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Online networking behaviour of tourism stakeholders in a multi-destination region: A hyperlink network analysis

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ABSTRACT

Inter-organisational networking, essential for enhancing tourist destinations' performance, is often underutilised, resulting in low-density networks. To develop precise strategies for managing connectivity, it is crucial to examine stakeholders' networking behaviours – how they connect to a destination network and contribute to its structural formations within and beyond their sectors and geographic locations. This study looks at online networking forms that are qualitatively different from interpersonal contacts among organisational members. Specifically, it focuses on hyperlink networking, given its significance for the visibility of organisations and the overall destination and the credibility of tourism websites. Using social network analysis, this research identifies diverse online networking behaviours related to involvement in networking activities, link-placing and link-receiving, connections with similar and dissimilar actors, and community formation of tourism stakeholders across different sectors within a multi-destination region. The network is characterised by assembling behaviour, where many actors are connected to the network by other organisations rather than by their own linking activity. The study confirms organisations' low involvement in networking and significant imbalances in their activities. It highlights how imbalances arise in the conjuncture of various sectors, each having a distinct role in uneven link allocation. Destination management organisations are key connectors and mediators but struggle to establish high-density within-sector connections. Public domain-related sectors are generally more active in networking than private ones. Intersectoral connections, rather than within-sector connections, are the major source of links for sectors. Stakeholders tend to connect more with actors from the same geographic area.

1. Introduction

Networking is an effective means for organisations in tourist destinations to achieve their goals and succeed in market competition (Beritelli et al., 2007; Elvekrok et al., 2022). The entities involved in the supply chain, including suppliers, intermediaries, the public sector, and consumers, are increasingly interconnected in a dynamic network, resulting in the co-production of value for everyone involved (Buhalis, 2020).

Inter-organisational networking, which involves the establishing and maintenance of formal and informal connections between independent entities (Raab, 2018), is significant for optimising destination performance, gaining a competitive advantage, fostering innovations, and facilitating sustainable tourism (Corrêa & Franco, 2023; Elvekrok et al., 2022; Nguyen et al., 2022; van der Zee & Vanneste, 2015). To enhance the overall organisation and management of destinations, as well as the performance of individual organisations, it is essential to gain insights into how tourism stakeholders interact and establish networks (or lack thereof) and evaluate the nature of existing connections (Baggio, 2011; Hristov et al., 2018; Ruggieri et al., 2022).

Tourist destinations increasingly use online environment to introduce tourism actors and as a means of interaction between organisations (Buhalis et al., 2011; Leung, 2022). Digital technologies and the Internet have empowered, diversified, and reconfigured networking by overcoming physical constraints of time and place, introducing new ways of connecting, and transferring networking processes online (Fu et al., 2019; Van Dijk, 2012). Interorganisational networking has been enriched by online networking which refers to the practice of establishing connections between organisations by leveraging the power of ICTs available through the Internet, including email, real-time virtual

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conferences and webinars, social media, industry-specific business platforms, and hyperlinks among organisational websites (Ali & Frew, 2013; Fu et al., 2019; Petti & Ndou, 2004; Ying et al., 2016).

Online networking incorporates new forms of contacting that are qualitatively different from conventional interpersonal contacts among organisational members, whether they occur face-to-face or through mediated communication (Cavaller et al., 2014; Gal et al., 2014). These distinctions may include the absence of synchronous communication, exposure of messages to third parties, including tourists, and the possession of additional layers of meaning beyond the mere establishment of relationships, e.g. visibility, credibility, and power relations (De Maeyer, 2013; Shumate et al., 2017). Online networking does not necessarily emerge from offline interactions and real-world resource exchange and may fulfil a different set of functions as it happens in the case of social network sites and placing hyperlinks to websites of other organisations (Liu & Shin, 2019; Ying et al., 2016).

In light of the need for a "more nuanced and multi-dimensional theoretical approach to informing destination collaboration practice" (Fyall et al., 2012, p. 23), the focus on the tools beyond direct contacting of organisation members creates a knowledge base for better understanding of the multifaceted nature of inter-organisational networking, reaping benefits from the functions that traditional offline ties cannot fulfil, and facilitating the elaboration of tailored strategies for management of networking in tourist destinations.

Hyperlink networking holds meaning for the visibility of individual organisations, the industry sectors, and the destination as a whole and the credibility of linked tourism websites (Kleinberg, 1999; Palmer et al., 2000; Raisi et al., 2018), what makes it of particular interest for the practice and theory of destination marketing and management. While there are advances in building collaborative (Web 2.0) and semantic (Web 3.0) layers of the Web (Buhalis, 2022), hyperlinks (Web 1.0) remain to be a basic and essential element of online connectivity and visibility that allow users to navigate from one website to another and matters for ranking in search engine results (Cavaller et al., 2014; Noruzi, 2005; Ooghe-Tabanou et al., 2018). Additionally, hyperlinks are used in information retrieval for training language models (Wu et al., 2022), which is significant for what information about destinations gets into artificial intelligence models.

Inter-organisational hyperlink networks play a significant role in the visibility of tourist destinations, connecting tourism stakeholders among themselves and with the rest of the Web and being an effective tool for driving web traffic to destination websites (Baggio & Corigliano, 2009; Raisi et al., 2018; Smithson et al., 2011). In particular, Destination Management Organisations (DMOs) websites function as hubs for distributing information to tourists and engaging with various destination stakeholders through a network of hyperlinks (H. Park & Stepchenkova, 2023).

Beyond being visibility instruments, hyperlink networks of destination actors have social and communicative functions (Ying et al., 2016), as in general a computer network connecting organisations is a social network (Wellman, 2001). The placement and receiving of hyperlinks carry inherent credibility implications as hyperlinks can be seen as indicators of trust (Palmer et al., 2000), authority, and endorsement (Kleinberg, 1999). Trust is of particular importance in planning trips by tourists as they have varying uncertainties, including those arising from lack of physical proximity (Williams & Baláž, 2021). Establishing trust between suppliers and consumers is of utmost importance to ensure the ongoing expansion of e-commerce (Palmer et al., 2000), and having links from reputable websites contributes to the credibility of organisations online (Agag & El-Masry, 2017). The insight into credibility relations is highly pertinent to tourism research as there is a call to distinguish "the implicit factors involved in building relations, such as commitment, reciprocity, proximity, strength of relations, trust, credibility" (Corrêa & Franco, 2023, p. 316).

Despite the potential of online networking, tourist destinations are not utilising it to a large extent as the density of inter-organisational hyperlink networks of their stakeholders is low (Baggio, 2007, 2020b; Raisi et al., 2018; Ying et al., 2016). There is no strong tendency to build communities, i.e. groups of actors that are more densely connected to each other than to the rest of the network (Baggio, 2020b, 2022; Hristov et al., 2018). This sparse network structure characterises both single destinations and regions with multiple destinations, where tourism actors from different destinations have not formed enough connections to constitute a developed "combined destination" (Éber et al., 2018, p. 186). However, inter-destination connections may bring additional opportunities for organisations and destinations as "collaboration within the destination is a necessary but not sufficient condition" for achieving their goals, and collaboration with other destinations is also needed (Fyall et al., 2012, p. 11).

Revealing how destination stakeholders connect and communicate by placing and receiving hyperlinks through their websites, i.e. networking behaviours, would facilitate finding out reasons for the low density of networks as well as optimising the online networking of tourism actors for leveraging visibility and credibility potential of hyperlink networks. In particular, such insights add to the literature on how hyperlinking can be leveraged to benefit tourists, informing and directing them (H. Park & Stepchenkova, 2023; Zach et al., 2019). Furthermore, the differences in behaviours matter as with the Web inundated by a vast quantity of information, achieving visibility and trust online depends not merely on establishing a basic online presence or utilising e-commerce, but rather on a differentiating way in which the Internet is used (Baggio & Corigliano, 2009; Palmer et al., 2000; Smithson et al., 2011).

Generally, stakeholders' roles in a destination's network vary, as some assume strategic positions, facilitating cooperation and collaboration and increasing network cohesion (Ruggieri et al., 2022). In online networking, tourism-related organisations exhibit differing levels of link placement and tourism industries connect differently (H. Park & Stepchenkova, 2023; Raisi et al., 2018; Ying et al., 2016).

However, distinctions in online organisational networking of tourist destinations remain underexplored and underclassified, as previous research has predominantly focused on the exploration of network analysis techniques, primarily assessed the overall structure of destinations' hyperlink networks, and analysed hyperlinks as proxies to the complex system of a destination's relations and offline collaborations (Baggio, 2007; Baggio & Corigliano, 2009; Baggio & Del Chiappa, 2014; Baggio, Corigliano, & Tallinucci, 2007; Baggio, Rodolfo et al., 2007; Buhalis & Deimezi, 2004; Piazzi et al., 2011; Raisi et al., 2018; Ying et al., 2016; Éber et al., 2018).

Very limited academic efforts have been made in analysing online networking of tourism stakeholders as a valuable tool on its own, involving a communicative action, a choice, and serving certain communication purposes. Furthermore, focusing mainly on a single destination area, previous research has paid less attention to the ways of networking among various geographic areas, while there is a call for a better understanding of the potential for inter-destination cooperation since collaborations within destinations are not always successful (Żemła, 2014). The management of destinations based on administrative boundaries may not always present the most effective approach to handling tourist flows and services within a specific geographical area (Paulino et al., 2021). By analysing the connections among tourism actors in a multi-destination region, we can gain insights into whether their networking within their respective administrative areas substantially differs from their networking beyond these boundaries.

This paper aims to distinguish the diverse online networking behaviours of tourism stakeholders in destination hyperlink networks by analysing various tourism sectors in a multi-destination region. The study relies on the theoretical and methodological frameworks of a tourist destination as a complex system (Baggio, 2008; 2020a, 2022), inter-organisational communication networks (Monge & Contractor, 2003; Shumate et al., 2017), and social network analysis.

This study contributes to the research on online networks of tourism

stakeholders by identifying varying types of networking behaviours – the ways stakeholders connect to a destination network and participate in its structural formation both within and beyond their sectors and geographic areas. Moreover, the research amplifies the range of analytical tools employed for diagnosing hyperlink networks of tourist destinations.

2. Theoretical background

2.1. Inter-organisational networking in tourism and hyperlink networks

A tourist destination is not only a place for tourist experiences and consumption but also a complex system consisting of a multiplicity of socio-economic actors, including public organisations and private enterprises, interdependent and interconnected into an intricate network to ensure supply (Baggio, 2008, 2020a; Fyall et al., 2012). Their relations are often ambivalent as they compete and collaborate with the same actors, simultaneously having varying and common goals (Ingram & Roberts, 2000; Żemła, 2014).

While inter-organisational networks have become widely recognised as a significant aspect of organisational dynamics, there is often ambiguity regarding the specific meaning attributed to this term by scholars (Provan et al., 2007). Neither there is an agreement in the use of the term "network" per se, as "an alliance", "a collaboration", "a partnership", "an association", or "a cooperation" can be used among many others (Cropper et al., 2008). On the one hand, the term may very narrowly refer only to a unique organisational form based on agreements between organisations (Monge & Contractor, 2003; Provan et al., 2007). On the other hand, very broadly networks serve as a perspective for capturing the embeddedness of an organisation in a broad array of socioeconomic relations, where relations do not necessarily need communication established between entities and the relations are not necessarily entirely cooperative (the network is often used as a method) (Granovetter, 1985; Monge & Contractor, 2003). In this study, we adopt a broad perspective and refer to an inter-organisational network as a set of formal and informal connections that exist between independent organisations and their members acting on behalf of their organisations (Raab, 2018), without limiting it to long-standing and formal relations. It permits to account for a broad range of relations that compose a tourist destination as a complex system, composed of multiple interrelated entities.

