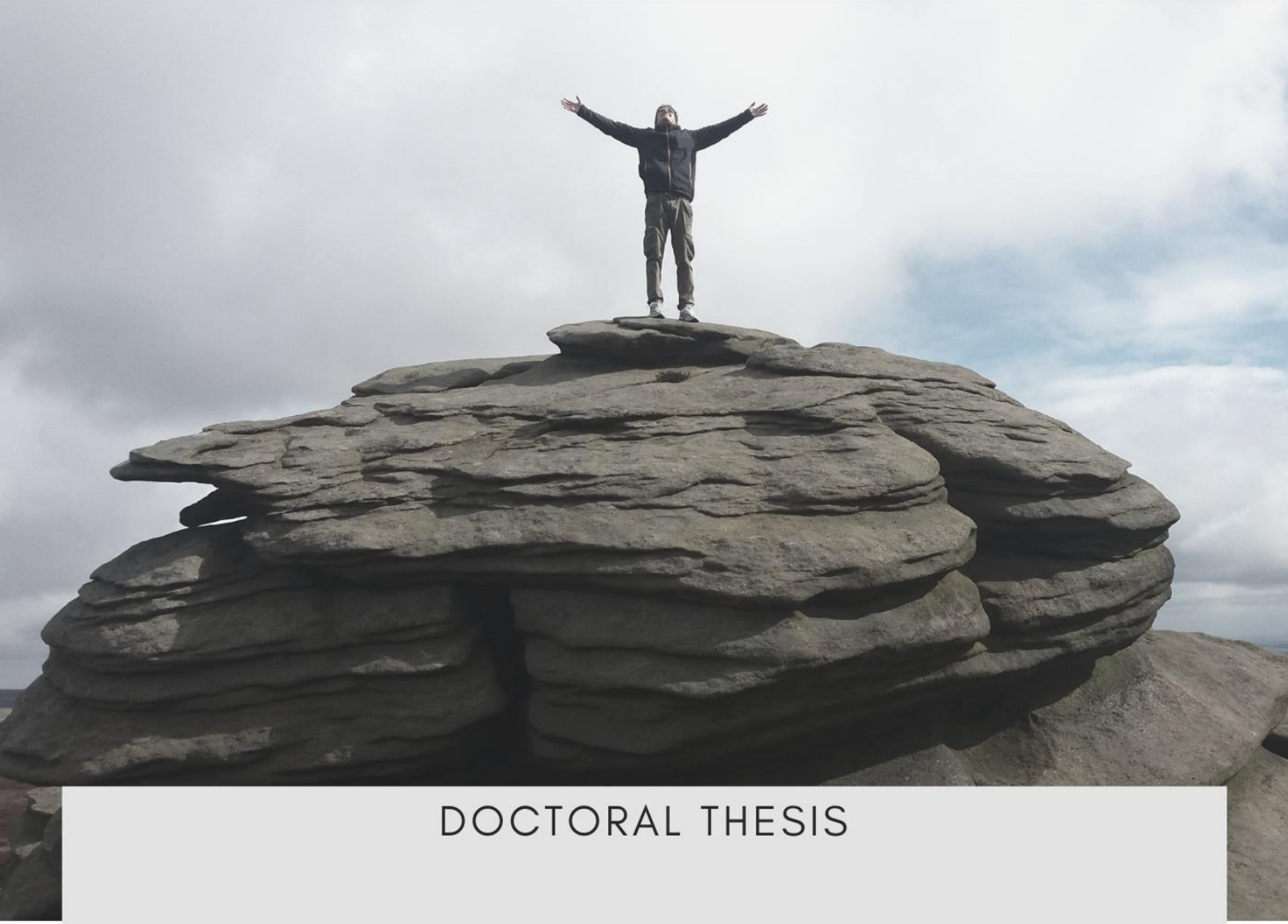
REDEFINING TOURISM DESTINATION BOUNDARIES FROM A CONSUMPTION-BASED PERSPECTIVE

Isabel Paulino Valldepérez



DOCTORAL THESIS

Redefining tourism destination boundaries from a consumption-based perspective

ISABEL PAULINO VALLDEPÉREZ

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Universitat de Girona

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DOCTORAL THESIS

REDEFINING TOURISM DESTINATION BOUNDARIES FROM A CONSUMPTION-BASED PERSPECTIVE

Compendium of publications

Isabel Paulino Valldepérez

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DOCTORAL PROGRAM IN TOURISM

Supervised by:

