracts
Document status	Final	Article in press
Relevance	Direct handling of astrotourism (key concepts) and related topics	Other unrelated topics

Source: Primary compilation

The scrutiny of the databases, WoS and Scopus, was carried out in March 2023, and the search procedure was represented by the following equations, according to the consulted database. For Scopus, the algorithm was defined by: TITLE-ABS-KEY ("Astronomical ecotourism camps" OR "Astronomical outreach" OR "Astronomical tourism" OR "Astro-tour*" OR "Astrotour*" OR "Aurora borealis tourism" OR "Aurora tourists" OR "Celestial ecotourism" OR "Dark sk* tour*" OR "Northern lights tourism" OR "Tall ship astronomy cruises" OR "star tourism" OR "Stargaz*+tourism") AND (LIMIT-TO (PUBSTAGE , "final")) AND (LIMIT-TO (DOCTYPE , "ar")). While for WoS database, it was established as: TS=("Astronomical ecotourism camps" OR "Astronomical outreach" OR "Astronomical tourism" OR "Astro-tour*" OR "Astrotour*" OR "Aurora borealis tourism" OR "Aurora tourists" OR "Celestial ecotourism" OR "Dark sk* tour*" OR "Northern lights tourism" OR "Tall ship astronomy cruises" OR "star tourism" OR "Stargaz*+tourism") AND (DT=(Article)).

The 71 obtained articles were examined following the guidelines of the PRISMA Declaration (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) in their phases of identification, screening, eligibility, and inclusion (Moher et al., 2009), obtaining a final sample of 45 articles, as illustrated in Figure 1.

Figure 1. Diagram based of the PRISMA methodology



The subsequent analysis considered the application of a set of bibliometric methods and network mapping (Cobo et al., 2011b; Muñoz-Leiva et al., 2012). That is, descriptive measures and indexes of the volume, dispersion, distribution, growth of scientific literature, author concentration (Lotka's law), and literature dispersion (Bradford's Law) were calculated. In addition, co-occurrence networks of keywords were designed, and a thematic map of author keywords was constructed. This chart catalogs the study topics based on the strength of internal group associations (density) and the degree of network interaction with other networks (centrality). The result of the categorization is a map composed of four dimensions: motor themes (high density-centrality), basic themes (high centrality and low density), niche themes (low centrality and high density), and emerging or declining themes (low centrality-density) (Callon et al., 1991).

Finally, it is worth noting that bibliometric analysis and network mapping were performed using the Bibliometrix program. This is a package for the statistical programming language R used for quantitative research in scientometrics and bibliometrics. Its functions include statistical analysis, data preprocessing, construction of co-occurrence matrices, co-citation analysis, coupling analysis, co-word analysis, and cluster analysis (Aria & Cuccurullo, 2017).

RESULTS

Sample characterization

A total of 45 documents from 36 journals were retrieved, with an average of 6.5 citations per article. Additionally, 85 automatically generated Keyword Plus and 164 author keywords were identified. Moreover, a total of 126 authors contributed to the field of astrotourism, and 10 of them corresponded to single-author documents. It was also evidenced that each document had an average of 3.1 co-authors, and there was a 13.3% rate of international co-authorship (Table 2).

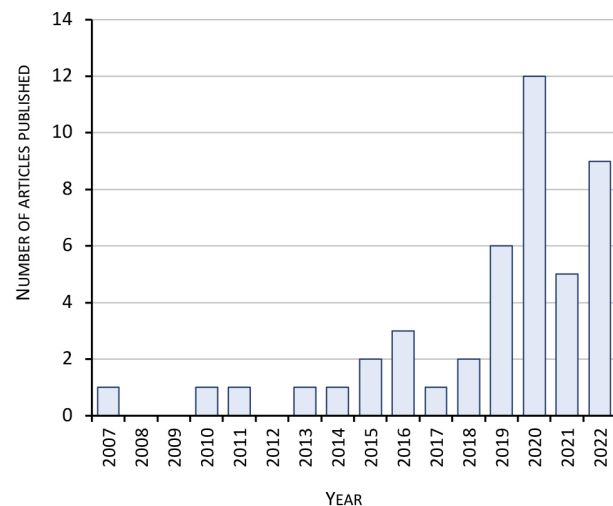
Table 2. Sample characterization

Dimension	Description	Results
Scientific production	Timespan	2007:2022
	Sources (Journals)	36
Documents	Documents	45
	Document Average Age	4.27
	Average citations per doc	6.51
Authors	Keywords Plus (ID)	85
	Author's Keywords (DE)	164
Collaboration	Authors	126
	Authors of single-authored docs	10
	Single-authored docs	10
	Co-Authors per Doc	3.11
	International co-authorships %	13.33

Scientific production

During the analyzed period, a positive trend in scientific production was evidenced, with an average annual growth rate of 15.78%. From the year 2013, the publication of articles has remained active, and the highest record of publications was achieved in 2020, with a total of 12 articles (Figure 2).

Figure 2. Evolution of scientific production



Specifically, the linear regression during the period 2013-2022 revealed an increase of approximately 1 article per year ($\beta=0.97$, $R^2=.6$). However, it should be noted that the temporal evolution of scientific production fits better with an exponential growth of the literature ($\beta=0.26$, $R^2=.71$) (Table 3).

Table 3. Linear and exponential estimation of the scientific production growth, 2013-2022

Regression	R2	F	Significance	Constant	β
Linear	.599	11.929	.009**	-6.952	0.970
Exponentialq	.711	19.638	.002**	0.146	0.259

Note: y = number of publications; x = periods (1-10), **p<.01

Most relevant authors

A low density in authorship of scientific production on astrotourism was observed, manifested in the reduced number of publications per researcher. The most productive authors published a maximum of 3 articles each. Among them, Carlos Costa, Carlos Peixeira Marques, Carla Susana Marques, Áurea Rodrigues, and Alberto Tapada stood out. It is important to highlight the collaborative work of Costa, Marques C.P., Marques C.S., and Tapada, who always published jointly. Furthermore, the most cited authors were Bente Heimtun and Martin Labuda, with 12 and 11 mentions respectively (Table 4).

The analysis of author concentration using Lotka's Law (Lotka, 1926) confirmed the wide dispersion of scientific production. In particular, it was established that 92.9% of authors have published only one document, 3.2% have published two articles, and only 3.9% have published more than two articles (Figure 3).

Table 4. Ranking of the most productive authors (more than one article)

Ranking	Author	Affiliation	Articles	H-Index	Total citations	Average citations
1	Costa, C.	University of Aveiro	3	1	2	0.7
2	Marques, C.P.	University of Trás-os-Montes and Alto Douro	3	1	2	0.7
3	Marques, C.S.	University of Trás-os-Montes and Alto Douro	3	1	2	0.7
4	Rodrigues, A	University of Évora	3	2	7	2.3
5	Tapada, A	University of Trás-os-Montes and Alto Douro	3	1	2	0.7
6	Heimtun, B.	UiT The Arctic University of Norway	2	1	12	6.0
7	Labuda, M.	Comenius University	2	2	11	5.5
8	Loureiro, S.	ISCTE – University Institute of Lisbon	2	2	5	2.5
9	Pereira, R.	University of Algarve	2	2	4	2.0

