Bibliometric Analysis of Online Collaboration in Travel Agencies

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With the integration of ICT in the distribution channels, the client is increasingly independent and autonomous in obtaining tourist services and products. The COVID-19 pandemic and global physical distancing policies reinforced this, detrimentally for traditional travel agents, who have been forced to migrate totally or partially to an online business model. However, working online is not enough since it is necessary to have online collaboration strategies that facilitate the positioning of each participant in a hostile competitive environment. The research is developed through a bibliometric study, using the information obtained in the Scopus database to establish the state of knowledge about online collaboration in travel agencies. Various Excel, Bibexcel, EndNote x20, Pajeck, SciMath, and VOSviewer software were used to analyse indicators and map bibliometric networks. The results show that the state of cooperation between travel agencies as a factor of advantage in the new tourist environments is characterized by fierce competition and the strong impact of the digital age, which constitute the main innovative contribution of the study. It is also determined that the research topic has not had high productivity in the database. Among the main research gaps identified are online collaboration in traditional travel agencies and the impacts of cooperation on customer perception and cybersecurity. The study identifies the field's most influential authors, journals, publications, key themes and trends that have emerged over time. By identifying the critical success factors and challenges of online collaboration in the travel industry, this study can help organizations to improve their collaboration practices.

Keywords: bibliometric analysis, online collaboration, Scopus, travel agency

Introduction

The tourism sector is generally immersed in a very complex and dynamic operating environment due to technological innovations, increased consumer demand, intense competition, and distribution systems changes attributable to technology development (Aguiar-Quintana et al., 2016; Ambrož & Omerzel, 2018).

For this reason, in the tourism sector, it is necessary that all the actors constantly participate and, at the same time, receive both primary and complementary training to face the challenges imposed by the development of new technologies (Mekinc et al., 2022). The main reason behind this is that the tourism industry supports Internet-based distribution channels

more, mainly due to the characteristics of the services it generates: exhaustible and non-storable (Castillo-Manzano & López-Valpuesta, 2010). With the advent of new technologies, consumer behaviour, travel planning, and purchasing products and services have also changed radically (Chang et al., 2018). With the widespread use of media with increasingly intuitive interfaces, users generate and receive information in real time. Each experience, fundamentally those associated with tourism, leisure, and recreation, generates an incredible volume of multimedia information, which most users use as a pre-purchase evaluation criterion. Considering the above and according to the profiles and demand segments, we could speak of intelligent tourists to the extent that they have more knowledge, are more demanding, are connected, and share data (Ivars Baidal et al., 2016).

Information and communication technologies have indisputably been integrated into the tourism industry. Traditional business models have changed substantially. As defined (Liang & Wang, 2011), 'in terms of its characteristics and models of services and content, the tourism industry is much more adaptable for the online process.' The development of these models and their premature integration into tourist activity led to entry into the era of electronic commerce (Guo et al., 2014).

However, this development has undergone a lot of modifications and has acquired actual shape in the last 20 years (Liang & Wang, 2011), although it constantly undergoes changes through the introduction of new technologies such as the development of artificial intelligence (AI) in the so-called industrial revolution 4.0 (Fedorko et al., 2022) and the introduction of crypto-assets as a means of exchange (Aydoğan & Aydemir, 2022).

Considering the above, it is easy to understand that positioning itself in the online environment is a priority task for any tourism company. In this sense, it can be said that for traditional intermediaries, it has been quite tricky. The competition among these tourist actors is at a higher level. Technology has posed an enormous challenge for the traditional forms of intermediation and promotion because its main strength lies in the main weaknesses of these activities: the distance

to complete the acts of buying and selling, the greater reach of the public and the reduction of costs for brokerage concepts, which translates into more competitive prices (Chang et al., 2018). New technology, therefore, constitutes one of the variables in the mandatory care environment needed to attain the competitiveness of any company in the environment in which it operates. In addition, 'its future will depend on its correct application in any business model' (Aguiar-Quintana et al., 2016; García & García, 2017).

Being such an essential link in the travel industry has served well for travel agencies for more than 80 years. Initially, travel agencies were just brokers, paid by airlines and other travel players to distribute their products. The role of travel agencies in the tourism industry has been influenced by the consolidation of the sector and the advent of new technologies (Aguiar-Quintana et al., 2016; Kutty & Melwin Joy, 2020).

Technology integration has generated new competitors for travel agencies (Capriello & Riboldazzi, 2021), such as the classic integrated tour operators that dominate their distribution channels. Tour operators restructure their positioning strategies using the Internet's broad spectrum of tools. In this way, they reach more customers who, through the online medium, have access to millions of Internet possibilities. The modern consumer has little free time to plan all the details and review all possible offers, which is a critical factor for companies. Among the main competitors, we can mention the well-known web pages selling tourist products and services, such as Expedia, E-Dreams, Travelocity, and other online travel agencies (OTAS). All these competitors have forced traditional intermediaries to move part of their business to a virtual environment to remain competitive. In doing this, new clients are not limited to making a simple reservation by phone. Instead, they can use extensive resources and e-tools to opt for services and products with a level of personalization which cannot be found otherwise: consult user opinions, compare prices, and find more information regarding the selected destination (Mendoza García, 2018).

According to Slusarczyk et al. (2016), it is not enough for intermediaries to develop the marketing of their offers online since, in this environment, compe-

tition is even fiercer. At this point, these actors must adopt online collaboration strategies to form multiple market networks (Liang & Wang, 2011), which allows them to take full advantage of the Internet phenomenon. This will give each of the actors in the collaboration competitive advantages in the face of environmental changes.