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Dr. Antonio Paolo Russo

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El Dr. Lluís Prats Palanagumà, de la Universitat de Girona i el Dr. Antonio Paolo Russo de la Universitat Rovira i Virgili,

DECLAREM:

Que el treball titulat 'Redefining tourism destination boundaries from a consumption-based perspective', que presenta Isabel Paulino Valldepérez per a l'obtenció del títol de doctora, ha estat realitzat sota la nostra direcció i que compleix els requisits per poder optar a Menció Internacional.

I, perquè així consti i tingui els efectes oportuns, signem aquest document.

Signatures:

Dr. Lluís Prats Planagumà

Dr. Antonio Paolo Russo

LIST OF PUBLICATIONS DERIVED FROM THE DOCTORAL THESIS

This doctoral thesis, entitled 'Redefining tourism destination boundaries from a consumption-based perspective', is a compendium of publications comprising three articles following the same research line. These publications have been previously accepted or sent to the respective journals and their quality indexes are indicated below.

Article 1: Published

Title: Tourist Hub Consumption Systems: Convenient Flexibility Versus Administrative Constraint

Authors: Paulino, I.; Prats, L.; Schofield, P.

Journal: Journal of Hospitality and Tourism Management

JCR (2018): Impact Factor: 2.496. Quartile: Q2 (Hospitality, Leisure, Sport and Tourism) (Ranking 17/52).

SCOPUS (2018): Impact Factor 0.821. Quartile: Q1 (Tourism, Leisure and Hospitality Management) (Ranking 25/103). H Index: 24.

Acceptance date: 25/09/2019

Article 2: Published

Title: Establishing influence areas of attractions in rural destinations

Authors: Paulino, I.; Prats, L.; Whalley, P.

Journal: Tourism Planning and development

SCOPUS (2018): Impact Factor: 0.511. Quartile: Q2 (Tourism, Leisure and Hospitality Management) (Ranking 47/103). H Index: 24.

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Article 3: Under review

Title: Identifying tourism destinations from tourists' travel patterns

Authors: Paulino, I.; Lozano, S. Prats, L.;

Journal: Journal of Destination Marketing & Management

JCR (2018): Impact Factor: 3800. Quartile: Q1 (Hospitality, Leisure, Sport and Tourism) (Ranking 7/52). SCOPUS (2018): Impact Factor: 1351. Quartile: Q1 (Business and International Management) (Ranking42/396). H Index: 24.

Submission date: 09/10/2019

OTHER PUBLICATIONS RELATED TO THE DOCTORAL THESIS

In addition to the journal publications, the research carried out provided the book chapters listed below:

Paulino, I. (2015). Redefining boundaries of tourism destinations: a consumer-based approach. In International Conference on Regional Science: Innovation and Geographical Spillovers: New Approaches and Evidence. XLI Reunión de Estudios Regionales – AECR. Reus, Spain. ISBN: 978-84-608-2855-6

Paulino, I.; Blasco, D.; Prats, L.; Russo, P. (2016). Methodological approach for tourism destination zoning based on the tourists' spatial behaviour. In *ATLAS Annual Conference 2016: Tourism, Lifestyles and Locations* (80-86). Canterbury, United Kingdom. ISBN: 978-90-75775-91-4

Paulino, I.; Lozano, S.; Prats, L. (2018). Identifying tourism destinations from customers' gaze In *ATLAS Annual Conference 2018 Destination Dynamics* (108-114). Copenhagen, Denmark. ISBN: 978-90-75775-99-0

LIST OF CONFERENCES, COLLOQUIUMS AND WORKSHOPS

Besides the preceding publications, the research carried out provided other outcomes presented in the various conferences, colloquiums and workshops listed below.