Figure 3. Lotka's Law

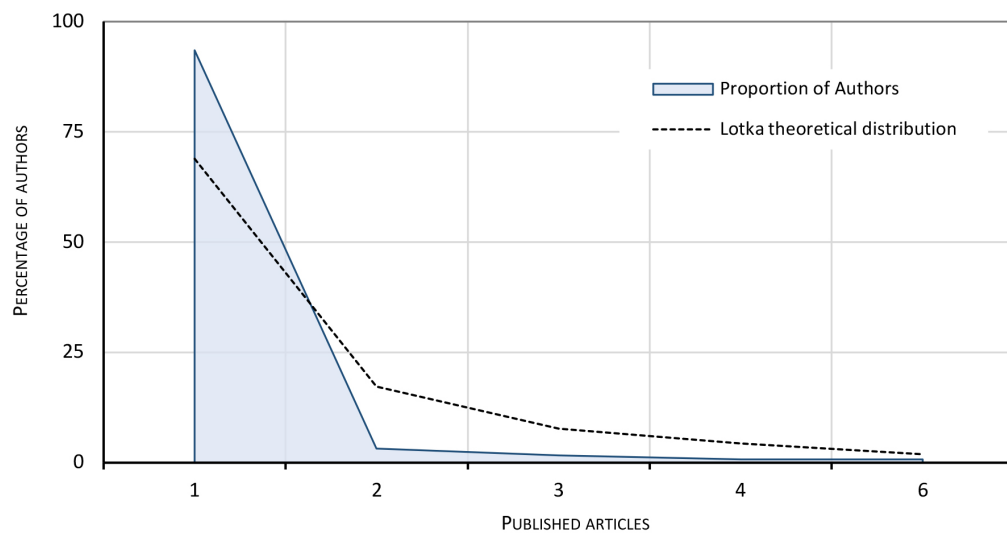
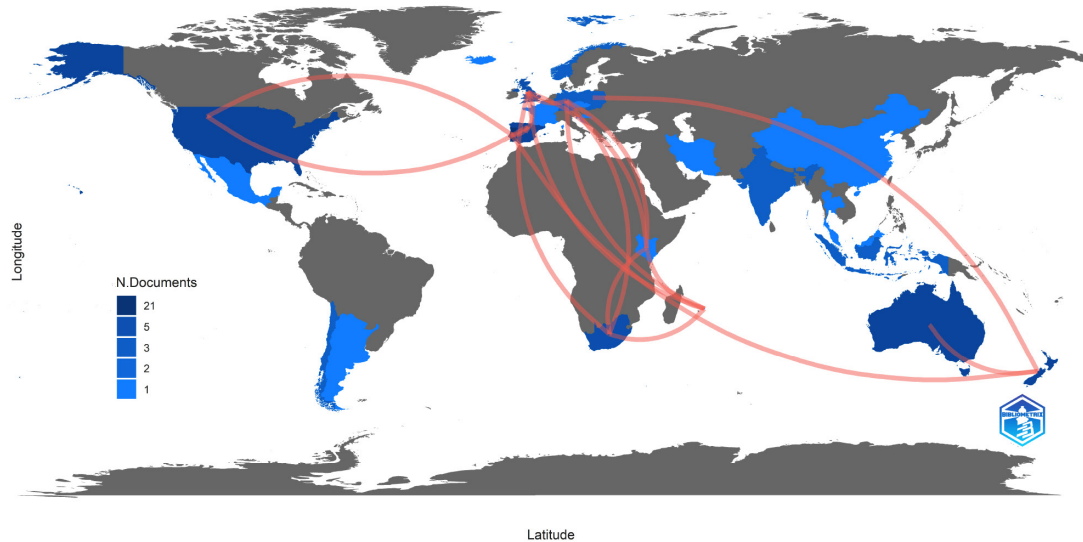


Table 5. Ranking of the most productive institutions

Ranking	Institution	Country	Type	Affiliates	Percentage*
1	University of Aveiro	Portugal	Public	6	4.8
2	University Las Palmas Gran Canaria	Spain	Public	5	4.0
3	University of Trás-Os-Montes and Alto Douro	Portugal	Public	4	3.2
4	Comenius University	Slovakia	Public	3	2.4
5	University of Algarve	Portugal	Public	3	2.4
6	University of Canterbury	New Zealand	Public Research University	3	2.4
7	University of Evora	Portugal	Public	3	2.4

*Note = Calculated percentage of total authors (n = 126)

Figure 4. Geographical and collaborative distribution of scientific production



Leading institutions

Within the ranking of the most prolific institutions (with more than two affiliations), the dominant presence of public universities from Portugal and Spain stands out, with a total of 16 and 5 affiliations, respectively. The most relevant institutions were the University of Aveiro (6), University Las Palmas Gran Canaria (5) and University of Trás-Os-Montes and Alto Douro (4). (Table 5).

Main countries

The results presented in Figure 4 show that the countries with the highest scientific production were, in descending order, Portugal (21), Spain (10), Australia (6) and Kenya (6), confirming the unquestionable leadership of Portugal in the field. Likewise, when examining the contribution between nations, collaborations of Portugal (3) with France, New Zealand and the United States stands out, as well as that of Kenya (4) with Germany, South Africa, Mauritius,

and the United Kingdom, and the United Kingdom (5) with Germany, Mauritius, South Africa, Kenya, and Spain.

Most prominent journals

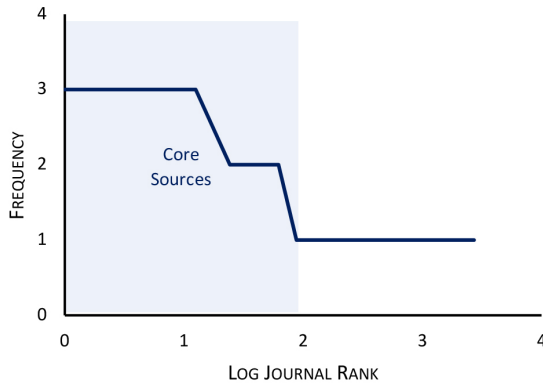
According to Table 6, it can be observed that the journals that have published the most about astrotourism (minimum 2) were from the United Kingdom (5), France (3) and Switzerland (3). The most prominent sources were CAP-journal, Proceedings of the International Astronomical Union, and Sustainability, all with three publications.

A concentrated distribution was identified when examining productivity in relation to publication sources. In particular, when using Bradford's Law (Bradford, 1985), a high degree of correlation ($R^2 = .98$) was revealed, indicating that the majority of publications related to astrotourism are found in a small number of journals (Figure 5). For example, the data shows that 33% of scientific production is concentrated in six journals.

Table 6. Ranking of the most productive Journals

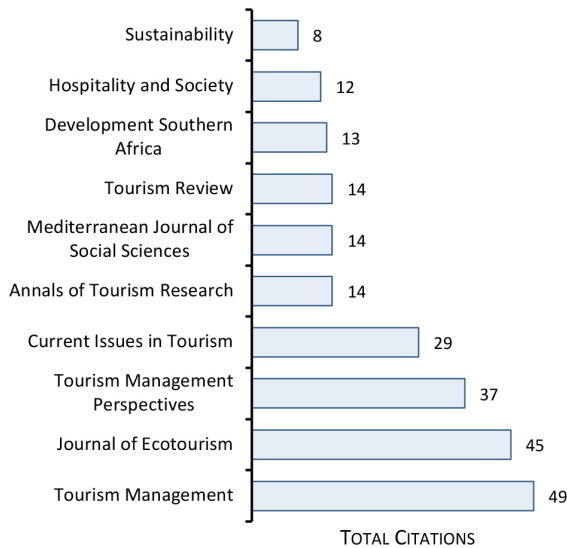
Ranking	Title	Articles	Percentage*	TC	Publisher	Country
1	CAPjournal	3	6.7%	1	IAU	France
2	Proceedings of the International Astronomical Union	3	6.7%	1	Cambridge Univ Press	United Kingdom
3	Sustainability	3	6.7%	8	MDPI AG	Switzerland
4	Journal of Tourism and Development	2	4.4%	1	University of Aveiro	Portugal
5	Land	2	4.4%	7	MDPI AG	Switzerland
6	Tourism Management	2	4.4%	49	Elsevier Ltd.	United Kingdom

Figure 5. Bradford's Law



On the other hand, the journal with the highest number of total citations was *Tourism Management* from Elsevier Ltd. with 49 total citations, followed by *Journal of Ecotourism* from Taylor and Francis Ltd. with 45 citations and *Tourism Management Perspectives* from Elsevier USA with 37 citations (Figure 6).

Figure 6. Ranking of the most cited journals



Most cited articles

Weaver (2011) presented the most cited article (45 citations), "Celestial ecotourism: new horizons in nature-based tourism," in which the structure (notion and classification) and magnitude of celestial ecotourism are described. The aim of the study is to encourage its recognition as a relevant field of study and its positioning as an emerging area committed to preserving the

skies in tourism. Secondly, with 37 citations, the article "Astronomical Tourism: The Astronomy and Dark Sky Program at Bryce Canyon National Park" by Collison and Poe (2013) stood out, which presents the results of the evaluation of the Astronomy and Dark Sky Program for Bryce Canyon National Park in the United States. Thirdly, with 29 citations, the work of Soleimani et al. (2019) "Astro-tourism conceptualization as a special-interest tourism (SIT) field: a phenomenological approach" stood out, in which astrotourism is conceptualized as a phenomenon of nature-based tourism and presented as a field of special-interest tourism (SIT) using a phenomenological approach. Their study illustrates the potential of astrotourism to develop the image of a tourist destination by combining terrestrial and celestial aspects. Fourthly, the article by Ma et al. (2020) "Special interest tourism is not so special after all: Big data evidence from the 2017 Great American Solar Eclipse" with 25 citations. The study empirically tests an important typology in tourism literature, mass tourism versus special-interest tourism (SIT), revealing that many tourists involved in SIT activities exhibit a characteristic behavior and profile of mass tourists looking for novelty, but aware of the risks and comforts. Finally, with 24 citations, the article by Mitchell and Gallaway (2019) "Dark sky tourism: economic impacts on the Colorado Plateau Economy, USA" highlighted, which examines the economic impact of dark sky tourism in the national parks of the United States in the Colorado Plateau (Table 7).