Although online and offline modes of inter-organisational connections within destinations can be distinguished theoretically, in practice, tourism and social and economic relations tend to merge offline with online mode (Baggio, 2022; Baggio & Del Chiappa, 2014). Being "strongly coupled", virtual and physical components of tourism destinations form a single system and co-evolve (Baggio, 2022, p. 1545). Online and offline networks of tourism destinations had similar structural characteristics, which turn has led to the recognition of hyperlink networks as reliable proxies for social and economic destination systems (Baggio, 2007; Baggio et al., 2010; Baggio & Del Chiappa, 2014; Baggio, Rodolfo et al., 2007). Being primarily created by people, inter-organisational online networks are not mere technical artefacts and visibility instruments and can reflect, extend, or initiate real-world relations (De Maeyer, 2013; H. W. Park & Thelwall, 2003; Pilny & Shumate, 2012; Wellman, 2001).

Accordingly, research has employed hyperlink networks as affordable means to evaluate the structure of the destination system and collaboration within destinations (Baggio, 2007, 2014; Baggio & Corigliano, 2009; Baggio & Del Chiappa, 2014; Baggio, Corigliano, & Tallinucci, 2007; Baggio, Rodolfo et al., 2007; Del Chiappa & Baggio, 2015; Piazzi et al., 2011; Raisi et al., 2018; Zach et al., 2019; Éber et al., 2018). For example, Buhalis and Deimezi (2004) state that "the existence of hypertext links among travel related web sites is considered to be an obvious sign of co-operation and as an attempt by one organisation to link with others" (p. 119). Within such conceptualisation, hyperlinks may be understood as digital traces (Freelon, 2014) of the online-offline single entity representing tourism stakeholders in a complex system. Digital trace data as evidence of human activity has the potential to reveal valuable patterns of social relations that would likely not surface through just questioning people (Freelon, 2014).

Beyond mapping a complex destination system, hyperlinks also serve specific communication objectives in inter-organizational relations, including tourism (Shumate et al., 2017; Ying et al., 2016), and they are understood as a communication channel (H. W. Park & Thelwall, 2003). Placing a hyperlink to another organisation's website is "a purposive and strategic communicative choice" (Fu, 2018, p. 429), including decisions on whether to participate and to which other actor to connect, and the variety of such choices taken together constitute different types of networking behaviour.

As an essential Internet element, hyperlinks are a technological tool enabling seamless connections between two entities, typically web pages, representing a wide variety of actors, including individuals and private and public organisations (Ackland, 2013; H. W. Park & Thelwall, 2003). Being connecting elements, hyperlinks direct users, including tourists, to see additional information from another web source (Fu, 2018), and therefore fulfilling functions of information provision and message amplification (H. W. Park et al., 2004). For example, in the tourism sector, accommodations may inform about food and beverage businesses, attractions, and entertainment organisations (Ying et al., 2016). In the information flow aspect, networking by placing links to other destination stakeholders creates added value for tourists, matters for the navigability of a destination's network, and enhances the online visibility of linked websites, including their higher positions in search engine results (Baggio & Corigliano, 2009; Raisi et al., 2018; Smithson et al., 2011; Zach et al., 2019).

Hyperlink networking among tourism stakeholders is also representational communication, when an organisation connects to another one, and such connection is visible to a third party (Shumate et al., 2017). Such positioning with the other symbolizes an organisation's acknowledgement, endorsement (Fu, 2018) and trust (Palmer et al., 2000).

A linked organisation does not necessarily know that it has been linked, the connected organisations do not necessarily have offline relations, and hyperlinks do not incur any cost for the recipients (Fu, 2018). However, the presence of reciprocity – "mutual acknowledgement or trust" (Raisi et al., 2018, p. 682) – is desirable in tourism hyperlink networks, being significant for achieving shared interest and benefits and enhancing the visibility of destinations (Fyall et al., 2012; Raisi et al., 2018; van der Zee & Vanneste, 2015). In general, research recognises the importance of mutual recognition in collaboration within a destination and between destinations (Fyall et al., 2012).

Receiving many hyperlinks suggests an organisation's authority (Kleinberg, 1999). If one organisation is consistently linked by other organisations, this could suggest that the acknowledged organisation is perceived as a powerful or influential player in the industry, and that many organisations may want to inform others about it or position themselves with it (Fu, 2018). Also, placing links to "relevant reputable and authoritative websites (e.g. tourism boards, points of interest, etc)" matters as it is able to contribute to higher rankings in search engines (Maurer, 2022, p. 1322). In general, a website can bolster its credibility by creating hyperlink networks with reputable sites, as credibility can be partially transferred through such associations (H. W. Park et al., 2004).

2.2. Networking behaviours

Research from various fields beyond tourism have established that organisations have distinctive "linking styles" (Rogers & Marres, 2000). In the realm of tourism, prior research has revealed significant differences in connectivity levels and linking preferences among various tourism sectors (H. Park & Stepchenkova, 2023; Raisi et al., 2018; Ying et al., 2016). Nonetheless, the exploratory potential of hyperlinks in the

tourism domain remains largely unrealised, and there are no defined typologies of networking behaviours yet.

The task of characterizing online networking is inextricably tied to analysing offline inter-organisational relationships, given the intertwined nature of the online and offline worlds (Baggio, 2022; Gonzalez-Bailon, 2009; Pilny & Shumate, 2012). Broadly speaking, hyperlinking choices are influenced by underlying social, economic, political, cultural, and geographic factors (Fu, 2018; Gonzalez-Bailon, 2009; H. Park & Stepchenkova, 2023; H. W. Park & Thelwall, 2003). Similarly, in tourism, it can be reasonably expected the impact of economic (e.g. type of industry) and geographic factors (e.g. different destinations) on networking behaviours. In particular, cultural factors are found significant for different patterns of hyperlinks by DMOs from different countries (H. Park & Stepchenkova, 2023). However, the research on online networks mainly has taken a highly general explanatory approach (e.g. Raisi et al., 2018; Ying et al., 2016; Éber et al., 2018), with little consideration for the possible greater diversity and particularity of linking behaviours.

Homophily theory seeks to explore whether actors are more likely to form connections with others who are similar to them (Monge & Contractor, 2003). This similarity could be based on certain attributes (for example, the tourism sector they belong to) or geographic location (Fu, 2018). Past research indicates that tourism stakeholders tend to form online communities based on their geographic proximity; however, they do not exhibit sector-based homophily in either online or physical networks (Baggio, 2020b; Baggio et al., 2010; Raisi et al., 2018; Ying et al., 2016).

Generally, destinations' networks do not tend to form strong "communities" – groups of actors more closely tied among themselves than to outsiders (Baggio, 2020b). However, research is sparse on the way various sectors and geographical areas connect both within and beyond their respective groups. Considering the competitiveness, distinct interests, and limited resources of tourism industries, it is difficult to expect a thoroughly interconnected network within a tourist destination involving hundreds of stakeholders. It's more plausible to expect the emergence of densely connected communities with diversified connections of actors, which could significantly enhance not only the visibility of the destination in totality and individual businesses specifically but also bolster the resilience of these subnetworks, which are more likely to retain their functionality, even when certain nodes or hyperlinks become inoperative (cf., Bothner et al., 2010). Moreover, an actor's network position is reinforced in its robustness when it maintains diversified relationships with other well-connected entities (Bothner et al., 2010).

Having varying goals, interests, and perspectives, tourism stakeholders assume different roles in physical destination networks (Hristov et al., 2018). Some stakeholders take on strategic facilitating roles, making them "brokers" in destination networks (Ruggieri et al., 2022). Importantly, DMOs have been identified as key players in collaboration with crucial stakeholders for strategic destination decision-making (Gretzel, 2022; Pearce, 2015). A special kind of networking introduced by DMOs got known as "mediated intra-destination collaboration" as different from "organic" collaboration appearing without the facilitation of a DMO (Fyall et al., 2012). Many DMOs have been introduced to facilitate collaboration between destination stakeholders, and they are seen as effective ways to foster collaboration within and between destinations (Fyall et al., 2012).

The Internet has empowered DMOs in connecting to stakeholders and informing about them, and through hyperlinks they have the opportunity to promote tourism actors, providing an alternative to tourism intermediaries (Buhalis, 2003). The central positions of DMOs in online network structures (Piazzi et al., 2011, 2012; Ying et al., 2016), might be attributed to their pivotal connective function. Notably, DMOs attribute varying importance to linking to different types of stakeholders (H. Park & Stepchenkova, 2023). However, there is still little knowledge about DMOs specific roles in destination networking (Gretzel, 2022; Hristov et al., 2018), as well as varying behaviours of other tourism sectors.

Inter-organisational collaboration theories tend to recognise imbalances of power among destination stakeholders (Fyall et al., 2012). The behaviour of tourism stakeholders in online destination networks is marked by inequality, with only a few highly connected hubs coexisting with the majority having few links (Baggio, 2020b; Raisi et al., 2018; Ying et al., 2016). Despite the high connectivity of some actors, online networks have a low density of relations and often have less than 1% of all possible links, leaving significant room for improvement of scarce connectivity (Baggio, 2007; Baggio, Rodolfo et al., 2007; Piazzi et al., 2012).

Inequality has been studied using the scale-free network framework (Barabási & Albert, 1999), which focuses on power law characteristics of connectivity distributions. This framework, rooted in network science, reveals that hyperlink distributions follow an L-shaped curve with a long tail, indicative of "power law" distributions and distinct from the normal bell-shaped distributions (e.g. Raisi et al., 2018). The "preferential attachment" mechanism (Barabási & Albert, 1999) of the theoretical framework explains the inequality of tourism stakeholders, whereby new websites tend to connect with already highly connected ones, causing the already highly connected actors to become even more connected (Baggio et al., 2010; Raisi et al., 2018). However, it is unknown whether connections within sectors follow the same pattern and therefore might contribute differently to network inequality.

3. Methodology

3.1. Study area

This study examines the online networking of tourism stakeholders in the historical territory of Gipuzkoa, Spain. Gipuzkoa was selected due to its various tourist destinations, comprising 90 coastal and countryside municipalities. Additionally, Gipuzkoa is renowned for its rich cultural and historical heritage, attracting nearly a million tourists annually (Eustat, 2023). The city of Donostia-San Sebastian, located in Gipuzkoa, has emerged as a popular tourist destination in northern Spain, and it is placed fourth in the Spanish city tourism competitiveness ranking (Exceltur, 2023).

3.2. Data collection

Gipuzkoa Provincial Council, a governmental and administrative agency, provided an initial database of tourism stakeholders in 2021, including 1199 organisations from the business directory of tourism enterprises and activities in the Basque Country (Euskadi.eus, 2021). In January 2022, the database was updated by excluding non-operational organisations, adding new actors, and identifying their online presence, resulting in a list of 979 stakeholders. These actors were present online in diverse forms, including organisational websites, profiles on social media, pages at online marketplaces. For analysis, only organisations with specific online representations were included in the final list (N = 719). These consist of organisations with an online representation in the form of a website with the address "(subdomain). domain. top-level-domain" and organisational web pages within hosting platforms, e.g. "[name]. sites.google.com". The data from the identified web resources were gathered using the web crawler Hyphe (Jacomy et al., 2016). The data collection process took four days and yielded 1755 directed links. Only one link was counted from one website to another, regardless of the intensity of linking between them.