International PhD colloquiums and workshops

5th SHU-UdG Tourism PhD Research Colloquium (2015), collaboration between the University of Girona and the Sheffield Hallam University. Lecture 'Redefining boundaries in tourism destinations: A consumer-based approach', 15th – 16th May 2015 (Girona, Spain).

6th SHU-UdG Tourism PhD Research Colloquium (2016), collaboration between the University of Girona and the Sheffield Hallam University. Lecture 'Tourism destination zoning: a methodological approach from tourists' perspective', 5h – 6th June 2016 (Sheffield, United Kingdom).

PhD Workshop 'Are you lost in your PhD?' held at the University of Aveiro. Presentation titled 'Methodological approach for redefining tourism destinations based on the tourists' travel patterns', 16th May 2017 (Aveiro, Portugal).

International research conferences, symposiums and workshops

Atlas Annual Conference 2016 'Tourism, Lifestyles and Locations', held at the University of Canterbury Christ Church. Presentation titled 'Methodological approach for tourism destination zoning based on the tourists' spatial behavior', 14th – 15th September 2015 (Canterbury, United Kingdom).

2nd TouRNet Symposium 2017 held at the University of Lincoln. Presentation titled 'Methodological approach for redefining tourism destinations based on the tourists' travel patterns', (Lincoln, United Kingdom)

International Workshop: ATLAS Special Interest Group: Space, Place and Mobilities in Tourism 'Mobilities and and bodies at play'. Presentation titled 'Rethinking tourism destinations from tourists' perspective: Hub-and-spoke in Natural Parks', 17th – 18th October 2017 (Vila-seca, Spain).

Atlas Annual Conference 2018 'Destination Dynamics', held at the Aalborg University. Presentation titled 'Identifying tourism destinations from customers' gaze', 26th – 29th September 2018 (Copenhagen, Denmark).

RESEARCH STAY

During the period of this thesis the following research stays were made:

Sheffield Hallam University (United Kingdom)

Institute/Department: Sheffield Business School, Department of Service Sector Management

Supervisors during the research stay: Professors Peter Whalley and Peter Schofield

Stay: 4 months from the 12th of January to the 13th of May of 2017 (122 days)

Scholarship: Erasmus+ KA103 2016

Universitat Rovira i Virgili (Spain)

Institute/Department: Faculty of Tourism and Geography, Department of Geography

Supervisors during the research stay: Professors Jose Ignacio Muro Morales and Antonio Paolo Russo

Stay: 3,5 months from the 6th of September to the 21st of October of 2017 and from the 5th of March to the 2nd of April of 2018 (106 days)

Scholarship: Drac, Xarxa Vives d'universitats

Acknowledgments

I cannot remember the exact moment when I decided to do a Doctoral thesis, but I am sure it was after enrolling on the doctorate program. Taking the decision was a long process of asking people for their advice and opinions. I finally enrolled on the doctoral program, still with a lot of doubts, but at the same excited about having the opportunity to contribute to the knowledge in the academic world. Until doing so, no one can imagine the enormous intellectual and emotional effort involved in writing a doctoral thesis, or the the constant challenges that must be overcome along the way. I would therefore like to express my gratitude to you, the reader. The effort behind my research would make no sense without an interested reader. The passion I have for this topic has led me to continue researching it until the end, and is a great satisfaction to know that others will benefit from my effort.

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ABSTRACT

Tourism destinations are generally planned and managed following the administrative boundaries of the corresponding territorial administration. However, the literature has pointed out that administrative boundaries are not the most effective framework with which to manage and plan a tourism destination. These political boundaries may artificially divide the natural destination, and as a result, tourism development in the area may be hindered. A destination is acknowledged as being a geographical area to which tourists travel to visit attractions; therefore, in order to effectively plan and manage a destination the consumers' perspective should be taken into consideration.

Previous studies have started to critically examine the traditional way tourism destination boundaries are defined, either by proposing theoretic clusters based on proximity of attractions, or by studying tourists' flows. However, studies which redefine tourism destination boundaries based on how tourists consume destinations considering their entire stay at the destination are still lacking.