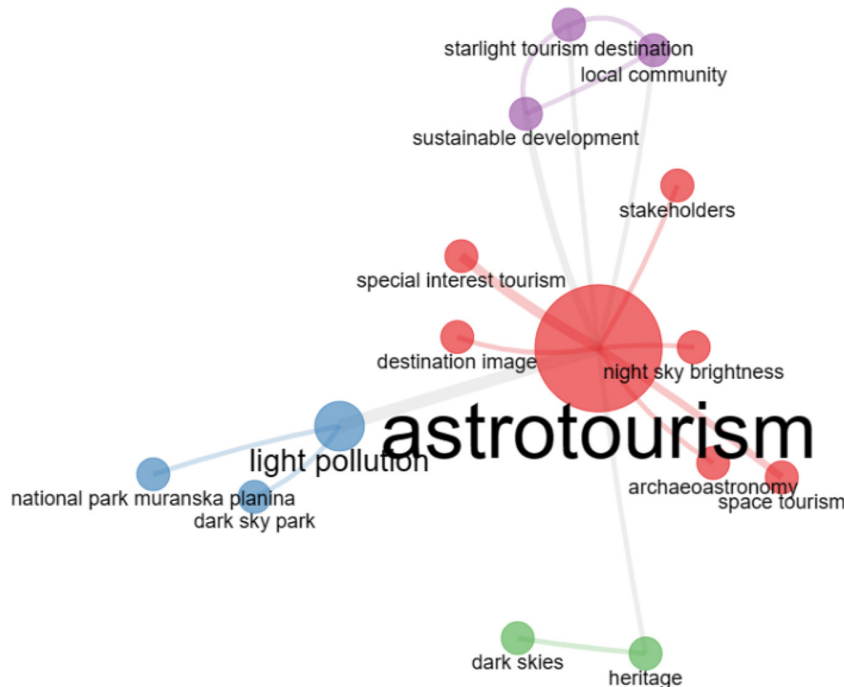
Keyword co-occurrence network

Figure 7 represents the co-occurrence network of author keywords in a bibliometric map, where the size of the nodes

Table 7. Top ten cited articles

Ranking	Article title	Author (year)	Total citations	TC per year
1	Celestial ecotourism: new horizons in nature-based tourism	Weaver (2011)	45	3.46
2	Astronomical Tourism”: The Astronomy and Dark Sky Program at Bryce Canyon National Park	Collison & Poe (2013)	37	3.36
3	Astro-tourism conceptualisation as special-interest tourism (SIT) field: a phenomonological approach	Soleimani et al. (2019)	29	5.80
4	Steps to Space; opportunities for astrotourism	Cater (2010)	25	1.79
5	Special interest tourism is not so special after all: Big data evidence from the 2017 Great American Solar Eclipse	Ma et al. (2020)	24	6.00
6	Dark sky tourism: economic impacts on the Colorado Plateau Economy, USA	Mitchell & Gallaway (2019)	14	1.56
7	Aurora Borealis: Choreographies of darkness and light	Jóhannesson & Lun (2017)	14	2.80
8	Functions of Astrofiqh Observatories in Malaysia in Solving Astrofiqh Issues	Ibrahim et al. (2015)	14	2.00
9	To wish upon a star: Exploring Astro Tourism as vehicle for sustainable rural development	Jacobs et al. (2020)	13	3.25
10	Emotions and affects at work on Northern Lights tours	Heimtun (2016)	12	1.50

Figure 7. Keyword co-occurrence network



is proportional to the frequency and relative weight of occurrence, and where the links between different nodes are visualized through lines. Thus, the larger the node, the higher the frequency of its occurrence in the literature. The thicker the connecting line, the greater the thematic

link between the two keywords. The central clusters of the map indicate a high interrelation with the basic concepts that make it up, while those located at the edges indicate a low interrelation. The network recorded four central co-words nodes, whose examination of the network centrality

degree confirmed that the term astrotourism is the main source for interaction and linkage with the other keywords of the reviewed articles. In particular, this topic showed levels of intermediation and proximity of 84 and 0.059, respectively, much higher than other concepts, such as light pollution (25 and 0.038) or space tourism (0 and 0.03). This central cluster incorporated six keyword nodes (astrotourism, night sky brightness, special interest tourism, stakeholders, archaeoastronomy, and space tourism) which included three of the four most frequent keywords in the literature: astrotourism (28), light pollution with (8), special interest tourism (4), and space tourism (4).

Thematic map of study categories

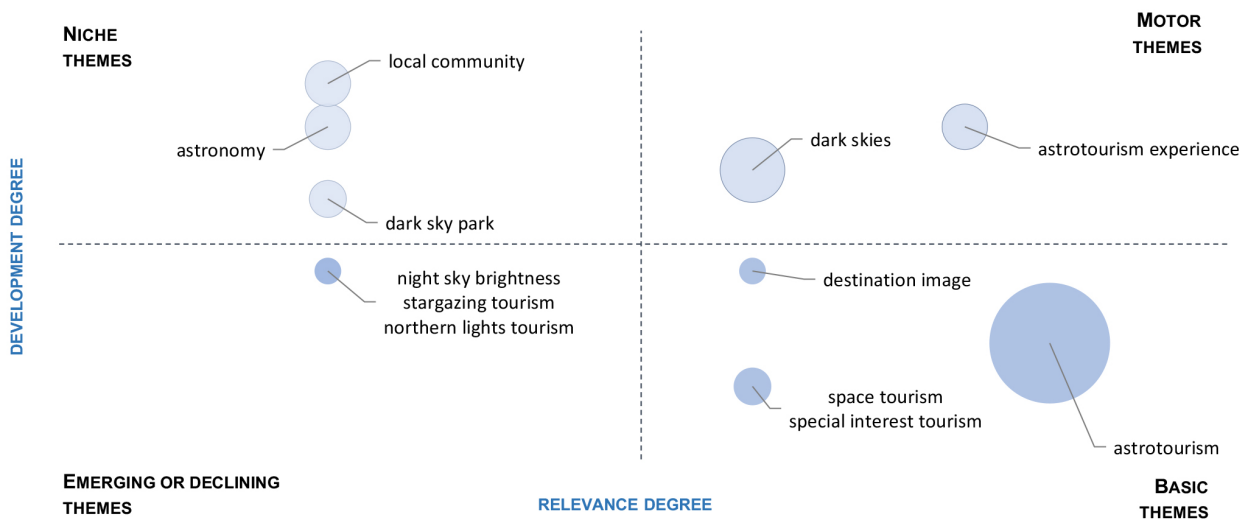
The thematic map based on the density (development) and centrality (relevance) measures of Callon et al (1991), allowed to determine a total of three clusters with niche themes, highly developed but isolated; two clusters with motor themes, highly developed and relevant; four clusters with basic themes; and three clusters with emerging or declining themes. No clusters with ambiguous or undetermined classification were observed (Figure 8).

Among the three niche-themed clusters, the local community cluster had a total of three publications. The article by Tapada et al. (2021) explores the literature around astro-

tourism with a qualitative approach, highlighting the main research areas (light pollution, sustainability, and regional development). Additionally, the articles by Tapada et al. (2020) and Tapada et al. (2022) explore the role of stakeholders in value creation in astrotourism projects. Furthermore, their perceptions regarding the development of projects of this kind are evaluated. On the other hand, the astronomy cluster has four articles. Among them, the main theme is sustainable development in the context of rural astrotourism (Jacobs et al., 2020) and nature tourism (Soleimani et al., 2019; Weaver, 2011). In addition, the importance of astronomical outreach is addressed (Char, 2020). Finally, the dark sky park cluster has three articles. The main theme of this cluster is the conservation of natural parks due to its importance for astrotourism (Labuda et al., 2015, 2016) and protection against light pollution (Krajnović, 2020).