Most travel agents around the globe understand the importance of cooperation, which is why they develop competitive and cooperative relationships with their counterparts in search of improving the development performance of their products (Ku et al., 2013). With this in mind, they need to know their positions and roles in the industrial network.

Analogous competitors may share the market and temporarily group customers to organize tour groups (Chang, 2020). There is no doubt that this horizontal collaboration is vital for the competitiveness of travel agencies since the changing market of the travel industry requires strategic formulation based on feedback where collective knowledge is the central repository in which all beneficiaries of the alliance support themselves. However, collaboration with other tourism players is vital for the correct functionality of the travel agency, its existence, and online business model, whose heart is the website. Regarding the first criterion, Aguiar-Quintana et al. (2016) note that: 'the intermediary role of a travel agent requires a high degree of communication and cooperation between consumer and provider;' this element can be observed in the fundamental participation of dissimilar actors in the creation of tourist packages.

The collaboration and formation of strategic alliances have been concepts widely studied, and from different points of view. According to researchers such as Marisol (2019), it is the process of combining efforts, resources, and talents in the achievement of a joint project, which among other benefits, allows the achievement of competitive advantages (Ramírez Orozco & Valencia, 2019; Išoraitė, 2009) from the balance of collective objectives over individual ones (Kazakova et al., 2018). Among the aforementioned competitive advantages is the establishment of a better preparedness to face the insecurities of the environment in the business sector imposed by globalization

(Išoraitė, 2009). It is also essential for solving problems for small and medium-sized companies (Mora Castellanos et al., 2019), investment sharing, resources (Hernández Leal et al., 2019), risks, knowledge, and the possibility of entering new markets and reducing costs.

The main differentiating element of this traditional type of collaboration is the use of technological tools applied to these forms of cooperation. These tools are presented to tourism businesses as platforms to join efforts in the marketing process in the online environment (Abou-Shouk, 2022).

The advantages offered by this type of collaboration, specifically in the network in which the travel agency operates, are: reduction of costs for online operations; integrated digital marketing actions, access to new market segments offered by the integration of technologies; improvements in knowledge management applicable to the measurement of consumer behaviour; the creation of online management platforms that standardize operational communication between each of the actors in the collaboration network; as well as the advantages stated above of traditional forms of collaboration.

Virtual collaboration relationships in travel agencies can be summarized in two fundamental aspects, 'Business-Business' (b2b) and 'Business-Consumer' (b2c) relationships. In the b2b e-commerce of the travel market, the wholesaler can develop virtual dynamic transaction platforms where buyers and suppliers are brought together. From the point of view of value chains, to be more efficient, a b2b collaboration model enables travel agencies to improve performance with the offer of electronic services (Huang, 2006).

As in traditional forms of collaboration, the relationships that can be established horizontally and vertically are considered; however, this new medium has generated a unique factor to consider, which is vital for a travel agency and any online business – the consumer. A satisfied customer acts as a powerful ally who will unwittingly serve as a promoter because of the mass feedback they generate about everything they experience. For this reason, a second collaboration model, b2c, focused on the consumer, is necessary (Anas & Wee, 2020).

The integration of Information and Communication Technologies in the collaboration networks of the tourism system, specifically those with which tourism intermediaries interact, has not been deeply studied. This is because it constitutes an emerging topic in the scientific literature closely linked to the development of Information and Communication Technologies and its integration into the tourism industry, specifically the travel industry.

The paper uses bibliometrics (Kresic & Gjurasic, 2023; Demir & Zečević, 2022), an analytical tool for identifying the established online cooperation of travel agencies as a factor of advantage in newer tourism environments characterized by modern ICT tools. The scientific questions that will focus the research process toward the achievement of its general objective are as follows:

- Has the topic investigated been productive?
- How updated is the bibliography available in Scopus?
- Are there authors and impact scientific journals that have systematized research to date?
- Who/which are the authors, journals, and documents with the greatest impact?
- How has authorial collaboration behaved?
- What are the main thematic lines the research topic has moved through?
- What are the main research gaps?

Methodology

A methodology composed of logical steps that constitute the common thread for developing the bibliometric analysis was used. It starts with selecting the terms to build the search equation for publications on online collaboration in travel agencies. The equation is defined as follows: 'travel agency' AND (Collaboration OR Coopetition OR Alliance) AND (Online OR e-commerce OR electronic commerce). The articles indexed in the Elsevier Scopus database were selected, coinciding with the criteria of Codina et al. (2020), considering that it constitutes one of the databases with the most significant impact on the social sciences (in 2020, this database had a representative coverage with 38,589 scientific journals in all
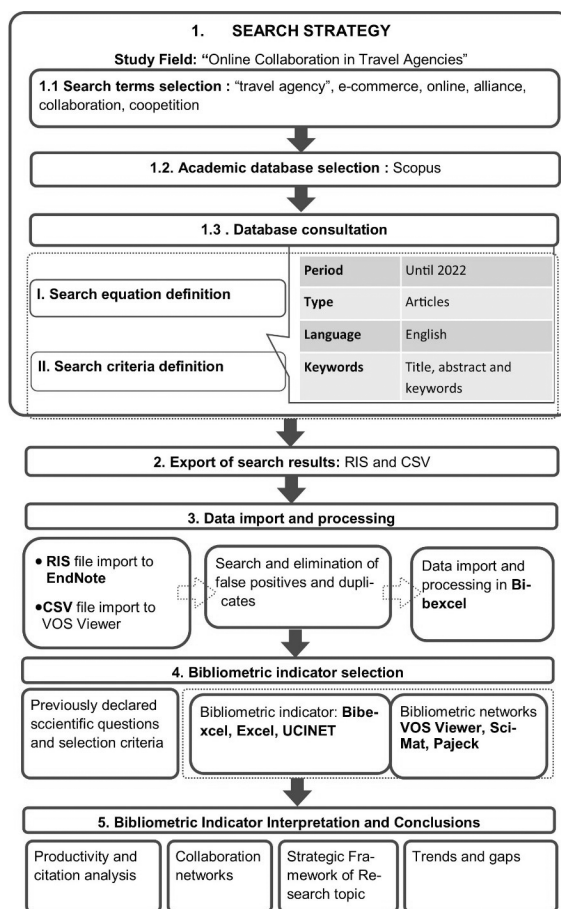