The present dissertation endorses the critical viewpoint on tourism destinations defined along administrative lines. It highlights the need to abandon the concept that destinations are integral and continuous zones which are only distinguished by their administrative limits. The dissertation centres on the functionality of destinations from the demand-side; thus advocating a more flexible model of destinations which takes into account the way tourists geographically consume a destination, and consequetly, enabling it to adapt to tourists' preferences and improve its planning and management.

The main aim of this study is to redefine tourism destinations on the basis of travel patterns within-a-destination. Indeed, the main difference between this study and previous studies is the focus on travel patterns within-a-destination, without considering direct flows. This thesis first uncovers the relationship between the two essential elements of a tourism destination (accommodation

and attractions), by investigating travel patterns within-a-destination; as well as the factors which influence these patterns. Secondly, the study reveals how tourists geographically consume a destination as a whole throughout the duration of their stay.

The first step was to develop an understanding of tourists' travel patterns within a destination as a network of consumed attractions and services within a destination. Taking these patterns into consideration, the methodology consisted of collecting data on travel patterns in three European rural destinations using direct tourist surveys, and then reproducing these networks. Network analysis methodology together with GIS technologies was then used to analyse the data collected.

This method revealed the territoriality of travel patterns in the area surrounding accommodation hubs and attractions. It shows a system comprising a range of tourism attractions that tourists visit from each accommodation hub, and a range of hosting points linked to particular attractions. The method was also able to detect the consumption-based destination, which consisted of a network of attractions that tourists often visit during their whole stay in the area. Subsequently, the factors influencing the main travel patterns, and which ultimately determine the shape and size of the consumption-based destination, were explored.

The graphical representation of travel patterns within-a-destination shows that tourists frequently cross administrative boundaries, and destinations overlap in both systems: a) around the accommodation and attraction; and b) in the attraction networks. Results demonstrate the relevance of the spatial relationship between the attractions themselves, and between attractions and accommodation, leading to a tendency to follow convenient travel patterns.

This thesis contributes to the understanding of how destinations are geographically consumed, and offers empirical evidence for a new method based on tourists' travel patterns which is able to redefine destination boundaries. From a consumer-based perspective, the first positive implication of redefining

tourism destinations is to better adapt the destination to tourists' preferences in order to facilitate tourist flows and consumption. Making the concept of destination more flexible by basing it on systems and subsystems, means the destination can be understood as a whole, as well as from the perspective of specific attractions or accommodation hubs. This helps detect potential opportunities and motivate collaboration between stakeholders.

In summary, this thesis contributes to improving destination planning and management by adapting tourism destinations to consumer needs. Furthermore, it provides tourism actors with information on how tourists consume a destination, thus contributing to opening market opportunities for stakeholders.

Future research should focus on the governance of destination systems and subsystems.

RESUM

Les destinacions turístiques es planifiquen i gestionen habitualment seguint els límits administratius de l'administració territorial corresponent. Tot i això, la literatura ha assenyalat que les fronteres administratives no són el marc més eficaç per gestionar i planificar una destinació turística. Les fronteres polítiques poden dividir artificialment la destinació natural i poden significar un obstacle en el desenvolupament turístic de la zona. La perspectiva dels consumidors ha de ser considerada per tal de planificar i gestionar de manera eficaç una destinació, donat que les destinacions són considerades una zona geogràfica cap a la qual els turistes viatgen per visitar atractius.

Estudis anteriors han començat a examinar críticament la manera tradicional de definir les destinacions turístiques, bé sigui proposant agrupacions teòriques d'atractius basades en la proximitat, o bé estudiant els fluxos directes dels turistes. Malgrat això, encara no hi ha estudis que redefineixin les destinacions turístiques en funció de com els turistes consumeixen geogràficament les destinacions tenint en compte tota la seva estada a la destinació.