The motor themes include two clusters. The dark skies cluster incorporates seven articles. Collison and Poe (2013) evaluate the effectiveness of an astronomical tourism program, with a focus on its positioning and public participation, projecting strategies for its development. Meanwhile, Mitchell and Gallaway (2019) examine the economic impact of astrotourism, mainly through coverage indicators (number of visits) and tourist spending level. The proposal of Li (2021) explores the competitive

Figure 8. Thematic map based on Callon's measures of density and centrality



Note: The night sky brightness, stargazing tourism, and northern light tourism clusters have the same density and centrality measures. That is why they are graphically displayed as a single cluster. The same happens with space tourism and special interest tourism.

advantages of astrotourism, mainly evaluating the intentions to revisit and recommend the destination, elements that allow assessing tourist loyalty (Araya-Pizarro & Vereist, 2021; Yoon & Uysal, 2005). In general, the articles in this cluster investigate the experience and loyalty of astrotourists (Khetrapal & Bhatia, 2022; Pásková et al., 2021). The other motor cluster is astrotourism experience, which includes four articles with similar themes to the previously analyzed group (Li, 2021; Rodrigues et al., 2022). Additionally, the phenomenon of word-of-mouth in astrotourism is explored (Rodrigues et al., 2022) and the effects of destination attributes on tourist satisfaction (Araya-Pizarro, 2020), all around the visitor experience. In general, it is observed that most of the articles in motor clusters are based on primary data on the characteristics of the tourist.

A total of three basic clusters were generated. The astrotourism cluster has the largest number of publications (10), some of which describe and analyze the operation of astronomical centers and observatories for tourism purposes (Hearnshaw, 2016; Ibrahim, 2015), as well as the development and strategic perspectives of astrotourism in particular countries (Priyatikanto et al., 2019; Yuna & Premadi, 2018; Zielinska-Dabkowska & Xavia, 2021). Another motor cluster is destination image, which contains only two articles. The article by Rodrigues et al. (2020) explores how night photographs can contribute to the promotion and strengthening of the image of astrotourism destinations, while the work of Soleimani et al. (2019) analyzes how astrotourism is positioned as a form of special interest nature tourism and how it articulates with the concept of destination image. The space tourism and special interest tourism clusters have two and three articles respectively. The first cluster consists of articles on the development and projections of space tourism (Bógdał-Brzezińska & Wendt, 2021; Cater, 2010). The second focuses on the attributes of the destinations that offer astrotourism services (Joseph et al., 2022; Páramo & Sánchez, 2018). Additionally, the article by Ma et al. (2020) identifies the motivational characteristics of astrotourists and investigates, based on a Big Data study, whether they are more oriented towards mass or special interest tourism. The articles that belonging to basic clusters are mostly descriptive and based on secondary sources (documentaries).

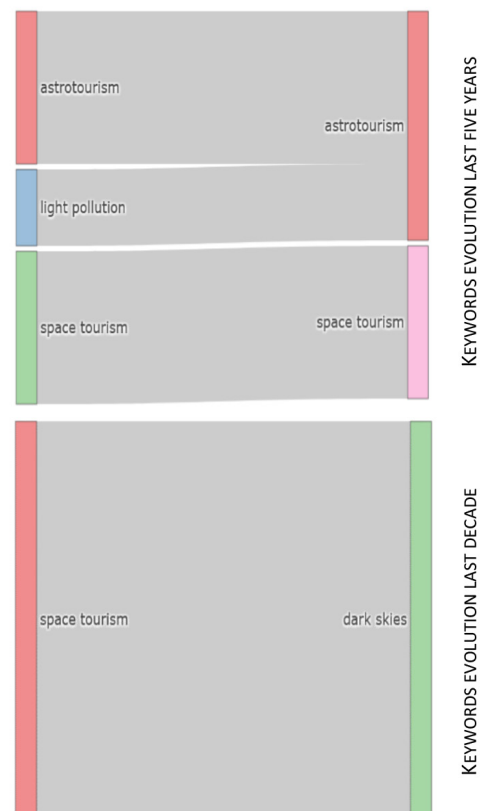
Finally, the declining or emerging themes are classified into three clusters. The first, night sky brightness, contains two articles that study the potential of astrotourism destinations through measurements of sky luminosity (C-Sánchez et al., 2019; Kanianska et al., 2020). The second

cluster, stargazing tourism, also has two publications that examine the behavior and preferences (Fernández-Hernández et al., 2022; Li, 2021) of stargazing tourism. The northern lights tourism cluster has two articles. The first explores the emotional factors that affect tourists's decisions to visit northern lights observation sites (Heimtun, 2016). And, the second, analyzes the growth, development and maturity of tourism collaboration networks related to Northern Lights tourism (Heimtun & Haug, 2022).

Trend and thematic evolution

Regarding the evolution of the study topics, the clustering analysis technique based on the proposal of Cobo et al. (2011a) was applied. Two independent analyses were conducted. On one hand, the literature of the last five years (2018 to 2022) was contrasted with that of the previous period. On the other hand, scientific production in the last decade (2013 to 2022) was compared with that of the period between 2007 and 2012 (Figure 9).

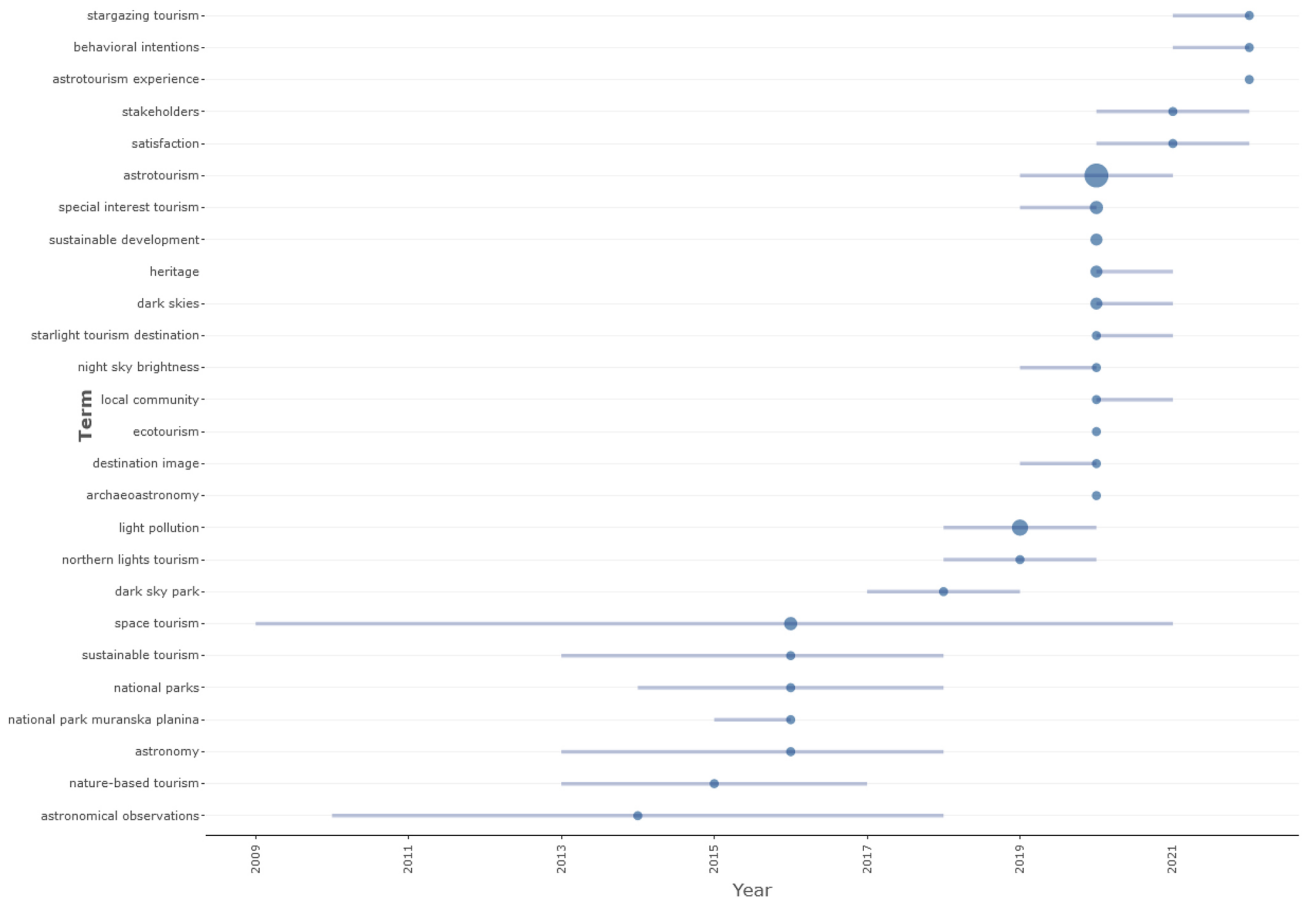
Figure 9. Keywords evolution, last five years and last decade



The analysis of the last five years revealed that the use of the concept of light pollution has tended to decrease in astrotourism studies. This could be explained by a greater diversification of the dimensions in which tourist destinations are studied and projected, considering economic, environmental and social factors within the framework of sustainable development. On the other hand, in the studies of the last decade, the use of the concept of space tourism has tended to decrease in favor of dark sky tourism, although it remains a transversal topic in the literature on astrotourism. It is striking that, according to Callon's strategic map (Figure 8), the cluster related to space

tourism seems to be in decline. A preliminary hypothesis would suggest that space tourism is becoming an independent topic of study from astrotourism.