Figure 1   Methodology System for the Development of the Bibliometric Study

research areas). The data is exported in RIS and CSV files. Subsequently, these outputs are normalized using the EndNote X20 software. 0 positives and duplicates are recorded, so a total of 25 articles obtained from the Scopus database that meet the search criteria are documented. Bibliometrics has a quantitative character based on the analysis of productivity and citations, and qualitative based on the state-of-the-art mapping and the study of social networks. Figure 1 shows the aforementioned methodological framework of our research.

A set of three bibliometrics was detected (Table 1), whose objective is to know the behaviour of the scientific literature on collaboration in the tourism sector (Ávila-Hernández et al., 2022; Chim-Miki & Batista-

Table 1   A Set of Three Bibliometrics

Category			Chim-Miki and Batista-Canino (2017)	Cruz Aguilera et al. (2018)	Ávila Hernández et al. (2022)
Procedure for development of bibliometrics			Yes	Yes	Yes
Database			Scopus and wos	wos	Dimensions
Study period			1995–2015	1988–2009	2010–2020
Systematic Literature Review (slr)			Yes	Yes	Yes
Methodology for slr			No	No	No
Bibliometric indicators	Productivity	Per Time	×	×	×
		Per Author	×	×	×
		Per Country			×
		Per Affiliation		×	
		Per Journal		×	×
	Citations	Per Authors		×	×
		Per Institutions			×
		Per Journals			×
		Per Documents	×	×	
		Per Countries	×		×
	Thematic Index				
	Scientific Index				
	Recency	Price			×
		References usefulness			×
		Half-life			×
		Age of references			×
	Impact	Authors H-index			
		Journals H-index			
		G Index			
		Bradford Law			
	Network	Co-authorship		×	
		Co-citation			
		Co-occurrence			
		Citation			×
	Maps	Time			
		Word Clouds			
		Strategic map			
		Tree map			
		Dendrogram			

Canino, 2017; Cruz Aguilera et al., 2018). For this reason, even though their field of research is broader, they are taken as a precedent.

As previously mentioned, the indicators and other elements of analysis are declared based on the scientific questions (Table 2). This corresponds to the final phase of the procedure and is fundamentally aligned with the general research strategy.

Further, a literature review is developed to determine trends and future research gaps to complement the analysis of the strategic framework. This is guided by the prisma (Preferred Reporting Items for Systematics Reviews and Meta-analysis) protocol (Moher et al., 2009). This analysis has four phases:

1. Identification

Table 2   A Set of Scientific Questions

Scientific questions	Analysis unit	Software
Has the subject been extensively studied?	Productivity per year	Bibexcel and Excel
Are there authors and impact scientific journals that have systematized research to date?	Productivity per author Most frequent magazines	Bibexcel and Excel
How up-to-date is the bibliography available in Scopus?	Price Index	Bibexcel and Excel
Who/which are the authors, journals and documents with the greatest impact?	Price Index Citations per authors Citations per documents H Index per author	Bibexcel and excel
How has authorial collaboration behaved?	Collaboration between authors (map) Collaboration between countries (map)	Bibexcel, Excel, ucinet 6, Net-Graph, Pajeck, Vos Viewer
What are the main thematic lines through which the research topic has moved?	Strategic chart	SciMat
What are the main research gaps?	Strategic chart Systematic Literature review	SciMat

2. Presentation
3. Eligibility
4. Inclusion

The method proposes the consecutive and gradual application of exclusion criteria in each phase. In the first instance, during identification, articles are usually excluded through false positive and duplicate criteria. In the second phase, quality exclusion criteria are introduced, such as detailed information on the methods used or the results obtained. The appropriate design of the study and the quality of the journals in which they are housed is the third phase. In its last phase, the articles whose content will be completely analysed are defined, resulting from the exclusion in the eligibility phase. The exclusion criteria of this phase consist of the total review of the content and the elimination of articles whose basic focus is not the analysis of online collaboration in travel agencies.

The bibliographic review details the selection process of clinical articles to be analysed and the workflow. prisma is used to determine trends and future research gaps, as defined in the materials and methods section. The workflow is detailed in Figure 2. The

first phase of this procedure coincides with the search process and filtering of search results carried out in the bibliometric analysis, so the number of articles remains unchanged ($n = 25$).

Results
Bibliometric Indicators
Productivity per Year
Although collaboration between competitors is a widely studied topic in industry areas, it has not had the same follow-up in the travel and leisure industry (Chim-Miki & Batista-Canino, 2017). For this reason, it can be stated that online collaboration between travel agents to achieve common objectives regarding the management of electronic commerce is a novel subject, as the first article was only published in 2001. It is also necessary to consider that the development of this theme is conditioned by technological innovations and the degree of integration of these into traditional tourism distribution channels.