3.3. Classifications

Six categories of tourism sectors – organisations whose primary endeavour corresponds to a characteristic tourism activity – were established based on the International Recommendations for Tourism Statistics (Department of Economic and Social Affairs of the United

Nations Secretariat, 2010), as well as previous research conducted by Raisi et al. (2018), Ying et al. (2016). However, the available data did not include food and beverage serving organisations, transport, gambling and betting, and operators of sports facilities. Additionally, each organisation was given a geographic area code (Table 1).

3.4. Data analysis

The study utilised social network analysis, which is understood as "a collection of theoretically informed methods", including research techniques, a vocabulary, and measures for relational analysis (Scott, 2017, p. 8). To analyse networking behaviours, we considered the organisational websites as the network nodes, with hyperlinks serving as edges between the nodes. For each hyperlink, its direction from and to specific websites was recorded. The network was analysed at three levels: micro-level, which examines attributes and behaviours of individual actors; meso-level, which focuses on the patterns of relations between actors, including dyads and subgroups; and macro-level, which examines the overall properties of the network (Table 2).

4. Findings

4.1. The variety of involvement in networking activities

The stakeholders (N = 719) placed 1755 hyperlinks (Fig. 1). In general, the involvement in networking activities, or connectivity of the network, was low as less than 1% of all possible connections was realised (network density = 0.003). On average, there were less than 5 hyperlinks per website. There was a noticeable imbalance in the stakeholders' connectivity and therefore in their contribution to the density of connections (Fig. 2).

From the observation, it is noticeable that the degree distribution had a skewed shape towards the right with a long tail, indicative of a "power law" distribution that is typical of an "L" shape (Fig. 2). The standard deviation was quite high at 11.7, more than twice the mean of 4.9. This suggests that a vast majority of websites (approximately 2 out of 3) had between 1 and 4 links (57%; n = 407), while a few exceptional websites had significantly more incoming and/or outgoing hyperlinks (up to 223 times more than the most frequently occurring connection). The imbalance was further exacerbated by the presence of inactive actors, who were not engaged in any connections (17%; n = 124).

The imbalance in degrees appeared in the conjuncture of different sectors, with each sector playing its specific role in the uneven distribution of connections, because the sectors were not homogeneous in the presence of highly and lowly connected actors (Table 3). Unlike the degree distribution of the whole network, the distributions of hyperlinks

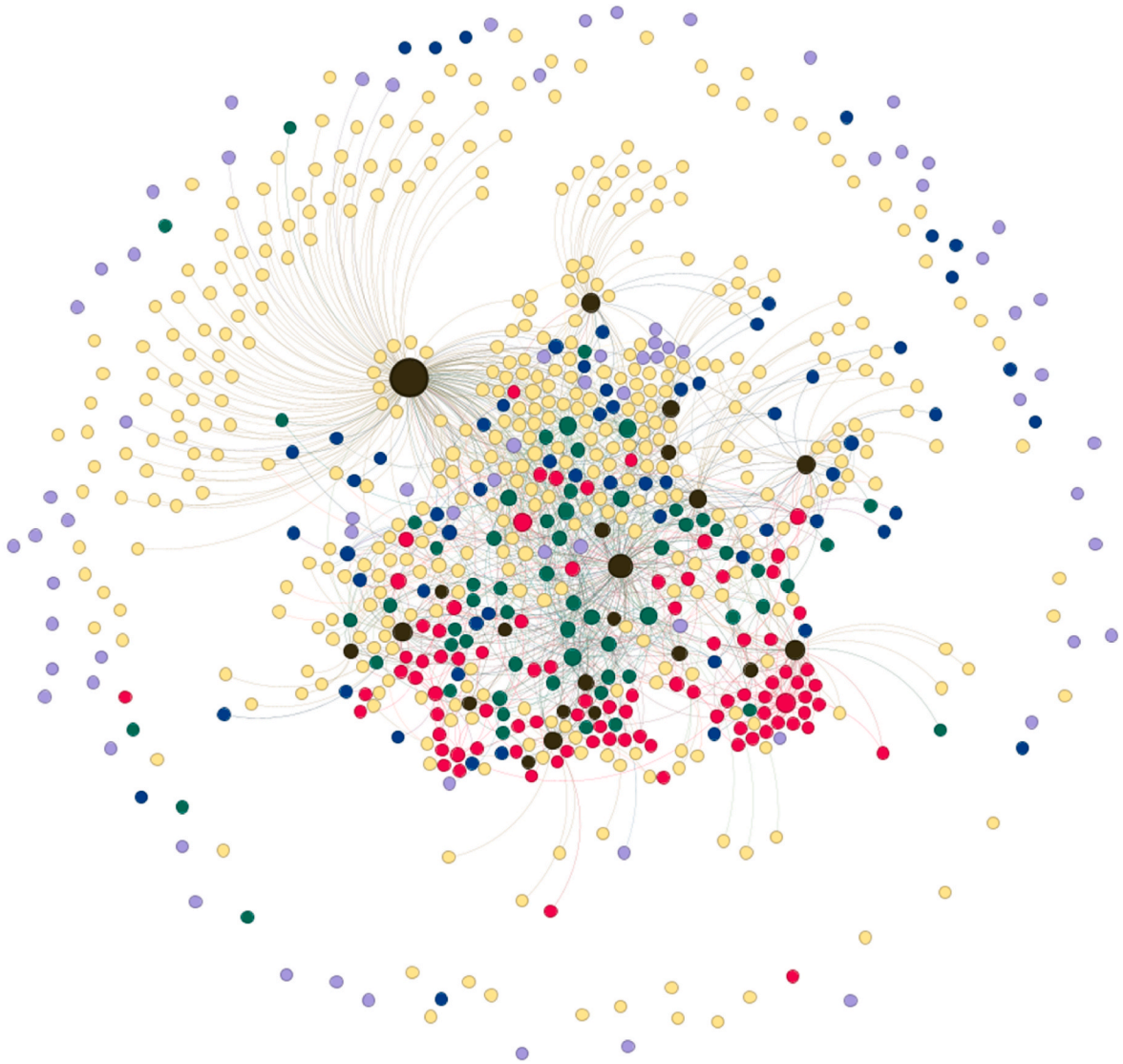
Table 1
Classification of tourism stakeholders based on characteristic tourism activities.

Tourism sector	Description
Tourist accommodation facilities (TAFs)	Establishments offering short-term stays, including apartments, hotels, motels, bed and breakfasts, inns, caravan parks, campgrounds, farm stays, holiday homes, resorts, and other accommodation services.
Active tourism enterprises (ATEs)	Businesses that involve activities where tourists actively participate, resulting in an immersive and engaging experience of the destination's attractions.
Destination management organisations (DMOs)	Entities that primarily focus on developing, promoting, and marketing a specific destination to visitors, aiming to enhance their experiences.
Public bodies (PBs)	Government entities such as town halls with dedicated tourism departments and government-sponsored development organisations, focused on governing and developing a particular geographic area, with tourism as a key activity. Public bodies work towards a collective vision for the destination, fostering sustainable relations between tourism and local residents, and managing tourism-related infrastructure.
Tourism and cultural resources (TCRs)	A combination of tangible and intangible elements, including natural, cultural, and artificial resources, attractions, facilities, services, and activities centred around a specific point of interest.
Travel agencies (TAs)	Intermediary agencies that provide travel and tourism-related services to the general public.

Note. Own elaboration, based on the International Recommendations for Tourism Statistics (Department of Economic and Social Affairs of the United Nations Secretariat, 2010), Raisi et al. (2018), Ying et al. (2016).

Table 2
Principal metrics in the analysis.

Metric	Description
Density	The level of linkage among actors in a network, expressed as the ratio of the actual number of links to the total possible links in a complete network (Scott, 2017).
Normalised density (ND)	A metric measuring the connectedness of (sub)networks, reflecting the actual number of links versus the potential number of links using Newman's modularity formula (Newman, 2006). Proposed and calculated by the Hyphe web crawler's analytical tools (Jacomy et al., 2016), it is less sensitive to group sizes than the "traditional" density. Values range from 0 (completely disconnected) to 1 (completely connected).
Degree	The number of links a node has.
Outdegree	The number of outgoing links from a node.
Indegree	The number of incoming links to a node.
Outdegree – indegree (O–I) index	The extent of an actor's embeddedness in link placing compared to link receiving, calculated as the outdegree minus the indegree divided by the degree of the actor. It is the authors' elaboration similar to the E-I index of Krackhardt and Stern (1988).
Reciprocity	Describes the situation when website A links to website B, and website B links to website A. It characterises links and dyads (pairs of websites). For links, it measures the degree to which links coexist with links going in the opposite direction, ranging from 0 (no reciprocal links) to 1 (all links are reciprocal). For dyads, it characterises pairs of nodes and their links as "mutuals" (a pair of websites interconnected by links from each other), "asymmetrics" (a pair of websites interconnected with only a link from one of them to another), or "nulls" (dyads without any links) (Wasserman & Faust, 2019).
Internal hyperlinks	The number of links placed within a group, such as a sector or geographic area.
External hyperlinks	The number of links placed by group members to members of other groups.
External – internal (E-I) index	The extent of embeddedness of an actor's connections within its group compared to connections outside the group. It is calculated as the number of external links minus the number of internal links divided by the total of external and internal links. Scores range from −1.0 to +1.0, with 1.0 indicating that all links are external (Krackhardt & Stern, 1988). Calculated only for nodes with at least one link.
Mainstream network	The largest component where all websites are connected into one whole with at least one link.
Strongly connected actors	The actors present in the strongly connected component – the biggest subnetwork of the mainstream network where the nodes have both incoming and outgoing hyperlinks and each website can be reached through hyperlinks from any other website.
Weakly connected actors	A group of nodes of the mainstream network that is connected to others only in one direction and therefore cannot be reached through other websites (having just one or few outgoing links) or does not point at others (having just one or few incoming links).
Community detection	A network analysis technique detecting groups of actors more densely connected with each other than with the rest of the network ("communities"). This study used the computational detection of communities based on the Louvain algorithm (Blondel et al., 2008) and performed by Gephi 0.10.1 (Bastian et al., 2009).



Sector	N	Share	Sector	N	Share	Sector	N	Share
TAFs	409	57%	TAs	73	10%	TCRs	62	8.5%
PBs	90	13%	ATEs	63	8.5%	DMOs	22	3%

Fig. 1. The online network of tourism stakeholders (N = 719, 1755 links).
Note. Node size – degree. Colour – tourism sector. Visualised by Gephi 0.10.1 (Bastian et al., 2009). (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

within sectors mostly did not follow the L shape strictly. Furthermore, the average degree of the sectors differed. A greater contribution to the density of connections was made by DMOs, TCRs, and PBs as they had a greater number of connections per actor, with DMOs outstanding by at least three times higher average number of links. These three sectors made up the top 20-degree list of the most connected actors and had a small proportion of inactive actors within their respective sectors (Table 3).

The varying level of sectors' involvement was related to their participation in various network components. Most stakeholders (n = 593, 82.5%) were in the mainstream network, which is the largest component where all websites were connected into one whole with at least one link, accumulating 99.9% (n = 1753) of detected hyperlinks. The rest were disconnected from the mainstream network and formed a periphery, comprising isolated actors with no links (n = 124, 17.2%; links = 0) and a pair of interconnected nodes, or actors networking aside (n = 2, 0,3%; edges = 2).

Although the websites in the mainstream network were connected, some of them could not be reached through the links from others (had only outgoing links) or did not place any links to others (had only incoming links). Only 45% (n = 265) of the mainstream network, or 37% of the whole sample, formed the largest strongly connected component which is the biggest subnetwork, where each website could be reached through hyperlinks from any other website. Therefore, the members could be considered as strongly connected. The rest of the stakeholders in the mainstream network were classified as weakly connected actors (n = 328, 45.5% of the whole sample).