This trend is reinforced by reviewing the use of keywords over time in general. It is observed that the use of terms such as space tourism, sustainable tourism, nature-based tourism, and others, is more frequent before 2017, while stargazing tourism, behavioral intentions, stakeholders, satisfaction, sustainable development, among others, are keywords that are used more frequently after that year (Figure 10).



DISCUSION

The purpose of this study was to examine the worldwide scientific production on astrotourism up to 2022. In general terms, the literature on this topic is limited compared to other types of tourism-related work, with continuous

production registered from the last decade. However, the study found that astrotourism is an increasingly interest topic, mainly related to recreational and educational activities developed around the cosmos and astronomical phenomena. In this sense, astrotourism has stood out for

offering unique experiences that combine the quality of the night skies with regional infrastructure and other related complementary products (Araya-Pizarro, 2020; Collison & Poe, 2013; Escario-Sierra et al., 2022).

The bibliometric review of scientific production shows a great concentration of publication sources and wide dispersion of authors, whose research is characterized by a collaborative nature and comes mainly from authors of European institutions (Portuguese and Spanish). Among the key concepts reviewed, terms associated with astrotourism, light pollution, special interest tourism, and space tourism stood out.

The thematic analysis of the bibliography reveals highly specialized topics with a high level of development. Among them, the study of stakeholders and their link to the development and prosperity of astrotourism (Tapada et al., 2020, 2022) is highlighted, as well as the importance of sustainable astronomical tourism (Jacobs et al., 2020; Labuda et al., 2015, 2016; Soleimani et al., 2019). On the other hand, the motor themes that drive the development of research on astrotourism are mainly materialized in studies with primary data on tourist satisfaction (Araya-Pizarro, 2020), experiences (Khetrapal & Bhatia, 2022; Pásková et al., 2021) and tourist loyalty, through the intention to revisit and recommend tourist destinations (Li, 2021; Rodrigues et al., 2022). In addition, other articles address the economic impact of astronomical tourism (Collison & Poe, 2013; Mitchell & Gallaway, 2019). Articles on basic themes mostly of research that uses secondary data sources. They include descriptive studies regarding the characteristics of centers, location, and countries that offer astrotourism activities (Hearnshaw, 2016; Ibrahim, 2015; Priyatikanto et al., 2019; Yuna & Premadi, 2018; Zielinska-Dabkowska & Xavia, 2021). In general, articles on motor themes study tourist behavior, while articles on basic themes characterize the destinations where astrotourism is offered.

On the other hand, there are articles with low development and centrality, such as those that evaluate different luminosity indicators as attributes to measure the success of potential tourist destinations (C-Sánchez et al., 2019; Kanianska et al., 2020). Additionally, the use of concepts such as stargazing tourism and northern light tourism is an emerging trend that is beginning to develop (Fernández-Hernández et al., 2022; Heimtun & Haug, 2022; Li, 2021).

The progressive analysis of the study themes based on

the keywords indicates a trend toward increasingly sporadic use of the term "space tourism", while "stargazing" and "dark skies" are used more frequently. The evidence suggests that there is a growing distinction between astronomical observation tourism and space tourism, which raises the possibility of investigating space tourism as an independent topic rather than as a subtopic of astronomical tourism, which would be an extension of the present study in the future. In this line, it is important to mention that, in contrast to space tourism, observational tourism entails the obligation to care for and protect observation sites in a comprehensive manner, which has a positive effect on the development of communities and local entrepreneurship. Consequently, astronomical tourism has a direct impact on sustainable development at the local, regional and national levels; and for this reason, its promotion and positioning is a matter of interest for all the actors in the astrotourism system. On the other hand, the examination of tourist behaviour, satisfaction and loyalty has gained predominance, with a growing number of publications focused on strengthening the competitive advantages of tourist destinations, based on the motivations and profile of visitors.

Finally, the study identifies some limitations and suggestions for future research. Regarding the bibliometric examination, it would be possible to expand the databases and types of documents searched and use additional analysis methods to delve deeper into the structure and dynamics of the research. Additionally, this exploration can be complemented by investigating collaboration networks among authors and institutions. With regard to the results, the findings show that even though research on astrotourism is a topic of great interest, its study is currently limited, especially in terms of its spatial distribution. Therefore, there is a fertile field for future research that considers other disciplinary areas and geographic contexts, which would help enrich the panoramic view of global astrotourism.

CONCLUSIONS

The conclusion is that astronomical tourism is becoming a dynamic topic of study over time. There is a widespread consensus regarding the contribution of astrotourism to regional sustainable development (economic, social and environmental), as well as its ability to educate about the heritage and aesthetic value of the skies, and its focus on creating value for tourists interested in astronomy (motor theme). It is also important to note the relevance of

achieving greater connection between the different actors involved in astrotourism, a topic that is currently underexplored in the literature and considered a research niche. As Jacobs et al. (2020) indicate, the success of astrotourism products development depends largely on the level of destination development and the articulation of the governance systems involved. In addition, future bibliometric studies could explore space tourism as an independent research topic, as conceptually and in practice, it corresponds to particular forms of tourism, which was established with the evolution and trend of the keywords.

It should be noted that this study is the first bibliometric review to use quantitative clustering techniques (Callon's algorithm) to classify study themes according to their level of interaction and association strength. This has made it possible to identify highly specialized areas (niches), emerging and declining trends, as well as the motor and cross-cutting themes in astrotourism. This approach provides a more accurate vision of the research landscape, which can serve as a guide for future work and discoveries in this field of knowledge.

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Bibliometric study about sustainable tourism product in Scopus database

Estudio bibliométrico sobre productos turísticos sostenibles en la base de datos Scopus

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ABSTRACT

Sustainability in the tourism sector, environmental conservation, and the benefit of local communities are some of the topics that currently arouse the greatest interest. The objective of this research is to map the scientific production on sustainable tourism products available in the Scopus database. The bibliometric method was used. The information was processed in the Biblioshiny application of the Bibliometrix package of RStudioCloud. Productivity and citation indicators were calculated by years, journals, authors, documents, institutions, and countries. Xavier Font as the most prolific and high-impact author, Sustainability (Switzerland) as the most productive journal, and Tourism Management as the most cited journal were relevant. China is the country with the largest number of publications on the subject. Finally, a content analysis of articles was carried out to identify as research trends the value of environmental certifications, the behavior of the customer segment with environmental priorities, and sustainability and community-based tourism entrepreneurship.

Keywords: bibliometric study, sustainable tourism product, sustainable tourism

RESUMEN

La sostenibilidad en el sector turístico, la conservación del medio ambiente y el beneficio de las comunidades locales, son algunos de los temas que mayor interés despiertan actualmente. El objetivo de la investigación consiste en mapear la producción científica sobre producto turístico sostenible disponible en la base de datos Scopus. Fue empleado el método bibliométrico. El procesamiento de la información se realizó en la aplicación Biblioshiny del paquete Bibliometrix de RStudioCloud. Se calcularon indicadores de productividad y citación por años, revistas, autores, documentos, instituciones y países. Resultaron relevantes Xavier Font como autor más prolífico y de mayor impacto, Sustainability (Switzerland) como revista más productiva y Tourism Management como revista más citada. China es el país con mayor cantidad de publicaciones sobre el tema. Finalmente, se realizó un análisis de contenido de artículos que permitió identificar como tendencias de investigación, el valor de las certificaciones ambientales, el comportamiento del segmento de clientes con prioridades ambientalistas y la sostenibilidad y emprendimiento turístico comunitario.