La present tesi secunda aquest punt de vista crític sobre les destinacions turístiques definides en base administrativa. A més a més, destaca la necessitat d'abandonar el seu enfocament en destinacions com a zones integrals i contínues definides en base administrativa i distingides només pels seus límits administratius. Per tant, aquest estudi, es centra en la funcionalitat de les destinacions des de la perspectiva de la demanda. Així, aquesta tesi doctoral defensa un model de destinacions més flexible que tingui en compte la forma en què els turistes consumeixen una destinació per tal d'adaptar-se a les preferències dels turistes i millorar la seva planificació i gestió.

L'objectiu principal d'aquest estudi és, redefinir els límits de les destinacions turístiques a partir dels patrons de viatge dins de les destinacions. En realitat, la diferència principal entre aquest estudi i els anteriors és el fet d'enfocar-se en

patrons de viatge dins d'una destinació i no només en fluxes directes. En primer lloc, aquesta tesi se centra a revelar la relació entre els dos elements essencials d'una destinació turística (l'allotjament i els atractius), basada en patrons de viatge dins d'una destinació; així com els factors que influeixen en aquests patrons. En segon lloc, aquest estudi se centra en revelar com els turistes consumeixen la destinació en el seu conjunt durant la durada de la seva estada.

Primerament, l'autora ha desenvolupat una comprensió dels patrons de viatge dels turistes dins d'una destinació com una xarxa d'atractius i serveis consumits en base geogràfica. Prenent aquests patrons en consideració, la metodologia consisteix en una reproducció d'aquestes xarxes després de capturar dades de patrons de viatge. Tècnicament, s'utilitza la metodologia d'anàlisi de xarxes en combinació amb tecnologies SIG, per analitzar dades de tres destinacions rurals europees diferents recollides a través d'enquestes directes als turistes.

Seguidament el mètode permet descobrir la territorialitat dels patrons de viatge al voltant del nuclis d'allotjament i al voltant d'atractius. Mostra els sistemes formats per una gamma d'atractius turístics que els turistes visiten des de cada centre d'allotjament i, també, una gamma de punts d'allotjament vinculats a atractius particulars. En segon lloc, el mètode és capaç de detectar la destinació basada en el consum geogràfic, format per una xarxa d'atractius que els turistes solen visitar conjuntament durant la seva estada complerta a la zona. Posteriorment, l'estudi explora els factors que influeixen en els principals patrons de viatge, els quals determinen definitivament la forma i la mida de la destinació basada en el consum geogràfic.

La representació gràfica dels patrons de viatge dins d'una destinació revela que, els turistes traspassen els límits administratius i les destinacions es solapen en ambdós sistemes, a) tant en el dels centres d'allotjament i dels atractius, com b) en el cas de la xarxa d'atractius. Els resultats demostren la rellevància de la relació espacial de entre els propis atractius i entre els atractius i l'allotjament, donant lloc a una tendència als patrons de viatge de proximitat.

Aquesta tesi contribueix a la comprensió de com es consumeixen les destinacions i ofereix evidència empírica d'un nou mètode capaç de redefinir els límits de les destinacions basant-se en els patrons de viatge dels turistes. La primera implicació positiva de la redefinició de la destinació turística des d'una perspectiva basada en el consum és, sens dubte, adaptar millor les destinacions a les preferències dels turistes, per tal de facilitar els fluxos i el consum turístic. La flexibilització del concepte de destinació, basat en sistemes i subsistemes, permet la comprensió, tant en el seu conjunt, com des del punt de vista d'atractius específics o hubs d'allotjament. Això, ajuda en la detecció de potencialitats i motiva per a la col·laboració entre els grups d'interès de la destinació.

En conjunt, aquesta tesi contribueix a la millora de la planificació i la gestió de la destinació mitjançant l'adaptació de les destinacions turístiques a les necessitats del consumidor. A més a més, proporciona informació als actors turístics en relació a com els turistes consumeixen geogràficament la destinació que, alhora, contribuiran a buscar oportunitats de mercat entre les parts interessades.

Les futures investigacions haurien de centrar-se en la governança dels sistemes i subsistemes de les destinacions.