The participation of sectors in the components varied in the way that permits distinguishing at least four types of behaviour (Table 4). Once more, DMOs showed exceptional results by having the vast majority in

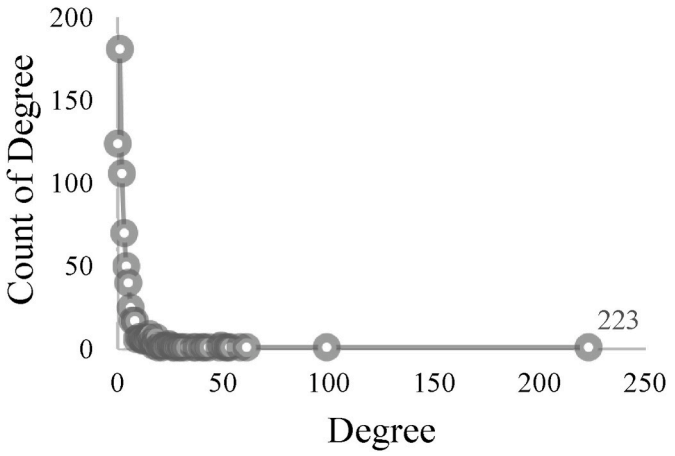


Fig. 2. The imbalance in connectivity of stakeholders: degree distribution (N = 719, 1755 links).
Note. Mean = 4.9; median = 2; mode = 1; SD = 11.7; range = 223. The nodes with zero degrees are included.

the strongly connected component, little presence among weakly connected, and absence from the periphery. Such a connecting pattern might be recognised as "centred networking behaviour", ensuring participation in the network and enhancing the robustness of their network position. Similar distribution had the other highly connected sectors (TCRs and PBs), with the difference of higher presence in the weakly connected group and having some isolated actors, what might be labelled as "strongly connected behaviour".

On the contrary, most of the TAs were disconnected from the mainstream network and had little presence in the strongly connected component, showing "avoiding behaviour" and occupying fragile positions as network members. Differently, the other two sectors (ATEs and TAFs) had most of the websites in the "weaker" part of the mainstream network. They were moderately present among disconnected agencies and in the strongly connected component. Such a pattern might be labelled as "dispersed networking behaviour". Thus, online networking differed according to the distribution of the sectors between the structural formations with different connectivity levels. Diversified and numerous networking choices of some stakeholders enabled their presence in a better-connected part of the network, while others stayed at the periphery of connecting activities.

4.2. Link-placing vs link-receiving

The highly connected sectors played distinct roles in terms of their hyperlink placement and attraction. For example, while DMOs dominated the top 10 outdegree websites (with 8 out of 10 actors), they did not lead in the top 10 indegree websites, ceding that position to TCRs. In general, average indegree and outdegree differed for each sector, suggesting varying contributions to the network density by connecting behaviour (link-placing) and incentivising behaviour (link-receiving) (Table 5). More specifically, the stakeholders within each sector had a varying tendency to combine incoming and outgoing links, which is reflected in the varying average O–I index (Table 5). Thus, the stakeholders combined link-placing and link-attracting differently, leading to qualitatively different contributions to the network connectivity.

DMOs were characterised by connecting behaviour, with an average outdegree of 27.5, almost 2.5 times higher than its average in-degree of 11.3. It was the only sector with a positive O–I index (0.17), showing a disposition of its stakeholders to place more links than receive. Importantly, DMOs were the smallest sector by the number of stakeholders (n = 22), nevertheless, it placed more links than any other sector. The connecting behaviour of DMOs was accompanied by the leading position as mediators, or bridges between other websites, according to the betweenness centrality results. DMOs occupied the top six positions as mediators, and on average the organisations had significantly higher betweenness centrality results (Table 5).

In contrast, Table 5 shows that the rest of the sectors received more links than they generated. This means that they were not highly active in creating connections themselves. Instead, they indirectly contributed to the network's connectivity by encouraging others to link to them. This is further illustrated in Fig. 3 through the use of boxplots. However, the other two highly connected sectors (TCRs and PBs) had a greater impact on the network's connectivity as mediators than the low activity sectors (ATEs, TAFs, and TAs), as indicated by their higher betweenness centrality results (Table 5).

Attracting links did not necessarily mean that the sectors were largely composed of highly popular, influential, or powerful websites. In some cases, incoming links resulted from "assembling behaviour", whereby actors with no links placed to other network members were connected to others solely by having hyperlinks from some of them. As many as 34.6% of the stakeholders were "assembled" into the mainstream network by others who chose to acknowledge them. The vast majority of these assembled actors (92%) had only 1–3 incoming links, what indicated their fragility as network members and the networking behaviour that did not lead to a robust position.

Getting assembled was a qualitatively different position from "joining behaviour", where actors without incoming links became part of the mainstream network by linking to others (5.6% of stakeholders). Considering that the number of joined actors is about six times smaller than assembled, the network might be characterised by the higher presence of "assembling" behaviour than the initiative of a wide range of

Table 4
Types of networking behaviours according to the participation of tourism sectors in the network components.

Sectors	Type	Mainstream		Periphery	
		Strongly connected	Weakly connected	Isolated	Networking aside
DMOs	1	95%	5%	0%	0%
PBs	2	82%	16%	2%	0%
TCRs	2	63%	31%	6%	0%
TAFs	3	28%	58%	14%	0%
ATEs	3	21%	60%	19%	0%
TAs	4	7%	26%	64%	3%

Note. % to the total in sectors. 1 – centred behaviour. 2 – strongly connected. 3 – dispersed behaviour. 4 – avoiding behaviour.

Table 3
The levels of involvement: high-activity vs low-activity sectors.

Sector	N	Average degree	Median	Mode	SD	Max	N of actors in the top 10 by degree	N of actors in the top 20 by degree	% of inactive actors[1]
DMOs	22	38.7	23	49	47.6	223	8	10	0
TCRs	62	11.0	7	15	10.8	43	0	7	6
PBs	90	7.6	5	4	8.9	58	2	2	2
ATEs	63	3.4	2	2	3.9	18	0	0	19
TAFs	409	2.4	1	1	3.0	24	0	0	14
TAs	73	1.2	0	0	2.9	15	0	0	64

Note. Highly connected sectors are in bold. [1]To the total of the sector.

Table 5
Connecting behaviour (link-placing) in comparison with incentivising behaviour (link-receiving).

Sector	N	Average Degree	Average Indegree	Average Outdegree	Average O–I index	Sum of indegree	Sum of outdegree	Average normalised betweenness centrality
DMOs	22	38.7	11.3	27.5	0.17	248	604	0.0230
TCRs	62	11.0	7.2	3.9	−0.36	445	239	0.0031
PBs	90	7.6	3.83	3.76	−0.04	345	338	0.0016
ATEs	63	3.4	2.5	0.9	−0.69	159	57	0.0002
TAFs	409	2.4	1.25	1.17	−0.39	511	478	0.0002
TAs	73	1.2	0.6	0.5	−0.32	47	39	0.0001

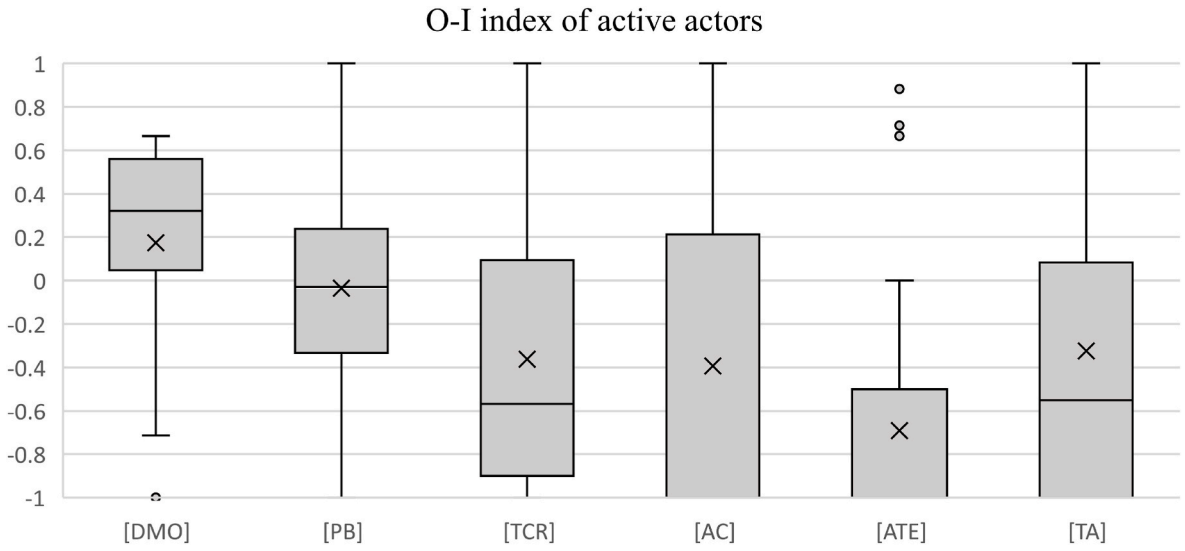


Fig. 3. The extent of connecting behaviour in the overall connectivity of the sectors.

stakeholders to participate in the network. While it was beneficial for assembled websites to become connected, the assembling did not contribute significantly to the overall network navigation, as they had zero results as mediators (betweenness centrality), gates to hubs of the network (HITS), and were distant from other members (closeness centrality). Dissimilarly, "joined" websites facilitated navigation of the destinations by allowing visitors to browse the network and discover other actors.

Assembled websites were primarily from TAFs (75%) and ATEs (13%), suggesting that the network worked more for assembling certain kinds of actors than others. Assembled actors accounted for about half of these sectors: TAFs (45.7%) and ATEs (50.8%), meaning that getting referenced by others was one of the main ways for these sectors to gain visibility in the destination network. The "joined" actors were mainly from TAFs (67.5%), but they represented just 7% of the sector's members, so this behaviour was not typical for the sector.

A small number of assembled actors (n = 5; 2%) had 11 or more incoming links. These nodes were powerful enough to be highly referenced and might be defined as a kind of "power nodes". However, for some reason, they did not use their full range of possibilities to participate in the network, and despite their high connectivity, they did not contribute to the network's navigation.

The behaviour of the assembled "power nodes" is very dissimilar from the highly connected websites with both many incoming and outgoing links that were playing an important connecting role in the network. In particular, out of the 10 most connected websites with both types of links, nine were placing more links than receiving, having positive O–I index (average 0.38), which means that the leaders, highly involved in networking activity, were acting as connectors (8 DMOs and 1 PB). Only one leader, a public body had a negative O–I index and thus was a powerful acknowledged website.

The most prominent website of the network Sansebastianturismoa.eus (a DMO) was exhibiting rather a connecting behaviour, with about four times higher number of outgoing links than incoming (182 vs 41). It had an outstanding result as a network hub (more than 2.5 times ahead of the nearest actor). However, the DMO had less links from other authoritative websites as some websites of TCRs had, what showed that it was working on network strengthening and promotion but still could improve its authority by having recognition from other actors, especially well-connected network players.

Mutuality in link placement was not widely practiced, with only 26% of the links being reciprocal, meaning that there was an opposite link from the website they were directing to. Among pairs of nodes, there were few reciprocal relations, with only 226 instances of mutuality, which represents less than 0.1% of the total possible cases and 15% of all connected dyads, i.e. dyads with at least one link.