Figure 3 shows an increasing trend from the date of the first publication. It is observed that until the year 2022, only 25 publications related to the research topic have been registered in the database. The anal-
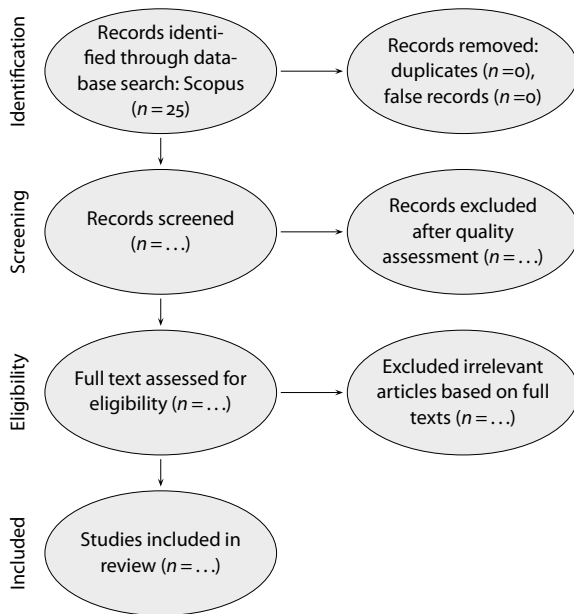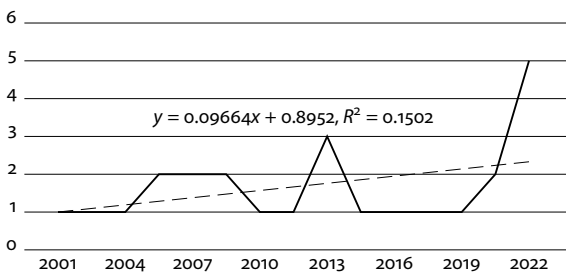
Figure 2   PRISMA protocol

Figure 3   Analysis of Productivity per Year

ysis of Figure 3 shows that despite the importance of the research topic, it did not have the development that would be expected if it were compared with other research topics, at least in this database.

Almost half of the investigations have been published in the last five years. Eleven of the 25 are grouped within the period 2017–2022, meaning that the bibliography available to continue with this line of research has a topicality rate of 44%.

Authorship Analysis
Table 3 shows compliance with the generalization demonstrated by Lotka's law in that at least 60% of the authors of a research field make a single contribution in

Table 3   Analysis of Productivity and Systematicity of the Authors

Authors	(1)	(2)	(3)
Guo, X.; Ling, L.	2	2	0.30103
Rose, A. N. M.; Ozdemir, O.; Neysen, N.; Pastor-Ruiz, R.; Rivera-García, J.; Hsu, L.; Ozturk, A. B.; Leung, R.; Kizildag, M.; Knudsen, D.-R.; Huang, C.-C.; Kot, S.; Beldona, S.; Lan, Y.-C.; Belleflamme, P.; Barnett, M.; Ji, J.; Bourmistrov, A.; Ghanem, W. A. H. M.; Fan, Y. W.; Kaarbøe, K.; Lan, Y.-C.; Fernandez-Villaran, A.; Kurth, B. L.; Liang, Z.; Nayar, A.; Mody, M. A.; Huang, L.; Lin, C.-N.; Adi, S.; Saany, S. I. A.; Yang, L.; Yan, H.-L.; Yeh, C.-C.; Zheng, X.; Zhang, T.; Yusoff, M. H.; Xiong, H.; Smolag, K.; Slusarczyk, B.; Shen, C.-C.; Standing, C.; Wang, S.; Tekin Bilbil, E.; Gao, Z.; Abou-Shouk, M. A.; Starosta, K. D.; Ku, E. C. S.; Ching, R. K. H.; Chen, K.; Chen, J.-S.; Chen, J.-S.; Compart, A.; Dogru, T.; Dogru, T.; Delgado-Ballester, E.; Budz, S.; Altin, M.; Hui, A. C.; Hernández-Espallardo, M.	1	60	0.00000

Notes   Column headings are as follows: (1) number of signatures, (2) number of authors, (3) productivity index.

the period. At the same time, as the number of contributions from a single author increases, the number of authors with that number of publications decreases. It can be calculated using the formula:

$$x^n y_x = c, \tag{1}$$

where y^x is the number of accredited authors with x number of publications, n and c are the constants that need to be estimated (Antoinette Askew, 2008).

Based on the previous analysis focused on the number of authors, the equation that follows the precepts of Lotka's Law is related, but that focuses on the classification of productivity. From the analysis it is obtained that only 3.22% of the authors have a productivity index of 0.33, and the remaining 96.78% have only one publication, so their productivity index is zero. Therefore, no author can be considered prolific,

Table 4 Most Cited Authors

Authors	References	Authors	References
Huang, L.	54	Kizildag, M.	32
Delgado-Ballester, E.	50	Mody, M. A.	32
Hernández-Espal., M.	50	Ozdemir, O.	32
Guo, X.	51	Ozturk, A. B.	32
Ling, L.	51	Zhang, T.	32
Yang, C.	43	Kot, S.	27
Zheng, X.	43	Slusarczyk, B.	27
Barnett, M.	40	Smolag, K.	27
Standing, C.	40	Fan, Y. W.	26
Altin, M.	32	Ku, E. C. S.	26
Dogru, T.	32		

Table 5 H-Index

H-index/authors		Citations	H-index/authors		Citations
1	Huang, L.	54	1	Yang, C.	43
2	Guo, X.	51	1	Zheng, X.	43
2	Ling, L.	51	1	Standing, C.	40
1	Delgado-Ballester, E.	50	1	Barnett, M.	40
1	Hernández-Espal., M.	50	1	53 authors	>40

not equalling or exceeding ten publications (Table 3). The Lotka productivity index is calculated through the relationship: $Ip = \log 10n$ (Cruz Aguilera et al., 2018).