Palabras clave: estudio bibliométrico, producto turístico sostenible, turismo sostenible

INTRODUCTION

Today, people travel for much more diverse reasons than in the previous century. Like the rest of the socioeconomic sectors of any nation in the world, the tourism industry has been developing gradually, along with the needs of customers, who are increasingly demanding. Thus, it has become essential to evolve the tourism offer at the international level, creating new products that are of interest to visitors, and renewing the existing ones in order to adapt them to the new trends of the so-called "Smokeless Industry".

The above has brought with it a level of commitment on the part of tourism managers, a high degree of demand towards service providers, and the constant striving to maintain the high levels of quality that are currently required (Ambientum, 2017).

The evolution of tourism activity requires the development of tourism products that are beneficial for visitors, the local and national economy and the communities where the tourism activity is carried out. For this, these products must comply with certain particularities that allow them to last in time, being sustainable from the economic, environmental and sociocultural perspectives.

Even since the 20th Century, a clear transformation has been taking place in this sense, where hotel companies especially, no longer have as their only challenge the continuous acquisition of economic benefits, but rather aim to develop a business model of a sustainable nature, which associates profitability with environmental and socially responsible practices (Moure y Revilla, 2016).

This is in response to the growing environmental awareness of tourists, who increasingly consider it a necessity for the products and services they consume to be environmentally friendly. Gradually, what is known as green tourism, nature tourism or ecotourism, has been gaining ground on the international tourism scene and is the focus of attention of product and service developers. An important milestone in this regard was the 1992 Earth Summit, where scientists of various nationalities debated the relationship between the environment and trade (Moure y Revilla, 2016).

Today, environmental certifications and awards granted to tourist destinations and facilities for their outstanding

work in protecting the environment are real attractions that drive the purchase decision of a huge number of international clients. This situation, to the extent that it is handled consciously and responsibly, can bring with it a level of conservation of flora and fauna never seen before, through a hopeful projection of economic development of human beings combined with the protection of the planet where they live (Font, 2002).

Sustainable tourism products, in addition to their marked importance in the conservation of the environment, prove to be a great socioeconomic investment. Thus, those products that are able to overcome their commercial stagnation phase, constantly rejuvenate themselves, and continue to be liked by visitors and local people, are more profitable and enjoy a better image in the market. Evidently, the sustainability of products in all their facets contributes to their commercial success and good positioning (Ambientum, 2017).

sustainability in the tourism industry, has been the subject of study in several research studies. Thus, some precedent bibliometric analyses were found, among which we can mention the articles by Pisonero-Capote et ál. (2021), López-Bonilla et ál. (2020), or Díaz-Pompa et ál. (2017). In these investigations, specialized search engines and databases such as Dimensions, ScienceDirect, Scopus and Web of Science and software such as VOSviewer are used to perform the bibliographic mapping and elaborate output tables and graphs. Among the main results, there is evidence of a boom in the subject at the international level, with some specialized journals such as *Tourism Management* and *Journal of Sustainable Tourism* standing out.

Likewise, in the article by Niñerola et ál. (2019), the authors use the keywords "sustainability; sustainable tourism; ecotourism; tourism management; systematic literature review; bibliometric analysis" to perform a search in the Scopus database, taking into consideration the period 1987-2018. A total of 4647 articles related to sustainability in tourism were found. Some bibliometric indicators, such as citations, were used to identify the structure of the field. The use of VOSviewer software allowed the mapping of the main trends in the field. Among the main trends are the sustained growth of literary production on the subject, the high proliferation of authors, the positioning of the United States as the leading country in the subject in

terms of documents and citations, as well as the strategic approach with which sustainability is being addressed in tourism companies and destinations.

In the case of Luo et ál. (2020), the Journal of Sustainable Tourism is taken as a reference for the analysis of sustainability in tourism. The keywords used in the study were "sustainable tourism products; journal of sustainable tourism; bibliometric analysis; visualization analysis; CiteSpace". The authors collect data from 750 articles and reviews published between 2008 and 2018 in the journal, in Web of Science Core Collection. The use of CiteSpace software enabled collaborative analysis, co-citation analysis, and keyword co-occurrence analysis. Among the trends identified were the diversity in the development of sustainable tourism products, as well as the evolution and new emerging trends in research on sustainable tourism for professionals. In this research, although the topic of sustainability was directly related to "tourism product", only what was addressed in the Journal of Sustainable Tourism was taken into account.

As a novelty, the present bibliometric study focuses on articles published up to 2022 in the Scopus database, while the previous studies analyzed only take into account articles published up to 2018, which guarantees greater timeliness and validity. Likewise, the analysis includes the construct "tourism product", related to sustainability in a general sense. We also use software that was not used in the studies previously addressed, such as Biblioshiny from the Bibliometrix package of RStudioCloud.

Consequently, the objective of this research is to map the scientific production on sustainable tourism products available in the Scopus database.

METHODOLOGY

The bibliometric method was used. A search for the thematic descriptors "sustainable tourism product" OR ("sustainable tourism" AND "tourism product") OR ("sustainability" AND "tourism product") was performed on the title, abstract and keywords of scientific articles available in the Scopus database. The search was not restricted to a specific time period.

The Biblioshiny application from the Bibliometrix package of RStudioCloud was used for data processing. RStudio is an integrated development environment (IDE) for the

R programming language, dedicated to statistical computing and graphics. It includes a console, syntax editor supporting code execution, as well as tools for plotting, debugging and workspace management (Github). Bibliometrix is a package for the R statistical programming language for quantitative research in scientometrics and bibliometrics (Pritchard, 1969).

Productivity and citation indicators were analyzed. Among them, the annual productivity of the subject in Scopus, productivity and citation by authors, authors' affiliation, productivity and citation by journals and countries, and citation by documents.

In addition, to analyze the impact of the authors, we calculated the h-index, which allows us to know the scientific impact of individual researchers within the scientific community. This index was created by Jorge E. Hirsch in 2005 to evaluate scientific production in the field of Physics, but it can be generalized. For its calculation, the articles are ordered in descending order according to the number of citations. Once ordered, the number of citations is checked to ensure that the number of citations is greater than or equal to the number of order of the article and the list is descended until finding one that is lower than the number of order. Finally, the number of citations of the article whose number of citations is lower than the order number is taken

(Joshi, 2014).

Similarly, the co-occurrence of keywords was analyzed. This technique is used for text analysis and makes it possible to determine the frequency with which two thematic descriptors appear together in the same document. For this reason, it is very useful when identifying patterns or thematic lines in bibliometric studies. (Eck y Waltman, 2018)

Finally, a content analysis was carried out through a complete reading of 20 articles, including the most cited, in order to determine the trends and gaps in this research.

RESULTS AND DISCUSION

Annual productivity

In the graph of productivity behavior by years of articles related to sustainable tourism products (Figure 1), there is a marked trend towards an increase in the number of articles published. This increase in productivity goes hand in hand

Figure 1. Annual productivity



with the growing interest of the scientific community and tourism process managers in environmental protection.

Thus, between 2015 and 2022, a high productivity of articles on the subject is evidenced. In 2021, the number of 18 articles published in Scopus was reached. This is due, among other causes, to the conditions in which the world found itself, trying to overcome the crisis caused by Covid-19. These circumstances enhanced the role of science and scientific research to resist and find new solutions, especially in the tourism sector, which would be one of the most affected. Furthermore, the UNWTO would name 2021 as the year of unity, resilience and determination, and would call for tourism to become increasingly inclusive, innovative and sustainable. It also set goals towards a more environmentally friendly future, working with key partners to reduce waste and plastic consumption across the sector (OMT, 2021).

Productivity by authors and impact

As for productivity by authors, there is no evidence of a systematization of the subject by authors in this database. All the authors present a low productivity, with Xavier Font being the most productive, with 3 registered publications. This distinguished professor at the University of Surrey, United Kingdom, has excelled in various subjects related to different areas of sustainability, such as sustainable marketing, corporate social responsibility, sustainable management of the supply chain, etc. He is currently considered to be the most prolific academic on the subject of sustainable tourism certification. He has developed various creative methods of sustainable tourism production and consumption for the tourism and hospitality industries. He has also conducted over 150 courses for more than 3,000 companies

on how to market and communicate sustainability, commissioned by the UNWTO, the European Commission, national tourism boards, among other institutions. He is also co-editor of the Journal of Sustainable Tourism (Font).