Within sectors, PBs and DMOs had more mutuality in their relations than other sectors. PBs achieved the greater reciprocity, with more than half of its connected dyads being mutuals (51%). It was followed by DMOs with about one-third of mutual dyads (32%) (Table 6). In external relations, mutuality was at least twice lower than within sectors. PBs

Table 6
Mutuality in relations within and outside sectors.

Sector	Share of mutuals among connected dyads						
	Internal and intersectoral reciprocity						External reciprocity
	ATEs	DMOs	PBs	TAs	TAFs	TCRs	
ATEs	**14%**						6%
DMOs	7%	**32%**					16%
PBs	17%	35%	**51%**				18%
TAs	0%	0%	30%	**25%**			4%
TAFs	3%	12%	5%	0%	**22%**		7%
TCRs	10%	21%	16%	0%	1%	**19%**	9%

(18%) and DMOs (16%) had higher reciprocity underlying their powerful position within the destinations. In the intersectoral relations, the highest level of reciprocity was in the case of PBs and DMOs, further underlying their interconnectedness and collaboration (35%). TAs were a unique sector that did not have reciprocal links with four other sectors (ATEs, DMOs, TAFs, and TCRs), underlying its shortage of interaction with other sectors and the only interest in the reciprocity with the public sector (PBs) (Table 6).

4.3. Connecting with similar and dissimilar actors and forming communities

The networking behaviour of actors was characterised by external linking, where the number of links to and from actors in other sectors exceeded those within the same sector. Internal links constituted only 19% of all links in the network (369 out of 1896), indicating a clear priority for out-sector connections. This tendency was confirmed by the high average E-I index of 0.71.

All sectors were heavily reliant on external connections, with a greater density of external links as compared to internal links (Table 7). Other industries were the principal source of incoming and outgoing links, rather than same-sector stakeholders. The average E-I index indicated the clear dominance of external linking behaviour in all sectors (Table 7).

PBs and TCRs exhibited more articulated internal linking behaviour compared to other sectors. These sectors had a higher density of internal links compared to any other sector and had more links within their own sector than with any other sector, indicating their stronger connectedness as groups (Table 8). Remarkably, DMOs had a disproportionately low share of internal links compared to external links, with the latter ones being 12.5 times more frequent.

PBs had the highest density of internal connections among all sectors. However, the sector still contributed more to external linking in the network, with the number of external links being 3.5 times higher than the number of internal links. Despite the sector's lower E-I index, its high contribution to external linking was possible due to several actors within the sector having significantly more external links compared to internal links. In general, the differences in the number of internal and external connections of actors varied widely, ranging from moderate to extremely high, with a positively skewed distribution (mean = 4.2; median = 2; mode = 1; SD = 10.3; skewness = 12.2; range = 197). This indicates the existence of different levels of actors' skewness towards external relations.

The external linking behaviour of sectors varied, with some having a greater disposition to place or receive links. In the external relations, DMOs exhibited connecting behaviour as well, with outbound links dominating and their density higher than of inbound links. On the contrary, ATEs and TCRs exhibited attracting attention behaviour, receiving links several times more often than placing them (Table 7).

Sectors had preferences in their external connectivity, having more dense relations with particular sectors (Table 8). The highest support by placing links was given by DMOs to TAFs, with a normalised density (ND) of 0.029. In contrast, the PB sector devoted little attention to TAFs, which was an important difference between PBs and DMOs, the sectors related to destination governance and management. TAFs, in turn, showed a preference for pointing to TCRs (ND = 0.017), followed by DMOs (ND = 0.010) and ATEs (ND = 0.004). Interestingly, TCRs were promoted more by TAFs (ND = 0.017) and PBs (ND = 0.005) than by DMOs (ND = 0.003).

Table 8
Connectivity skewness of sectors.

Outbound		Inbound					
		ATEs	DMOs	PBs	TAs	TAFs	TCRs
ATEs	n	**8**	5	7	2	32	3
	ND	**0.001**	0.000	0.000	0.000	0.003	−0.001
DMOs	n	73	**49**	83	15	289	95
	ND	0.007	**0.001**	0.003	0.001	0.029	0.003
PBs	n	20	52	**127**	8	55	76
	ND	0.001	0.004	**0.013**	0.000	0.001	0.005
TAs	n	1	5	5	**5**	12	11
	ND	−0.000	0.000	0.000	**0.001**	0.001	0.001
TAFs	n	49	102	65	9	**73**	180
	ND	0.004	0.010	0.003	0.000	**0.000**	0.017
TCRs	n	8	35	58	8	50	**80**
	ND	−0.000	0.003	0.005	0.001	0.002	**0.007**

Note. Internal hyperlinks are in bold. The rest of the numbers represent external hyperlinks. ND – normalised density; n – number of hyperlinks. The arrow indicates direction of hyperlinks. For example, DMOs placed 83 links to PBs, and PBs placed 52 to DMOs.

The results of the external connectivity analysis suggest that the sectors did not usually form densely connected groups (communities) by connecting to the same group members (with some exceptions in the cases of PBs and TCRs). The community detection showed that the groups always consisted of at least five different sectors, emphasising that belonging to the same sector was not a basis for tight relations.

The analysis of geographic variety of the communities showed that each detected community had the largest group belonging to a particular geographic area. In seven communities out of nine, the group was the majority, representing 73% or more of its members (Table 9). The geographic principle for online networking was further supported by the E-I index based on geographic areas (not sectors), which average for the whole network was negative (−0.58), indicating that actors were more likely to connect within their geographic area than outside of it. The disposition to connect within their area was evident across all geographic areas. Notably, the E-I index was positive for the "multiregional" group, which consisted of actors present in various geographic areas (Table 9).

5. Discussion and conclusions

The study analysed the online networking of tourism stakeholders in a multi-destination region. It highlights varying behaviours of actors in relation to their involvement in networking activities, link-placing and

Table 7
Internal and external behaviours of tourism sectors.

Sectors	N	Internal hyperlinks		External hyperlinks		Average E-I index[1]	Types of external hyperlinks			
							Inbound		Outbound	
		n	ND	n	ND		n	ND	n	ND
ATEs	63	8	0.001	200	0.014	0.88	151	0.011	49	0.003
DMOs	22	49	0.001	754	0.059	0.67	199	0.017	555	0.042
PBs	90	127	0.013	429	0.022	0.20	218	0.011	211	0.011
TAs	73	5	0.001	76	0.005	0.62	42	0.003	34	0.002
TAFs	409	73	0.000	843	0.069	0.84	438	0.036	405	0.034
TCRs	62	80	0.007	524	0.035	0.60	365	0.025	159	0.010

Note. [1]E-I index was calculated for each active actor, and then the average for each sector was calculated (inactive actors with no connections excluded).

Table 9
Internal and external behaviour based on geographic area and communities.

Tourism Region	N	%	Average of E-I index	Modules								
				1	2	3	4	5	6	7	8	9
Donostia	238	33%	−0.73	**81%**	0%	**97%**	0%	5%	3%	1%	6%	9%
Urola Kosta	110	15%	−0.58	3%	3%	3%	0%	0%	0%	29%	**73%**	0%
Tolosaldea	52	7%	−0.68	3%	0%	0%	**96%**	0%	3%	0%	0%	2%
Txingudi	50	7%	−0.59	0%	0%	0%	2%	1%	0%	0%	5%	**84%**
Donostialdea	46	6%	−0.29	7%	3%	0%	2%	30%	3%	0%	11%	0%
Goierri	45	6%	−0.5	3%	5%	0%	0%	**46%**	3%	0%	0%	0%
Debabarrena	42	6%	−0.48	0%	3%	0%	0%	0%	6%	**39%**	0%	0%
Oarsoaldea	40	6%	−0.53	1%	**84%**	0%	0%	0%	0%	1%	1%	0%
Debagoiena	38	5%	−0.59	1%	0%	0%	0%	0%	**79%**	0%	0%	0%
Urola Erdia	33	5%	−0.36	0%	0%	1%	0%	0%	3%	30%	0%	0%
Urola Garaia	14	2%	−0.6	0%	0%	0%	0%	17%	0%	0%	0%	0%
Multiregional	11	2%	0.38	0%	3%	0%	0%	0%	0%	0%	4%	5%

Note. Per cents are calculated of column totals. In bold, the largest share in the module.

link-receiving, connections with similar and dissimilar actors, and formation of communities. The present study reveals that low activity and inequality in connectivity emerge in the conjuncture of various sectors, each having its distinct function in the uneven allocation of links. The study describes various behavioural patterns and introduces the terminology for these behaviours. Certain behaviours have an abstract interpretation, adaptable across different organisational networks (Fig. 4). In contrast, some others are closely linked to particular tourism sectors (Fig. 5).

The observed low involvement in networking activities, the large share of inactive actors, and the imbalance in connectivity of the stakeholders are typical of online destination networks, as well as inter-organisational online networks in other social domains (Baggio, 2007, 2020b; Baggio & Corigliano, 2009; Baggio et al., 2010; Baggio, Rodolfo et al., 2007; Wang et al., 2020). The coincidence supports the notion that destination networks of varying sizes and locations share similar characteristics (Baggio, 2020b, 2022). This supports the idea that there might be the existence of basic destination management strategies that are applicable across varying contexts (Baggio, 2020b).

The high level of activity of DMOs, public bodies, and tourism and cultural resources, which are either directly or indirectly related to the public sector, suggests the government agencies' efforts to support the tourism sector and might reflect the importance of governance in destinations, with online networking development being part of such governance (Pforr, 2006). Furthermore, an interpretation of the research findings through the lens of the public-private divide provides an understanding of why certain behaviours are predominant in particular sectors and how varying behaviours intersect in the socio-economic space (Fig. 5).

DMOs' emergence as leaders, exhibiting the highest involvement and centred behaviour, directed to robust network positions, may be attributed to their efforts to fulfil networking, communication, and coordination functions in destination management (Gretzel, 2022; H. Park & Stepchenkova, 2023). On contrary, the private domain, represented by accommodations, active tourism enterprises, and travel agencies, exhibited limited interest or capacity for online networking, possibly implying that competition takes precedence over collaboration.

Although typically seen as intermediaries in the tourism industry, travel agencies did not act as such in the online tourism destination network, showing avoiding behaviour with low connectivity. Their network membership is fragile, and their networking behaviour does not seem to be directed toward ensuring their network participation by increasing and diversifying their ties and therefore contributing to associated visibility and trust. This pattern mirrors their real-world networking, characterised by minimal collaboration (Valeri & Baggio, 2021). Avoidance tendencies could be linked to their economic activity specifics, such as working with remote destinations, as well as diminished market power due to digital technology impacts, related to disintermediation processes (direct consumer booking), heightened competition, and the rise of alternative intermediaries (booking platforms) (Buhalis et al., 2011; Kibe, 2015; Lewis et al., 1998). Probably, similarly to accommodation businesses in another study (Elvekrok et al., 2022), the sector may have a weaker perception that cooperation with others contributes to business performance.

There is no straightforward explanation for accommodations' and active tourism enterprises' low connectivity and dispersed behaviour, positioned between highly connected sectors and the nearly disconnected travel agencies. The low connectivity might mean that the sectors do not find reasons or capacity to connect to others, or do not have long-term connections worth displaying as it may be that type of actors that are attracted by "the convenience, simplicity, speed and short-term efficacy of organic collaboration strategies within the destination" (Fyall et al., 2012, p. 22). It is unfortunate that these organisations had limited interconnections, as even competitive hotel industry entities can improve performance and profitability through collaboration and communication (Ingram & Roberts, 2000).