The low productivity values may be due to the high-quality standards required by the journals indexed in the database. Only two authors exceed a single publication: Guo, X. and Ling, L.

The Most Cited Authors and h-Index

Once the most prolific authors have been analysed, local authors (authors appearing in the research references and in the list of researchers who have published on the subject) are analysed.

As shown in Table 4, Guo, X., and Ling, L. are among the most cited authors, with 51 references each, divided between their two publications on the subject. Although having only a single publication, Huang, L., receives 54 citations for a single work; Delgado-Ballester (50), Hernández-Espallardo, M. (50); Zheng, X. (43); Yang C. (43); Barnett, M. (40) and Standing, C. (40) also equal or exceed the 40 citations received.

Table 5 shows the relationship between the h-index and the number of citations. Local authors with 40 or more received quotations are selected. The h-index is a quality indicator that relates the number of sources to the author's productivity. Guo, X. and Ling, L. are essential authors on the quality of scientific production regarding the research topic.

Collaboration Between Authors

This indicator makes it possible to measure the extent of the collaboration between the actors in developing research topics. The collaboration index, which results from the ratio between apparent signatures and the number of articles (Cruz Aguilera et al., 2018), is 2.51, which is equivalent to an average of almost three authors per article. Decomposing this result, it is determined that collaborative investigations predominate since they represent 80% of all studies and over 20% of inquiries done by one author. Figure 4 presents the collaboration network between authors.

Productivity by Country, International Authorial Collaboration

The analysis of this indicator (productivity by country, international authorial collaboration) determines that more than 50% of the research comes from Asian universities, which is presented in Figure 5.

Taiwan has the highest number of contributions in this regard (see Figure 6), with six studies on the research topic. This is due to the environmental conditions that are better for establishing strategic alliances, the growing number of small business travel agencies, and the pressure that e-commerce imposes in such a competitive industry, as expressed by Huang (2006). Next is China with five studies, the United States with three, Spain and Australia with two, and the remaining countries with only one study.

When analysing collaborations between authors, it can be seen that relationships between authors from the same country predominate. Only Taiwan registers international associations with the United States and Australia.
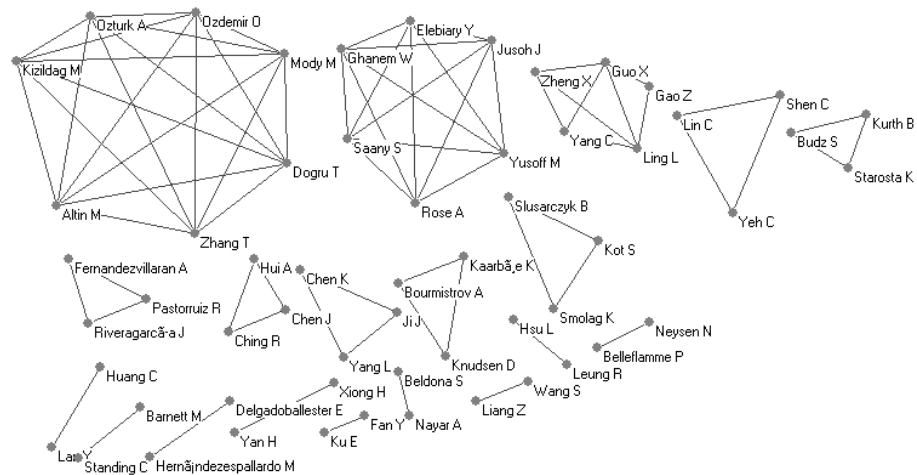
Figure 4
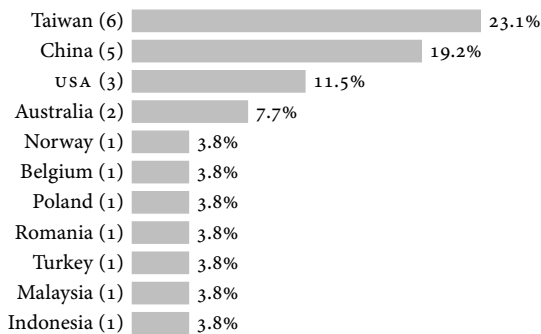
Collaboration Network
between Authors

Figure 5   Representation Map of the Distribution
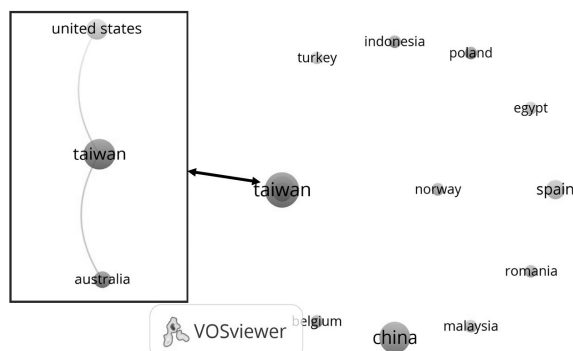   of Investigations

Figure 6   Collaboration Network by Country

The Most Cited Documents

The most important document regarding the level of citations they have received (over 50 sources) are the articles by Huang (2006) with the title: 'Building up a B2B e-commerce strategic alliance model under an uncertain environment for Taiwan's travel agencies,' Delgado-Ballester and Hernández-Espallardo (2008): 'Building online brands through brand alliances in the internet,' and Guo et al. (2014): 'Online coopetition between hotels and online travel agencies: From the perspective of cash back after stay.'