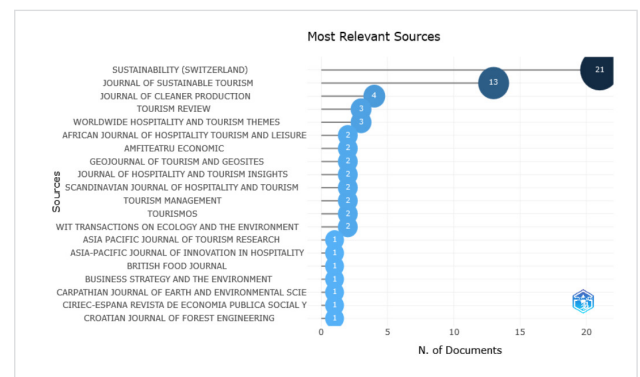
On the other hand, the authors Baros Z and Pulido Fernández JI have two publications each. The rest of the authors have only published once on the subject in Scopus.

Regarding the impact of his publications, Xavier Font achieved an h-index of 3, suggesting that each of his 3 articles has achieved at least 3 citations. Pulido Fernández JI has an h-index of 2.

Productivity and citation by journals

According to the analysis of the results obtained in the Scopus database, the journal with the highest number of publications on sustainable tourism products was Sustainability (Switzerland), with 21 articles published. Sustainability is an international, open access, interdisciplinary journal that generally addresses issues related to environmental, cultural, economic and social sustainability. It provides an advanced forum for studies related to sustainability and sustainable development, which is published fortnightly. Its main international affiliates include the Canadian Consortium for Urban Transit Research and Innovation (CUTRIC) and the International Council for Research and Innovation in Building and Construction (CIB) (Sustainability). The Journal of Sustainable Tourism also has medium productivity, with 13 publications; the rest of the journals have low productivity (less than 5 articles). Figure 2 shows the most productive journals.

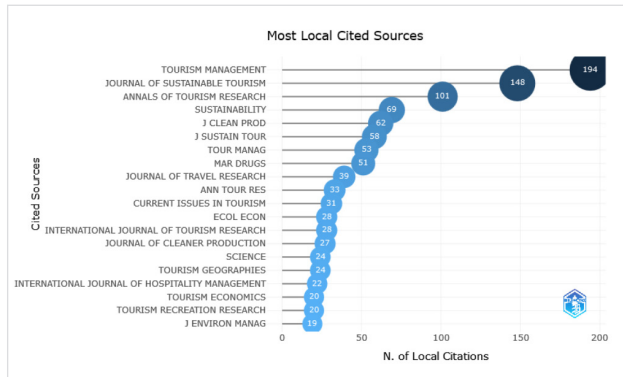
Figure 2. Productivity per journal



On the other hand, the most cited journals are Tourism Management with 194 citations, Journal of Sustainable Tourism (148 citations) and Annals of Tourism Research (101 citations). Figure 3 shows the 20 most cited journals.

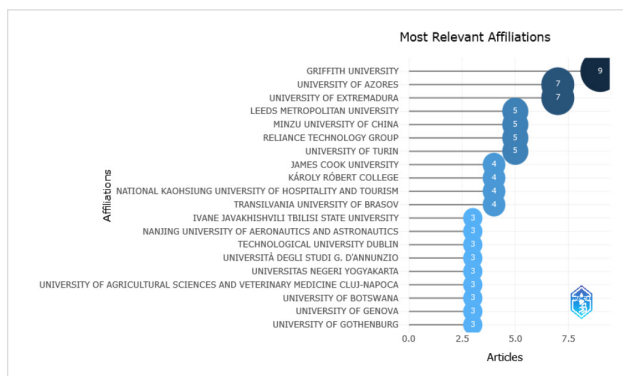
Authors' affiliation

Figure 3. Citation per journal



Griffith University was the affiliation with the highest number of authors, with a total of 9, followed closely by the University of Azores (Portugal) and the University of Extremadura (Spain), with 7 authors each. Griffith University is a leading Australian research university. It is located in Queensland, and is home to six campuses across the region. It has achieved excellent educational outcomes for its students, to whom it offers more than 200 degree programs and around 120 clubs and societies. The prestigious university was ranked second among institutions globally by the Times Higher Education University Rankings 2022, and 201st globally by QS World University Rankings 2023 (University). Figure 4 shows the results of this indicator.

Figure 4. Productivity per affiliation



Productivity and citation by country

Table 1 shows the countries with the highest production on the subject. China stands out in first place with 33 articles published. It is followed by Spain, the United States and Australia, with 29, 28 and 27 articles, respectively. As for the

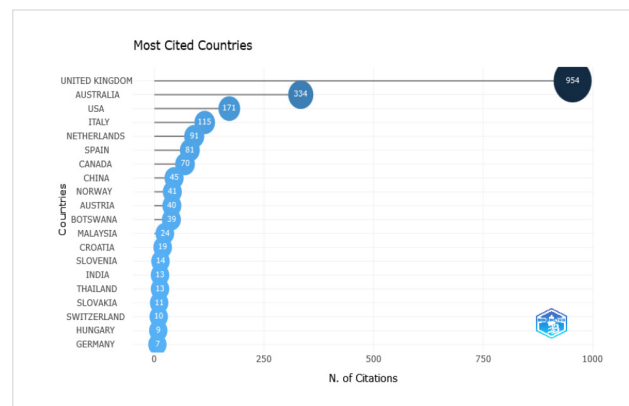
Table 1. Productivity per country

Country	Publication
CHINA	33
SPAIN	29
USA	28
AUSTRALIA	27
ITALY	24
PORTUGAL	22
CROATIA	18
UK	17
NORWAY	12
ROMANIA	11

Asian giant, its high productivity could be due to the strong growth of tourism in that nation, as well as to the series of initiatives that the Chinese government has been taking for several years to promote sustainable tourism. This has generated a high level of interest among the country's academics and its population in general in environmental conservation and the development of ecotourism. (Twenery, 2014).

In terms of citation by country (Figure 5), the top positions are held by the United Kingdom, with a total of 954 citations; Australia in second place, with 334 citations; and in third place, the United States with 171 citations.

Figure 5. Citation per country

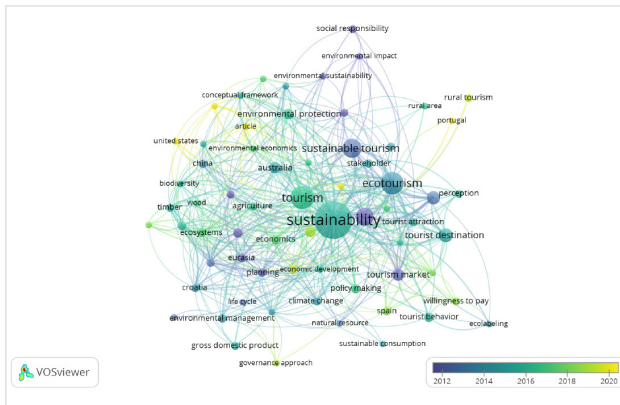


Keyword co-occurrence

For the analysis of keyword co-occurrence, the VOSviewer software was used. Thus, a cut-off of 3 co-occurrences was applied to the 948 total keywords, obtaining 73 keywords for the analysis. Subsequently, a thesaurus was performed, with the intention of refining the results and avoiding undue repetition of words, resulting in 66 keywords for the mapping.

Figure 6 shows the evolution of the topic over time. In 2012, research on the subject addressed elements such as environmental management, the tourism market and social responsibility. Subsequently, topics such as agriculture, climate change, or sustainability in general were studied. More recently, research has addressed some topics of great interest, such as rural tourism, economic development and cultural heritage.

Figure 6. Keyword co-occurrence



Cited documents

Regarding local citations, only 10 articles have been cited, with a range of 1 to 6 citations. The most cited article at the local level was "Environmental certification in tourism and hospitality: advances, process and perspectives", by the aforementioned professor Xavier Font, being cited on 6 occasions according to the analysis performed. This article aimed to lead to the recognition of the value of environmental certifications, as well as the review of this process in a wide range of public agencies. Thus, through an in-depth review of the specialized literature on the subject, it was determined that mergers, alliances and collaborations are the most likely method to create stronger

sustainable brands. Likewise, it was concluded that the support of local governments is essential for the development of more effective eco-labels and projects. On the other hand, as future lines of research, it was suggested that current certification programs should carry out feasibility studies and forecasts on what changes they should present in terms of their criteria, evaluation, verification and certification, in order to comply with international criteria. Figure 7 shows the citation by documents.