Leadership within the network differed qualitatively, as highly connected sectors in different ways combined the active connector role (linking to others) and passive roles (encouraging connections from others). Specifically, DMOs stood out by connecting leadership and mediation, providing visibility and showing trust to the destination stakeholders. Their networking behaviours further emphasise their importance as key drivers of network connectivity and as a vehicle for achieving collaboration between distinct components of destination system, seeking to foster collaboration of the entire destination system (Fyall et al., 2012).

The stark contrast with other sectors, which primarily focused on receiving links and rarely acted as bridges between network members, highlights DMOs vital role in promoting collaborations, providing tourism product information, and increasing destination visibility (Buhalis et al., 2011; Fyall et al., 2012). This supports their incorporation as a viable strategy for coordinating diverse destination constituents. Notably, public domain-related sectors played more significant role as network mediators, serving as bridges between different network parts and facilitating network navigation.

The prevalence of assembling behaviour (actors connected solely by incoming links) over joining behaviour (actors connected solely by links they placed), suggests a shortage of initiative from various businesses to connect to the network. Specifically, accommodations and active tourism enterprises were more frequently assembled into the network. Importantly, network members made considerable efforts to connect these types of businesses. Get assembled enhances individual business visibility, while joining behaviour may be more crucial for overall destination visibility, as it enables visitors to browse the network and discover other actors. Upon visually examining graphs from previous research (Baggio, Rodolfo et al., 2007), it seems that the tendency to

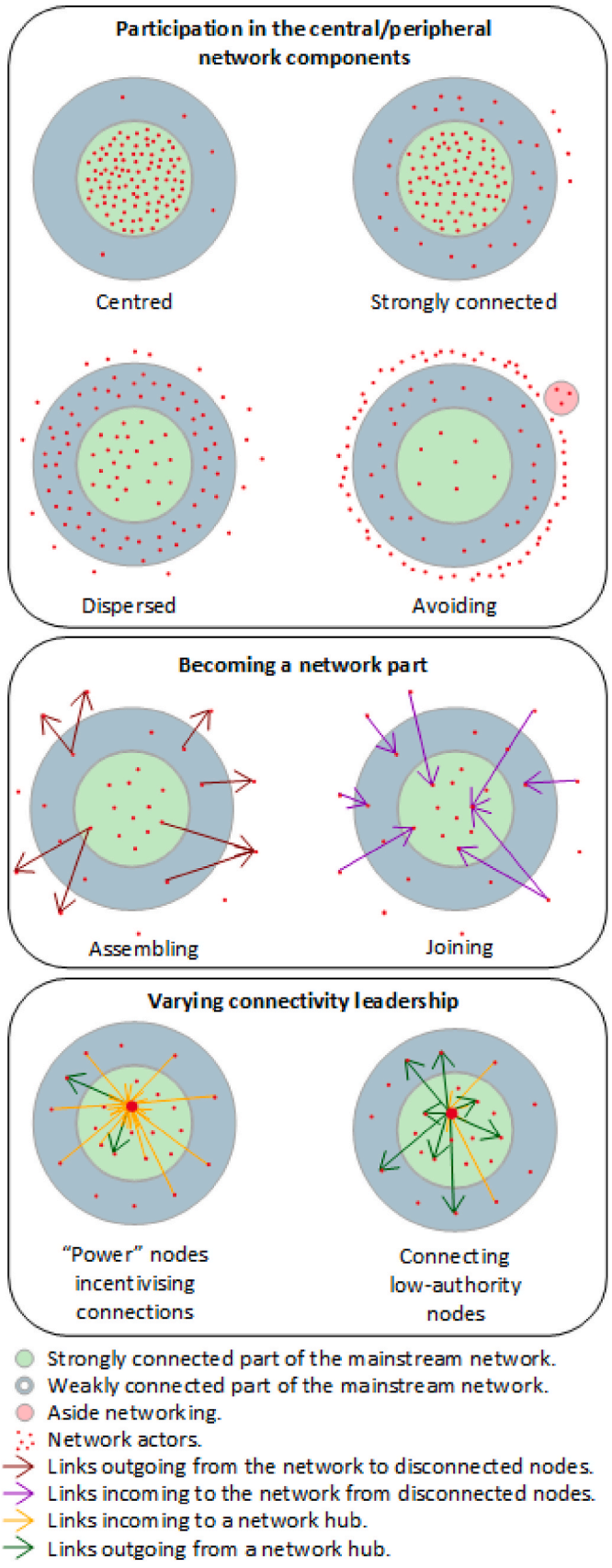


Fig. 4. Varying types of networking behaviours.

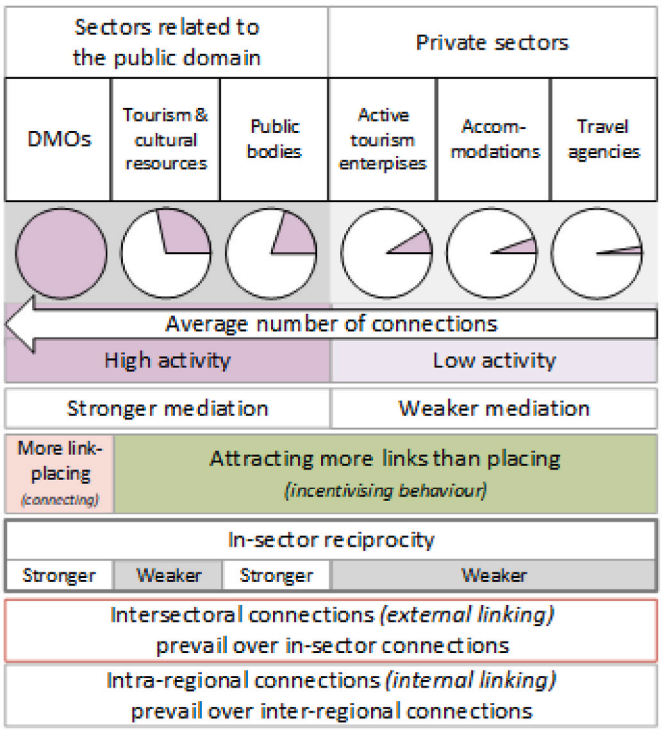


Fig. 5. Intersections of networking behaviours in the context of public-private relations.

engage in assembling behaviour may have been widespread among destinations in other countries.

There are numerous opportunities for improvement, even for the largest hub of the network, a highly connected DMO. While focused on connecting actors to the network, DMOs' link-receiving connectivity could be better, which is related to the improvement of recognition and authority among stakeholders, especially among other highly connected members. A potential challenge for destination managers might involve finding ways to engage power nodes, which are organisations highly acknowledged by network members and enjoying high credibility but do not find reasons to place links to other organisations. Given the connectivity break that power nodes represent (as visitors cannot discover the destination further through links from these nodes), another type of leadership, actively engaged in network building, should be encouraged to collectively improve destination visibility and credibility.

Mutual linking was not widely practised, aligning with the behaviour of other known destination networks (Pforr et al., 2014; Raisi et al., 2018). Two public domain-related sectors — public bodies and DMOs — advanced more reciprocity in their internal and external connections. In this regard, public bodies appear more powerful, followed by DMOs, potentially reflecting power structures (Beritelli & Laesser, 2011; Pforr et al., 2014). Moreover, these sectors exhibit higher reciprocity than any other pair of sectors, emphasising their interconnectedness in the destination system. Higher reciprocity within the public bodies sector may signal differences between general governing bodies and tourism-specialised actors' networking approaches, warranting further exploration.

The prevalence of intersectoral connections, as opposed to within-sector linking, suggests that sectors depend on other industries in their networking. This finding aligns with previous studies and can now be considered typical of tourism stakeholders' networking practices (Beritelli et al., 2007; Raisi et al., 2018; Ying et al., 2016). Notably, this research confirms this pattern in a multi-destination region as well. The higher level of internal hyperlinking developed by public bodies and tourism and cultural resources in comparison to other sectors further indicates specific networking tendencies within the public domain.

Surprisingly, DMOs did not exhibit the highest in-sector hyperlinking level, revealing a significant gap in their networking activity and a shortage of collaboration among various destinations. However, in terms of external relations, DMOs continued to play a strong connecting role in the network, while other sectors such as active tourism enterprises and tourism and cultural resources assumed a more passive role of receiving links. This observation, along with varying preferences in intersectoral relations, like denser connections with specific sectors, suggests the potential influence of offline structures and differing goals in intersectoral contacts. For example, Ying et al. (2016) have noticed that the sectors offering tourism products are inclined to obtain more links from other sectors than they create, while the information and industry-supporting sectors exhibit the opposite pattern of sending more links to other sectors than they receive.

The varying skewness in the external connections of public domain-related sectors highlights crucial differences between them and further supports the potential influence of varying offline agendas. For instance, public bodies do not frequently reference accommodations and are not expected to promote them extensively, while a higher level of linking between public bodies and tourism and cultural resources might be anticipated. Additionally, the observed skewness suggests possible directions for destination management and policy revisions. For example, it would be useful to examine why DMOs provided less support to tourism and cultural resources than to accommodations. Importantly, it might be explained by cultural factors as the higher linking to accommodations is similar to DMOs' hyperlink networking in South Korea when accommodations were the most linked tourism stakeholders as different from DMOs of Germany (local tourism authorities were linked the most) and the USA (highly focused on tourist attractions) (H. Park & Stepchenkova, 2023).

Significantly, within the multi-destination network, geographic area affiliation emerged as an important determinant of network connectivity, corroborating earlier findings that stakeholders tend to connect more with actors from the same geographic area within a single destination network (Raisi et al., 2018). Thus, stakeholders did not find many incentives or opportunities to engage with actors located beyond their vicinity.

Highlighting communication specifics of hyperlink networks and identifying diverse networking behaviours is an important step towards defining the roles of each sector in shaping the density of tourist destination networks, their visibility, and credibility. It creates a ground for future research and the development of targeted interventions aimed at optimising the connectivity of destinations and networking strategies of its stakeholders.

6. Practical implications

Destination managers can leverage the knowledge about online networking and integrate regular monitoring of online networking in their practice to explore and improve their hyperlinking behaviour, reveal networking processes in their destination, identify networking challenges and opportunities, foster online connections among destination stakeholders, and support the destination's visibility. This study highlights potential areas of low connectivity and fragile network participation, reveals a spectrum of networking behaviours to consider, underscores the pivotal role of DMOs, and anticipates the potential networking behaviours of tourism actors across different sectors and geographic areas. Destination managers can undertake a range of actions to explore and improve tourist destinations' hyperlink networks, as summarised in Table 10.

Table 10
Actions for destination managers to revise and improve destination's online networking.

Actions	Benefits
Regularly monitor hyperlink networks and analyse differences in the behaviours of varying sectors, geographic areas, and public/private domains.	A deeper understanding of the networking and online-offline relations among organisations that constitute the destination system; obtaining recent and easily accessible data for elaborating tailored strategies to optimise online networking and increase the destination's visibility.
Identify sectors and individual actors that are either highly active or relatively inactive in their networking; distinguish the types of their networking behaviour; assess whether key destination websites are prominent as highly visible hubs.	Understanding how online networking can be improved; uncovering any gaps between actual networking practices and the expected networking of principal destination actors.
Inform destination stakeholders about the importance of online networking for both their and the destination's overall visibility and credibility; suggest to influential actors to actively engage by placing links to other destination entities.	Increasing density of network connections thereby enhancing both visibility and credibility of the destination and its stakeholders.
Encourage mutuality (a reciprocal hyperlink exchange) in networking.	Enhancing both the visibility and navigability of the destination network.
Place hyperlinks on the DMO website to destination stakeholders; assemble disconnected actors to the destination network.	Building trust in destination stakeholders; increasing both the overall destination's visibility and that of destination stakeholders for visitors and collaborators; supporting businesses that face challenges in achieving visibility from other sources.
Encourage other destination stakeholders to place links that direct to the DMO website.	Enhancing the DMO's visibility; reinforcing the recognition and authority of the DMO website.
Establish mutual connections with other DMOs.	Boosting regional tourism visibility; improving in-sector and inter-destination online networking.