The first investigation starts from the decomposition of the theory of strategic alliances in four dimensions with a specific order:

1. the environmental conditions for the establishment of partnerships,
2. the inter-organizational motivation,
3. the selection of the collaborators, and
4. the evaluation of the performance of the strategic alliances.

Subsequently, Guo et al. (2014) determine the variables that fall within the dimensions previously defined in the context of Taiwan, based on a set of surveys focused on general travel agencies, tour operators, and Internet Service Providers (ISPS). These variables were used to establish the B2B model in the travel agencies of the destination.

The research by Delgado-Ballester and Hernández-Espallardo (2008) focuses on brand alliances. Specifically, it addresses the effect that the online purchase of a product from a new agency that has developed a

Table 6   Most Cited Documents

Authors	Citations
Huang (2006)	54
Delgado-Ballester et al. (2008)	50
Guo et al. (2014)	43
Barnett and Standing (2001)	40
Kizildag et al. (2019)	32
Slusarczyk et al. (2016)	7
Ku and Wen Fan (2009)	26

Table 7   The Most Productive Journals

Journal	Articles
International Journal of Contemporary Hospitality Management	2
Journal of Revenue and Pricing Management	1
Journal of the Operations Research Society of China	1
International Journal of Multimedia and Ubiquitous Engineering	1
Total Quality Management and Business Excellence	1
Tourism Management	1
Tourism Management Perspectives	1
Journal of Travel and Tourism Marketing	1
Journal of Vacation Marketing	1
Technological Forecasting and Social Change	1
Actual Problems of Economics	1
Advances in Tourism Economics: New Developments	1

collaboration with another well-known agency with a brand reputation has on the consumer's perception. The novelty of the research is that this topic had traditionally been studied in the online context.

The study conducted by Guo et al. (2014) values the collaboration established between hotels and online travel agencies to distribute rooms in the same hotel. The pricing policies of both actors are analysed, with the result that, as part of the alliance, online distribution was agreed upon through both channels at the same price. However, due to the guarantee of obtaining rooms, clients prefer to purchase directly with the hotel. For this reason, the OTAS have defined a new pricing strategy: paying a percentage (cash back after stay) to customers who buy through the post-use platform, intending to attract consumers. The research objective is to evaluate consumer behaviour through an economic game analysis. Within Table 6 we can check seven of the most cited documents according to research in the area of online collaboration in travel agencies.

The Most Productive Journals
A total of 24 journals have indexed the 25 publications on the research topic, which are presented in Table 7. Among the related journals, only the *International Journal of Contemporary Hospitality Management* surpasses a single article.

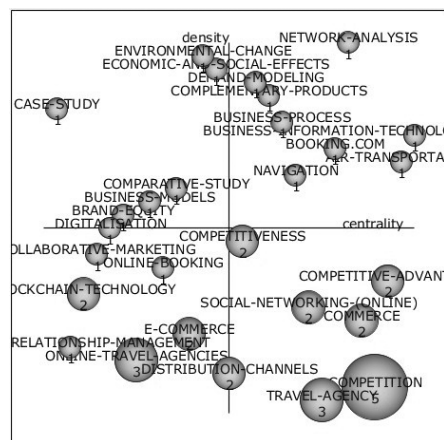*The Thematic Structure of Online Collaboration Between Travel Agencies and Research Opportunities*
Figure 7 shows a strategic diagram resulting from processing the authors' keywords and the words defined

Figure 7
Strategic Chart

by the sources (index keywords) through SciMat. The strategic framework distributes the different thematic groups into four quadrants that delimit the axes of centrality (x) and density (y). Each labelled globe constitutes the central node of particular networks in which other thematic axes are related, in this case, based on conglomeration algorithms. The distribution is defined as follows:

- First quartile ($>x/2$; $<y/2$): Specialized topics
- Second quartile ($<x/2$; $<y/2$): Motor themes
- Third quartile ($<x/2$; $>y/2$): Basic issues

- Fourth quartile ($>x/2$; $>y/2$): Emerging or disappearing themes

In quadrant II we can detect the motor themes within the thematic line of study, which are much more easily related to other fields of knowledge (Díaz-Pompa et al., 2022). Within this quadrant are 'Booking.com,' air transport, business information technology, complementary products, demand model, network analysis, and business processes.

The essential underdeveloped topics in the third quadrant constitute research opportunities. Delimited by this quadrant are traditional travel agencies, competition, social networks, competitive advantages, and competitiveness.

Other elements such as environmental changes, economic and social effects, demand models, business models, brand equity, and digitization constitute the peripheral issues since they present trivial importance for the research field. These are in the first quadrant.

Finally, there are electronic commerce, online travel agencies, relationship management, distribution channels, blockchain technology, online booking, and collaborative marketing. These are emerging or disappearing topics, which, if classified as the first group, constitute a potential study gap.

In Figure 7, it can be seen that the transversal themes located in the third quadrant, more than basic themes, are evidenced as the original themes of the selected field of research and constitute the trigger for the need for their study. The reason is that traditional travel agencies with their respective distribution channels are entering an increasingly competitive market heavily dependent on technology. Therefore, they need to focus their strategies on using the numerous and changing tools provided by the Internet to achieve competitive advantages in commercializing the services and products they offer, compared to millions of competitors in the networks, through collaborative ties, but in the online medium.