Identification of trends, gaps and future lines of research

In order to identify trends, gaps and future lines of research, 20 articles resulting from the Scopus search were analyzed, including those with citations at the local level. That said, and as a result of the content analysis, it was possible to determine three fundamental thematic lines that encompass the articles in question: 1. Value of environmental certifications, 2. Behavior of the customer segment with environmental priorities, and 3.

The first thematic line identified alludes to the current importance of environmental certifications for tourism companies, as well as their positive impact on their promotion and marketing process. The second line is based on the existence of a real, profitable and relatively accessible market segment, which has environmental protection as a priority, in addition to the enjoyment of their trip. As for the third line defined, it addresses those case studies of urban and rural communities that are committed to the development of sustainable tourism in all senses.

The articles that deal with the value of environmental certifications refer to their status in the tourism and hospitality industry (Font, 2002), as well as to hospitality strategies related to green certification (Borges Tiago et ál., 2016). In this research, a thorough review of the literature related to eco-tourism is carried out, showing the need for the correct use of eco-labels, the importance of alliances and mergers to create strong and sustainable tourism brands, and the importance of the use of eco-labels in the creation of sustainable tourism brands (Font, 2002), and the tendency of tourists to value the "green efforts" of companies in the sector, according to their different "intensities" (Borges Tiago et ál., 2016).

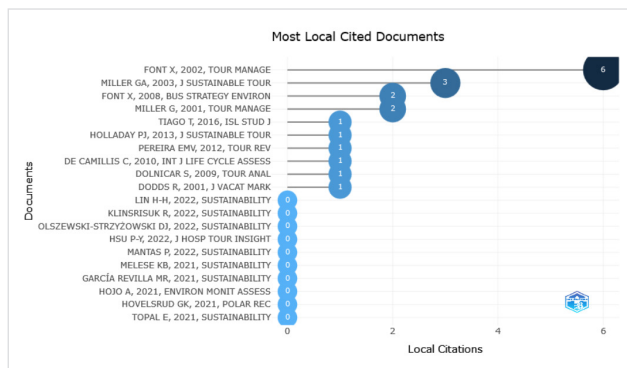
The main gaps and possible lines of research they propose are aimed at the necessary crossovers between the envi-

ronmental and political agendas (Font, 2002), and to the generalization and deepening of studies related to the various "shades of green" in tourism (Borges Tiago et ál., 2016).

On the other hand, the articles that address the behavior of the customer segment with environmental priorities study the way visitors think and act in correspondence with their cognitions about environmental care (Miller, 2003), (Miller, 2001), (Pereira et ál., 2012); the existence and economic profitability of this well-defined customer segment (Dolnicar y Long, 2009); as well as the actions undertaken by the

for the application of the instruments (Miller, 2003), (Pereira et ál., 2012), (Hsu et ál., 2020). With regard to future lines of research, it is proposed to expand studies on the attitudes of environmental consumers and their degree of commitment to the environment (Miller, 2003), (Miller, 2001), (Pereira et ál., 2012), (Dolnicar y Long, 2009), (Hsu et ál., 2020); and recommend actions to be taken by tourism entities to generalize the sustainable trends analyzed (Olszewski-Strzyżowski, 2022), (Hsu et ál., 2020), (Mantas et ál., 2021).

Figure 7. Cited documents



various tourism entities to manage the service and attention of this segment (Olszewski-Strzyżowski, 2022), (Hsu et ál., 2020), (Mantas et ál., 2021).

In this thematic line, a review of the specialized literature on ecotourism is applied, the opinions of experts on the subject are consulted, and selected case studies are analyzed. Thus, among the main results obtained are the demonstration that consumers are already making decisions based on the environmental, social and economic quality of the products. (Miller, 2003), (Pereira et ál., 2012), (Dolnicar y Long, 2009); the importance of the effectiveness and efficiency with which environmental product information reaches the end customers (Miller, 2003), (Miller, 2001); and how vital it is for tourism businesses to work together and rely on technological advances to develop market sustainability and improve the end consumer experience (Olszewski-Strzyżowski, 2022), (Hsu et ál., 2020), (Mantas et ál., 2021).

The main research gaps address the limitations of representativeness of the samples and populations selected

With regard to the articles related to the sustainable tourism entrepreneurship of the communities, they deal with topics such as the evaluation of the capacities of these settlements for tourism development (Powell y Holladay, 2013), (Lin, 2022), (Hojo et ál., 2021), (Hovelsrud et ál., 2021); the new alternatives to carry out ecotourism in these communities (Dodds y Joppe, 2001), (Garcia-Revilla y Moure, 2021), (Topal et ál., 2021); and their situation after the effects of Covid-19 (Lin, 2022), (Klinsrisuk y Pechdin, 2022).

In these investigations, various methods were used to collect and analyze information, including the review of specialized literature on the various forms of ecotourism (such as wine tourism and apitourism), and the application of surveys and interviews with local people and the main managers of the tourism entities involved.

The main findings were the fundamental role of cooperation between the various actors in the supply chain (Font et ál., 2008); the importance of governance, investments in infrastructure, and product diversification for sustainable local development (Powell y Holladay, 2013), (Dodds y Joppe, 2001), (Lin, 2022), (Klinsrisuk y Pechdin, 2022), (Kassegn y Heiyo, 2021), (Hojo et ál., 2021), (Hovelsrud et ál., 2021); as well as the relevance of the new emerging modalities of ecotourism (Garcia-Revilla y Moure, 2021), (Topal et ál., 2021).

The gaps proposed to give way to new research are focused on issues such as the generalization and deepening of the instruments applied, evaluating other case studies (Powell y Holladay, 2013), (Lin, 2022), (Garcia-Revilla y Moure, 2021), (Hojo et ál., 2021); and the need for the collaboration of local governments, putting research results into practice (Klinsrisuk y Pechdin, 2022), (Kassegn y Heiyo, 2021).

CONCLUSIONS

The article offers an overview of the behavior of research related to sustainable tourism products available in the Scopus database. It presents a valuable compilation of information for researchers and tourism managers, as well as for future studies on the subject. The growing interest in the topic was noted, due to the marked tendency to increase annual productivity shown by the research. Likewise, some thematic lines frequently addressed in studies related to sustainable tourism products were identified, such as the value of certifications, the behavior of the segment of clients with environmental priorities, and sustainability and community-based tourism entrepreneurship.

As for the most productive authors, there was little evidence of repetition and a lack of follow-up on the subject, the most prolific author being Professor Xavier Font, with 3 published articles and an h-index of 3. The affiliation with the highest number of authors was Griffith University, with a total of 9. The University of Azores (Portugal) and the University of Extremadura (Spain) followed with 7 authors each. The most productive countries with the highest number of citations were China and the United Kingdom, respectively. The calculation of these indicators can be very useful for future collaborations, as well as for the selection of countries for projects and academic scholarships.

The most cited article at the local level was "Certificación ambiental en turismo y hostelería: avances, proceso y perspectivas" by (Font, 2002). As a noteworthy fact, it belongs to the aforementioned professor Xavier Font, and was cited on 6 occasions according to the analysis carried out. The identification of the most cited articles is useful for the preparation of theoretical frameworks for future research on the subject.

One element interpreted as positive for the development of the topic in question is that the journal with the highest number of citations was *Tourism Management*, with 194 citations. This journal is internationally renowned and its publications set the standard in various areas of the tourism sector. *Sustainability (Switzerland)* was the journal with the highest number of publications on sustainable tourism products, with 21 articles published.

Overall, research on sustainable tourism products has increased in recent decades, reflecting a growing interest

in environmental and social sustainability in the tourism industry. Most studies focus on specific tourism destinations or on assessing the sustainability of existing tourism products, with only a few addressing the creation of new products and the implementation of novel ideas and sustainable alternatives. In addition, the main areas of research include the measurement of sustainability, the management of sustainable tourism destinations and the participation of local communities in the development of sustainable tourism products. (Jamal y Getz, 1995) (Weaver, 2006).

Researchers are encouraged to focus on the design of new sustainable tourism products, rather than simply assessing the sustainability of existing ones. More studies are needed on social sustainability in the tourism industry, including the involvement of local communities and the creation of sustainable jobs. Also, all tourism industry managers should take action to measure and improve the sustainability of their products and services, and consider including environmental protection and the welfare of local communities in their marketing strategies.

The main limitation of the present study is that the search was only conducted in the Scopus database; future studies may use other academic databases.

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