7. Limitations and future research

To better understand imbalanced online connectivity and varying behaviours, it is essential to explore the socio-economic system shaping tourism sectors and the offline attributes and relations of tourism actors. Future research could investigate the reasons behind the dominance of external linking behaviours of tourism sectors and the scarcity of within-sector connections, particularly for DMOs.

Although the full potential for cooperation is seldom realised in practice, exploring ways to enhance collaboration is still worthwhile, as it is increasingly recognised as a valuable tactic for destinations to adopt to confront an expanding range of prospects and obstacles (Fyall et al., 2012). Future research could focus on which sectors tend to interconnect and why, as well as how this influences the network's resilience and sustainability.

This study excluded other tourism-related industries like food and beverage, transport, gambling and betting, and sports facilities operators. A more comprehensive understanding of online networking behaviours would need to include central and peripheral actors. Future research could also expand beyond organisational websites to include social media accounts, stakeholder web pages on online marketplaces, and profiles at collaborative platforms. Additionally, conducting longitudinal studies could track changes in behaviour and online networks over time.

The level of technological adoption varies significantly among different companies, with some entities lagging in their progression towards digital transformation. For future research, it may be insightful to consider the economic implications of digital transition, including transaction costs and organizational revenues as important aspects for understanding financial capacity to sustain online networking, including maintaining a website and placing hyperlinks. It is crucial not to overlook the considerable costs associated with inter-organizational collaborations (cf., Fyall et al., 2012), even though the generation of hyperlinks is likely to be a cost-effective networking form for organisations with an already functioning website.

CRediT authorship contribution statement

Volha Herasimovich: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Software, Validation, Visualization, Writing - original draft, Writing - review & editing. **Aurkene Alzua-Sorzabal:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Supervision, Validation, Writing - original draft, Writing - review & editing. **Basagaitz Guereño-Omil:** Data curation, Investigation, Resources, Writing - review & editing.

Declaration of AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used Chat GPT (Open AI) in order to improve readability and language. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Declarations of competing interest

None.

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Appendix ASupplementary data

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References

eus, E. (2021). *Registro de empresas y actividades turísticas de Euskadi*. https://www.euskadi.eus/registro/registro-de-empresas-y-actividades-turisticas-de-euskadi/web01-tramite/es/.

Ackland, R. (2013). *Web social science: Concepts, data and tools for social scientists in the digital age*. SAGE.

Ali, A., & Frew, A. J. (2013). *Information and communication technologies for sustainable tourism*. Routledge.

Baggio, R. (2007). The web graph of a tourism system. *Physica A: Statistical Mechanics and its Applications, 379*(2), 727–734. https://doi.org/10.1016/j.physa.2007.01.008

Baggio, R. (2008). Symptoms of complexity in a tourism system. *Tourism Analysis, 13*(1), 1–20. https://doi.org/10.3727/108354208784548797

Baggio, R. (2011). Collaboration and cooperation in a tourism destination: A network science approach. *Current Issues in Tourism, 14*(2), 183–189. https://doi.org/10.1080/13683500.2010.531118

Baggio, R. (2014). Complex tourism systems: A visibility graph approach. *Kybernetes, 43*(3/4), 445–461. https://doi.org/10.1108/K-12-2013-0266

Baggio, R. (2020a). The science of complexity in the tourism domain: A perspective article. *Tourism Review, 75*(1), 16–19. https://doi.org/10.1108/TR-04-2019-0115

Baggio, R. (2020b). Tourism destinations: A universality conjecture based on network science. *Annals of Tourism Research, 82*, Article 102929. https://doi.org/10.1016/j.annals.2020.102929

Baggio, R. (2022). Digital ecosystems, complexity, and tourism networks. In Z. Xiang, M. Fuchs, U. Gretzel, & W. Höpken (Eds.), *Handbook of e-Tourism* (Vol. 2, pp. 1545–1564). Springer. https://doi.org/10.1007/978-3-030-05324-6_91-1.

Baggio, R., & Corigliano, M. A. (2009). Topological analysis of a tourism destination webspace: The importance of hyperlinks. *Information Technology & Tourism, 11*(4), 319–327. https://doi.org/10.3727/109830510X12670455864285

Baggio, R., Corigliano, M. A., & Tallinucci, V. (2007). The websites of a tourism destination: A network analysis. In M. Sigala, L. Mich, & J. Murphy (Eds.), *Information and communication technologies in tourism 2007* (pp. 279–288). Springer.

Baggio, R., & Del Chiappa, G. (2014). Real and virtual relationships in tourism digital ecosystems. *Information Technology & Tourism, 14*(1), 3–19. https://doi.org/10.1007/s40558-013-0001-5

Baggio, R., Scott, N., & Cooper, C. (2010). Network science: A review focused on tourism. *Annals of Tourism Research, 37*(3), 802–827. https://doi.org/10.1016/j.annals.2010.02.008

Baggio, R., Scott, N., & Wang, Z. (2007). *What network analysis of the WWW can tell us about the organisation of tourism destinations. CAUTHE 2007: Tourism - past Achievements. Future Challenges*, 262–272 https://search.informit.org/doi/abs/10.3316/informit.522040937355010.

Barabási, A. L., & Albert, R. (1999). Emergence of scaling in random networks. *Science, 286*(5439), 509–512. https://doi.org/10.1126/SCIENCE.286.5439.509

Bastian, M., Heymann, S., & Jacomy, M. (2009). Gephi: An open source software for exploring and manipulating networks. In W. W. Cohen, & N. Nicolov (Eds.), *Third international AAAI conference on weblogs and social media* (Vol. 3, pp. 361–362). https://doi.org/10.1609/icwsm.v3i1.13937, 1.

Beritelli, P., Bieger, T., & Laesser, C. (2007). Destination governance: Using corporate governance theories as a foundation for effective destination management. *Journal of Travel Research, 46*(1), 96–107. https://doi.org/10.1177/0047287507302385

Beritelli, P., & Laesser, C. (2011). Power dimensions and influence reputation in tourist destinations: Empirical evidence from a network of actors and stakeholders. *Tourism Management, 32*(6), 1299–1309. https://doi.org/10.1016/j.tourman.2010.12.010

Blondel, V. D., Guillaume, J.-L., Lambiotte, R., & Lefebvre, E. (2008). Fast unfolding of communities in large networks. *Journal of Statistical Mechanics: Theory and Experiment, 2008*(10). https://doi.org/10.1088/1742-5468/2008/10/p10008. P10008–P10008.

Bothner, M. S., Smith, E. B., & White, H. C. (2010). A model of robust positions in social networks. *American Journal of Sociology, 116*(3), 943–992. https://doi.org/10.1086/658293

Buhalis, D. (2003). *Etourism: Information technology for strategic tourism management*. Pearson.

Buhalis, D. (2020). Technology in tourism-from information communication technologies to eTourism and smart tourism towards ambient intelligence tourism: A perspective article. *Tourism Review, 75*(1), 267–272. https://doi.org/10.1108/TR-06-2019-0258

Buhalis, D. (2022). Drivers of e-Tourism. In Z. Xiang, M. Fuchs, U. Gretzel, & W. Höpken (Eds.), *Handbook of e-Tourism* (Vol. 1, pp. 57–73). Springer. https://doi.org/10.1007/978-3-030-05324-6_6-1.

Buhalis, D., & Deimezi, O. (2004). E-tourism developments in Greece: Information communication technologies adoption for the strategic management of the Greek tourism industry. *Tourism and Hospitality Research, 5*(2), 103–130.

Buhalis, D., Leung, D., & Law, R. (2011). eTourism: Critical information and communication technologies for tourism destinations. In Y. Wang, & A. Pizam (Eds.), *Destination marketing and management: Theories and applications* (pp. 205–224). CABI. https://www.cabidigitallibrary.org/doi/10.1079/9781845937621.0205.

Cavaller, V., Sánchez-Añón, S., Codina, L., & Pedraza, R. (2014). *Estrategias y gestión de la comunicación online y offline*. Editorial UOC.

Corrêa, C., & Franco, M. (2023). Interorganizational networks for competitiveness in tourism. *Tourism Analysis, 28*(2), 305–321. https://doi.org/10.3727/108354222X16662896204995

Cropper, S., Ebers, M., Huxham, C., & Ring, P. S. (2008). Introducing inter-organizational relations. In S. Cropper, C. Huxham, M. Ebers, & P. S. Ring (Eds.), *The oxford handbook of inter-organizational relations* (pp. 3–21). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199282944.003.0001.

De Maeyer, J. (2013). Towards a hyperlinked society: A critical review of link studies. *New Media & Society, 15*(5), 737–751. https://doi.org/10.1177/1461444812462851

Del Chiappa, G., & Baggio, R. (2015). Knowledge transfer in smart tourism destinations: Analyzing the effects of a network structure. *Journal of Destination Marketing & Management, 4*(3), 145–150. https://doi.org/10.1016/j.jdmm.2015.02.001

Department of Economic and Social Affairs of the United Nations Secretariat. (2010). International Recommendations for tourism Statistics 2008. *United Nations, 1*. https://doi.org/10.18111/9789211615210

Éber, F. Z., Baggio, R., & Fuchs, M. (2018). Hyperlink network analysis of a multi destination region: The case of Halland, South Sweden. *Information Technology & Tourism, 20*(1), 181–188. https://doi.org/10.1007/s40558-018-0108-9

Elvekrok, I., Veflen, N., Scholderer, J., & Sørensen, B. T. (2022). Effects of network relations on destination development and business results. *Tourism Management, 88*, Article 104402. https://doi.org/10.1016/j.tourman.2021.104402

Eustat. (2023). *Entradas, pernoctaciones, estancia media y grados de ocupación en establecimientos hoteleros de la C.A. de Euskadi por origen y zona geográfica*. https://www.eustat.eus/elementos/ele0011300/entradas-pernoctaciones-estancia-media-y-grados-de-ocupacion-en-establecimientos-hoteleros-de-la-ca-de-euskadi-por-origen-y-zona-geografica/tbl0tbl1011321_c.html.

Exceltur. (2023). *Urbantur 2022: Monitor de competitividad turística de los destinos urbanos españoles*. https://www.exceltur.org/wp-content/uploads/2023/03/EXCELTUR-UrbanTUR22_informe-completo.pdf.

Freelon, D. (2014). On the interpretation of digital trace data in communication and social computing research. *Journal of Broadcasting & Electronic Media, 58*(1), 59–75. https://doi.org/10.1080/08838151.2013.875018

Fu, J. S. (2018). Hyperlink. In B. Warf (Ed.), *The SAGE Encyclopedia of the Internet (1–3* (pp. 429–431). SAGE. https://doi.org/10.4135/9781473960367.