Online collaboration relationships are studied between the same traditional travel agencies (Barnett & Standing, 2001; Delgado-Ballester & Hernández-Espallardo, 2008; Huang, 2006), and between travel agencies and other actors within the tourism system

(Abou-Shouk, 2022). Barnett and Standing (2001) see online collaboration as a massive opportunity in the face of the growing disintermediation trends faced by traditional travel agencies. It also reports other advantages of this type of collaboration. We should consider that it is necessary to adopt online media and channels to carry out marketing. It turns out that the investment for developing web pages in travel agencies is not high when compared to traditional ways of revitalizing their products and services. The authors note, among other things, that online collaboration between traditional travel agencies can improve competitiveness in the market, can increase customer satisfaction and loyalty and efficiency, and reduce costs, leading to increased competition and reduced profitability.

Electronic commerce gives even more dynamism to the environment of tourist activity; therefore, ignoring or underusing the new tools places any tourism company at a clear competitive disadvantage. That is why the competitive space of the tourism industry, specifically the travel industry, is undeniably conditioned by the development of ICTs. For the year 2011, according to Liang and Wang (2011), there was an increase in the number of small and medium-sized travel agencies, which were characterized by the development of their e-commerce model, the lag in the use of online marketing, and underdevelopment of information and lack of understanding of the connection at the enterprise level.

This lag and the underutilization of the competitive advantages offered by the online medium took its toll on many tourist intermediaries. However, it should be noted that travel agencies with a particular market niche have not been so affected (Rodríguez Cid et al., 2015).

External factors such as the development of the COVID-19 pandemic, economic crisis, and inflation at a global level further increased the instability of the environment in which the tourism system develops in travel agencies and further accelerated the paradigm imposed by the new technologies (Hernández Flores et al., 2021).

The truth is that all these external factors are a reminder that the integration of technology in each of the areas of the business models of tourism companies

is not just a trend but rather a necessity, as defined by Hosteltur (2022), and clarifies the undeniable need for digitization for travel agencies through e-commerce platforms such as Traveltool that allow, among other things, omnichannel, visibility and presence on the internet, CRM for customer management and portfolio control, and improved knowledge management.

Sadly, the mere involvement of travel agencies in the online environment does not guarantee their success at all; it is necessary to go further based on forward-looking strategies that take into account new forms of closer cooperation with service providers and competing agencies in search of reduced costs for operations, combine efforts in co-marketing campaigns that expand potential markets, and build strong information channels that also make it possible to improve knowledge management, among other benefits. As Barnett and Standing (2001, p. 143) state in their article 'Repositioning travel agencies on the Internet:' 'A rapidly changing business environment, driven largely by the Internet, requires companies to rapidly develop new affiliations and alliances.'

Another of the models analysed by the authors is that of co-alliance. It focuses on collaborative design, engineering, or providing electronic support between companies. This type of cooperation shows the advantages and opportunities that the web offers. A group of agencies can form consortiums and generate more effective transactions for the network. Alliance members would otherwise remain independent. However, they share costs, web development, maintenance, and promotion. Other models are analysed, such as star alliances, value alliances, marketing partnerships, and virtual corridors.

Huang (2006) not only shows the opportunities of strategic alliances between travel agencies to improve tourism competitiveness considering the changing environment; rather, he shows the value of the relationship established between intermediaries and different service providers to grant reciprocal added value to their goods and services through the B2B online business approach. An online B2B transaction mechanism is built on a platform capable of finding the most like-minded partners, establishing ties upstream with suppliers and downstream with distributors and retail

agencies to reduce costs. Among the benefits of this type of alliance that the author shows are:

1. Transaction costs decrease for both parties when they are automated or partially online;
2. The convenience of consumers is increased through the decrease in the insufficiencies of tourist products and the reduction of search costs;
3. Sales expenses, marketing, and consumer service costs go down;
4. The efficiency of internal operations is greatly improved through electronic commerce information transfers;
5. The response of the market information is faster, and the feedback on the service received is accelerated through Efficient Consumer Response (ECR).

Professor Leo Huang's study (2006) suggests that it is essential for travel agencies to consider a set of elements to develop the strategic alliance of B2B electronic commerce. In conditions of environmental insecurity, travel agencies venture into strategic partnerships with other organizations to ensure the acquisition of rare market resources. In addition, to seize new resources through alliances, they must incorporate electronic distribution channels in real time to reduce costs per distribution and take control of performance. This can only be achieved through this type of collaboration.

The B2B alliance makes it possible to create a network in which each of its parts responds simultaneously to the most specific needs of the consumer and, therefore, improves their competitiveness.

Finally, control is essential in all processes, and the measurement of the performance of collaboration networks is no exception. Therefore the 'culture of collaboration is a fundamental factor' (Huang, 2006, p. 1319). The central research gap that the professor leaves is that this analysis starts with the travel agencies in Taiwan and ends with these agencies. Hence, it is necessary to know to what level the dimensions, variables, and results can be generalized and shown in this research.

As stated above, collaboration helps improve the competitiveness of entities and networks of entities.

However, in virtualization, the question arises of persuading the client to turn to the agency managed over the competition. In this sense, Delgado-Ballester and Hernández-Espallardo (2008) analyse one of the aspects of the theory of alliances: the effect of co-branding to persuade the consumer. Specifically, it evaluates the impact of this collaboration in the client's mind between agencies of prestigious brands and unknown e-brands.