Fu, J. S., Cooper, K. R., & Shumate, M. (2019). Use and affordances of ICTs in interorganizational collaboration: An exploratory study of ICTs in nonprofit partnerships. *Management Communication Quarterly, 33*(2), 219–237. https://doi.org/10.1177/0893318918824041

Fyall, A., Garrod, B., & Wang, Y. (2012). Destination collaboration: A critical review of theoretical approaches to a multi-dimensional phenomenon. *Journal of Destination Marketing & Management, 1*(1–2), 10–26. https://doi.org/10.1016/j.jdmm.2012.10.002

Gal, U., Blegind Jensen, T., & Lyytinen, K. (2014). Identity orientation, social exchange, and information technology use in interorganizational collaborations. *Organization Science, 25*(5), 1372–1390. https://doi.org/10.1287/orsc.2014.0924

Gonzalez-Bailon, S. (2009). Opening the black box of link formation: Social factors underlying the structure of the web. *Social Networks, 31*(4), 271–280. https://doi.org/10.1016/j.socnet.2009.07.003

Granovetter, M. (1985). Economic action and social structure: The problem of embeddedness. *American Journal of Sociology, 91*(3), 481–510.

Gretzel, U. (2022). The smart DMO: A new step in the digital transformation of destination management organizations. *European Journal of Tourism Research, 30*. https://doi.org/10.54055/ejtr.v30i.2589, 3002–3002.

Hristov, D., Scott, N., & Minocha, S. (2018). Distributed leadership typologies in destination management organisations. *Tourism Management Perspectives, 28*, 126–143. https://doi.org/10.1016/j.tmp.2018.08.003

Ingram, P., & Roberts, P. W. (2000). Friendships among competitors in the Sydney hotel industry. *American Journal of Sociology, 106*(2), 387–423. https://doi.org/10.1086/316965

Jacomy, M., Girard, P., Ooghe-Tabanou, B., & Venturini, T. (2016). Hyphe, a curation-oriented approach to web crawling for the social sciences. In K. P. Gummadi, & M. Strohmaier (Eds.), *Proceedings of the tenth international AAAI conference on web and social media* (Vol. 10, pp. 595–598), 1 https://ojs.aaai.org/index.php/ICWSM/article/view/14777.

Kibe, J. W. (2015). The strategic response by travel agents in Kenya to opportunities and threats of ICT developments. *African Journal of Hospitality, Tourism and Leisure, 4*(2), 1–10.

Kleinberg, J. M. (1999). Authoritative sources in a hyperlinked environment. *Journal of the ACM, 46*(5), 604–632. https://doi.org/10.1145/324133.324140

Krackhardt, D., & Stern, R. N. (1988). Informal networks and organizational crises: An experimental simulation. *Social Psychology Quarterly, 51*(2), 123–140. https://doi.org/10.2307/2786835

Leung, R. (2022). Development of information and communication technology: From e-Tourism to Smart Tourism. In Z. Xiang, M. Fuchs, U. Gretzel, & W. Höpken (Eds.), *Handbook of e-Tourism* (Vol. 1, pp. 23–55). Springer. https://doi.org/10.1007/978-3-030-05324-6_2-1.

Lewis, I., Semeijn, J., Jake), & Talalayevsky, A. (1998). The impact of information technology on travel agents. *Transportation Journal, 37*(4), 20–25.

Liu, W., & Shin, J. (2019). Convergence or divergence: Exploring different mechanisms driving children's rights organizations' offline versus online interorganizational alliance building. *Telematics and Informatics, 42*, Article 101242. https://doi.org/10.1016/j.tele.2019.101242

Maurer, C. (2022). Digital marketing in tourism. In Z. Xiang, M. Fuchs, U. Gretzel, & W. Höpken (Eds.), *Handbook of e-Tourism* (Vol. 2, pp. 1311–1333). Springer. https://doi.org/10.1007/978-3-030-05324-6_82-1.

Monge, P. R., & Contractor, N. S. (2003). *Theories of communication networks*. Oxford University Press.

Newman, M. E. J. (2006). Modularity and community structure in networks. *Proceedings of the National Academy of Sciences, 103*(23), 8577–8582. https://doi.org/10.1073/pnas.0601602103

Nguyen, T. Q. T., Johnson, P., & Young, T. (2022). Networking, coopetition and sustainability of tourism destinations. *Journal of Hospitality and Tourism Management, 50*, 400–411. https://doi.org/10.1016/j.jhtm.2022.01.003

Noruzi, A. (2005). *Hyperlinks and their roles in web information retrieval*. Webology. http://www.webology.org/abstract.php?id=192.

Ooghe-Tabanou, B., Jacomy, M., Girard, P., & Plique, G. (2018). Hyperlink is not dead. In E. Reyes, M. Bernstein, G. Ruffo, & I. Saleh (Eds.), *WS.2 2018: Proceedings of the 2nd international conference on web studies* (pp. 12–18). ACM. https://doi.org/10.1145/3240431.3240434.

Palmer, J. W., Bailey, J. P., & Faraj, S. (2000). The role of intermediaries in the development of trust on the WWW: The use and prominence of trusted third parties and privacy statements. *Journal of Computer-Mediated Communication, 5*(3). https://doi.org/10.1111/j.1083-6101.2000.tb00342.x

Park, H. W., Kim, C.-S., & Barnett, G. A. (2004). Socio-communicational structure among political actors on the Web in South Korea: The dynamics of digital presence in cyberspace. *New Media & Society, 6*(3), 403–423. https://doi.org/10.1177/1461444804042522

Park, H., & Stepchenkova, S. (2023). Invisible power of culture: Mapping tourist information flow of national DMO websites. *Journal of Travel Research, 62*(4), 753–767. https://doi.org/10.1177/00472875221095220

Park, H. W., & Thelwall, M. (2003). Hyperlink analyses of the world wide web: A review. *Journal of Computer-Mediated Communication, 8*(4). https://doi.org/10.1111/j.1083-6101.2003.tb00223.x

Paulino, I., Lozano, S., & Prats, L. (2021). Identifying tourism destinations from tourists' travel patterns. *Journal of Destination Marketing & Management, 19*. https://doi.org/10.1016/j.jdmm.2020.100508

Pearce, D. G. (2015). Destination management in New Zealand: Structures and functions. *Journal of Destination Marketing & Management, 4*(1), 1–12. https://doi.org/10.1016/j.jdmm.2014.12.001

Petti, C., & Ndou, V. (2004). Virtual networks in the tourism industry. In A. J. Frew (Ed.), *Information and communication technologies in tourism 2004* (pp. 446–457). Springer Vienna. https://doi.org/10.1007/978-3-7091-0594-8_42.

Pforr, C. (2006). Tourism policy in the making: An Australian network study. *Annals of Tourism Research, 33*(1), 87–108. https://doi.org/10.1016/j.annals.2005.04.004

Pforr, C., Pechlaner, H., Volgger, M., & Thompson, G. (2014). Overcoming the limits to change and adapting to future challenges: Governing the transformation of destination networks in Western Australia. *Journal of Travel Research, 53*(6), 760–777. https://doi.org/10.1177/0047287514538837

Piazzi, R., Baggio, R., Neidhardt, J., & Werthner, H. (2011). Destinations and the web: A network analysis view. *Information Technology & Tourism, 13*(3), 215–228. https://doi.org/10.3727/109830512X13283928066913

Piazzi, R., Baggio, R., Neidhardt, J., & Werthner, H. (2012). Network analysis of the Austrian eTourism web. In M. Fuchs, F. Ricci, & L. Cantoni (Eds.), *Information and communication technologies in tourism 2012* (pp. 356–367). Springer. https://doi.org/10.1007/978-3-7091-1142-0_31.

Pilny, A., & Shumate, M. (2012). Hyperlinks as extensions of offline instrumental collective action. *Information, Communication & Society, 15*(2), 260–286. https://doi.org/10.1080/1369118X.2011.606328

Provan, K. G., Fish, A., & Sydow, J. (2007). Interorganizational networks at the network level: A review of the empirical literature on whole networks. *Journal of Management, 33*(3), 479–516. https://doi.org/10.1177/0149206307302554

Raab, J. (2018). Interorganizational networks. In R. Alhajj, & J. Rokne (Eds.), *Encyclopedia of social network analysis and mining* (pp. 1136–1146). Springer New York. https://doi.org/10.1007/978-1-4939-7131-2_369.

Raisi, H., Baggio, R., Barratt-Pugh, L., & Willson, G. (2018). Hyperlink network analysis of a tourism destination. *Journal of Travel Research, 57*(5), 671–686. https://doi.org/10.1177/0047287517708256

Rogers, R., & Marres, N. (2000). Landscaping climate change: A mapping technique for understanding science and technology debates on the world wide web. *Public Understanding of Science, 9*(2), 141–163. https://doi.org/10.1088/0963-6625/9/2/304

Ruggieri, G., Iannolino, S., & Baggio, R. (2022). Tourism destination brokers: A network analytic approach. *Annals of Tourism Research, 97*, Article 103488. https://doi.org/10.1016/j.annals.2022.103488

Scott, J. (2017). *Social network analysis* (4th ed.). SAGE.

Shumate, M., Atouba, Y., Cooper, K. R., & Pilny, A. (2017). Interorganizational communication. In C. Scott, & L. Lewis (Eds.), *The international encyclopedia of organizational communication* (pp. 1–24). Wiley-Blackwell. https://doi.org/10.1002/9781118955567.WBIEOC117.

Smithson, S., Devece, C. A., & Lapiedra, R. (2011). Online visibility as a source of competitive advantage for small- and medium-sized tourism accommodation enterprises. *Service Industries Journal, 31*(10), 1573–1587. https://doi.org/10.1080/02642069.2010.485640

Valeri, M., & Baggio, R. (2021). Italian tourism intermediaries: A social network analysis exploration. *Current Issues in Tourism, 24*(9), 1270–1283. https://doi.org/10.1080/13683500.2020.1777950

Van Dijk, & van, J. A. G. M. (2012). *The network society* (3rd ed.). SAGE https://research.utwente.nl/en/publications/the-network-society-third-edition.

Wang, Z., Liu, Q., Xu, J., & Fujiki, Y. (2020). Evolution characteristics of the spatial network structure of tourism efficiency in China: A province-level analysis. *Journal of Destination Marketing & Management, 18*, Article 100509. https://doi.org/10.1016/j.jdmm.2020.100509

Wasserman, S., & Faust, K. (2019). *Social network analysis: Methods and applications (reprinted with corrections, 6th printing)*. Cambridge University Press.

Wellman, B. (2001). Computer networks as social networks. *Science, 293*(5537), 2031–2034.

Williams, A. M., & Baláž, V. (2021). Tourism and trust: Theoretical reflections. *Journal of Travel Research, 60*(8), 1619–1634. https://doi.org/10.1177/0047287520961177

Wu, J., Zhang, X., Zhu, Y., Liu, Z., Guo, Z., Fei, Z., Lai, R., Wu, Y., Cao, Z., & Dou, Z. (2022). *Pre-training for information retrieval: Are hyperlinks fully explored?*. arXiv: 2209.06583). arXiv http://arxiv.org/abs/2209.06583.

Ying, T., Norman, W. C., & Zhou, Y. (2016). Online networking in the tourism industry: A webometrics and hyperlink network analysis. *Journal of Travel Research, 55*(1), 16–33. https://doi.org/10.1177/0047287514532371

Zach, F. J., Xiang, Z., & Baggio, R. (2019). Analysing linkage between ICT and US state tourism websites. *E-Review of Tourism Research, 17*(3), 306–316.

van der Zee, E., & Vanneste, D. (2015). Tourism networks unravelled; a review of the literature on networks in tourism management studies. *Tourism Management Perspectives, 15*, 46–56. https://doi.org/10.1016/j.tmp.2015.03.006

Żemła, M. (2014). Inter-destination cooperation: Forms, facilitators and inhibitors – the case of Poland. *Journal of Destination Marketing & Management, 3*(4), 241–252. https://doi.org/10.1016/j.jdmm.2014.07.001

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