One of the primary factors for a particular consumer to opt for a specific online business is largely loyalty; therefore, the attitudes that materialize behaviour toward online brands can be analysed through this point. For this reason, the brand alliance between a travel agency whose brand is not recognized with another who has a reputation constitutes a marketing opportunity for the former (Delgado-Ballester & Hernández-Espallardo, 2008). An efficient brand-building strategy consists of both brand-building factors, such as the website, and external third-party factors, such as alliances with well-known brand agencies, since both factors act positively on brand trust and consequently on fairness and on the consumer's willingness to behave favourably.

Up to the time of this study, brand alliances were only analysed from the offline perspective of businesses. Therefore, unlike this type of alliance outside the networks, web pages are the fundamental factor in the online environment. They generate positive perceptions of brands and help the online brand to differentiate itself from competitors and provide added value to consumers.

Regarding what is behind the collaboration, Delgado-Ballester and Hernández-Espallardo (2008) consider a set of implications at the management level. The brand's reputation must be considered while choosing the partners, and the final product's coherence results from integrating the offerings. In addition, due to the benefits these relationships can provide, it is understandable that they want to place the well-positioned brand in a prominent location on web pages to make the connections between their brands and other reputable ones visible. Theoretical results of that research suggest that relationships with parties outside the organization's boundaries may become a

perfect way to access critical resources of small and new intercompany unions, especially in internet organizations, where they act as ratifiers that influence the perception of the quality of young organizations when quality measures are ambiguous or do not exist. Delgado-Ballester and Hernández-Espallardo (2008) pave the way for future research that stems from the limitation of the analysis of a single web page. For this reason, they propose replicating these results under different conditions. They also urge the study of other types of co-brand alliances.

Discussions

The study contributes to the existing literature by examining the integration of ICT in the distribution channels of travel agencies. It sheds light on how this integration affects the independence and autonomy of customers in obtaining tourism services and products. This theoretical contribution helps to improve the understanding of the changing dynamics between travel agencies and customers in the digital age. The study explores the state of online collaboration in travel agencies and highlights its importance in a hostile competitive environment. Researching the topic through a bibliometric study contributes to theoretical knowledge about the role and impact of cooperation in the travel industry. This analysis provides insight into the current state of travel agency collaboration and provides a basis for further research and theoretical development.

The investigations into travel agency alliances have developed a coherent methodological evolution with certain similarities that can be grouped into thematic axes. One thematic axis, the base thematic axis (Barnett & Standing, 2001; Huang, 2006), starts from disintermediation trends and the consequent search for competitiveness by travel agencies and the insecurities of the environment to establish alliances, respectively. Another thematic axis focuses on the consumer (Kua & Wen Fan, 2009; Delgado-Ballester & Hernández-Espallardo, 2008) and is generated by the need to analyse the motivation of the parties to share information between the parties of the alliance to obtain a better relationship with the client and to measure the impact of co-branding-type collaboration between agen-

cies, respectively. A third thematic axis focuses on the value chain (product) (Guo et al., 2014; Slusarczyk et al., 2016), specifically on the product, and is generated by the behaviour of the parties involved within the value chain and the changes in its precepts due to the advent of new technologies.

Finally, there is a thematic axis focused on security (Kizildag et al., 2019), which is based on the need for the new distribution channels to have the same transparency as the previous ones. This is where the issue of the security protocol provided by the blockchain arises from eliminating intermediaries for the development of transactions. This last element is an emerging topic with enormous potential in the new online value chains and their players.

According to the research findings, the study has practical implications, especially for travel agencies that want to succeed in the digital age. By revealing competition and the powerful impact of the digital age on collaboration within the industry, the research helps agencies understand the challenges they face and the need for effective online collaboration strategies. This practical input can guide agencies in developing and implementing collaborative practices that strengthen their market position.

The scope of the Scopus database limits this study, as it may not cover all relevant publications in the field. Furthermore, bibliometric analysis may overlook some qualitative aspects of online collaboration that could provide deeper insights.

Conclusions

The development of this research allows us to conclude that online collaboration in travel agencies is an emerging topic in the scientific literature conditioned by the development of information technologies. Only 25 articles were totally or partially related to the topic analysed. Despite the few investigations, there is a growing trend, especially between 2020 and 2021, due to the outbreak of the COVID-19 pandemic, raising the need for research on ITS, crisis, and tourism.

The most critical authors, Guo et al. (2014), only present two publications on the subject; however, these investigations have had an impact, with 51 local references for a quality index (h-index) of 2. Within the

subject of study, these two authors have dedicated themselves to a pretty specific topic: 'Coopetition between hotels and online travel agencies when they develop cash back.' On the other hand, only the *International Journal of Contemporary Hospitality Management* presents more than one publication.

The systematic review of the literature showed that the four levels of integration of the most research-developed literature regarding online collaboration in travel agencies are the meta-level associated with destinations. The most critical issue in this approach is the creation of online collaboration models at the destination level, such as web services for the standardization of information from the various systems of tourism actors.

The main research gaps and also opportunities for future research revealed by the strategic framework are consumer perception regarding forms of co-branding between travel agencies, changes in the value chain towards the purely online environment, security within the online value chain, online collaboration between traditional travel agencies, cybersecurity, and blockchain.

Future studies in the area of bibliometric analysis of collaboration in travel agencies could explore traditional travel agencies' strategies to adapt to the digital environment and encourage online engagement. Furthermore, investigating the impacts of collaboration on customer perceptions and cyber security can contribute to a more comprehensive understanding of the benefits and challenges associated with online collaboration in the travel industry.

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