RESUMEN

Los destinos turísticos se planifican y gestionan habitualmente siguiendo los límites administrativos de la administración territorial correspondiente. Sin embargo, la literatura ha señalado que las fronteras administrativas no son el marco más eficaz para gestionar y planificar un destino turístico. Las fronteras políticas pueden dividir artificialmente el destino natural y pueden significar un obstáculo en el desarrollo turístico de la zona. La perspectiva de los consumidores debe ser considerada para planificar y gestionar de manera efectiva un destino, dado que los destinos son considerados una zona geográfica hacia la que los turistas viajan para visitar atractivos

Estudios anteriores han comenzado a examinar críticamente la manera tradicional de definir los destinos turísticos, bien sea proponiendo agrupaciones teóricas de atractivos basadas en la proximidad, o bien estudiando los flujos directos de los turistas. Sin embargo, todavía no hay estudios que redefinan los destinos turísticos en función de cómo los turistas consumen geogràficamente los destinos teniendo en cuenta toda su estancia en el destino.

La presente tesis secunda este punto de vista crítico sobre los destinos turísticos definidos en base administrativa. Además, destaca la necesidad de abandonar su enfoque en destinos como zonas integrales y continuas definidas en base administrativa y distinguidas sólo por sus límites administrativos. Por tanto, este estudio, se centra en la funcionalidad de los destinos desde la perspectiva de la demanda. Así, esta tesis defiende un modelo de destinos más flexible que tenga en cuenta la forma en que los turistas consumen un destino para adaptarse a las preferencias de los turistas y mejorar su planificación y gestión.

El objetivo principal de este estudio es, redefinir los límites de los destinos turísticos a partir de los patrones de viaje dentro de los destinos. A decir verdad, la diferencia principal entre este estudio y los anteriores es el hecho de enfocarse en patrones de viaje dentro de un destino y no sólo en flujos directos.

En primer lugar, esta tesis se centra en revelar la relación entre los dos elementos esenciales de un destino turístico (el alojamiento y los atractivos), basada en patrones de viaje dentro de un destino; así como los factores que influyen en estos patrones. En segundo lugar, este estudio se centra en revelar cómo los turistas consumen geográficamente el destino en su conjunto durante la duración de su estancia.

Primeramente, la autora ha desarrollado una comprensión de los patrones de viaje de los turistas dentro de un destino como una red de atractivos y servicios consumidos. Tomando estos patrones en consideración, la metodología consiste en una reproducción de estas redes tras capturar datos de patrones de viaje. Técnicamente, se utiliza la metodología de análisis de redes en combinación con tecnologías SIG, para analizar datos de tres destinos rurales europeos diferentes recogidos a través de encuestas directas a los turistas.

Seguidamente el método permite descubrir la territorialidad de los patrones de viaje alrededor de los núcleos de alojamiento y alrededor de atractivos. Muestra los sistemas formados por una gama de atractivos turísticos que los turistas visitan desde cada núcleo de alojamiento y, también, una gama de puntos de alojamiento vinculados a atractivos particulares. En segundo lugar, el método es capaz de detectar el destino basado en el consumo geográfico, formado por una red de atractivos que los turistas suelen visitar conjuntamente durante su estancia completa en la zona. Posteriormente, el estudio explora los factores que influyen en los principales patrones de viaje, los cuales determinan definitivamente la forma y el tamaño de destino basado en el consumo.

La representación gráfica de los patrones de viaje dentro de un destino revela que, los turistas traspasan los límites administrativos y los destinos se solapan en ambos sistemas, a) tanto en el de los hubs de alojamiento y de los atractivos, como b) en el caso de la red de atractivos. Los resultados demuestran la relevancia de la relación espacial de entre los propios atractivos y entre los atractivos y el alojamiento, dando lugar a una tendencia a los patrones de viaje de proximidad.

Esta tesis contribuye a la comprensión de cómo se consumen geográficamente los destinos y ofrece evidencia empírica de un nuevo método capaz de redefinir los límites de los destinos basándose en los patrones de viaje de los turistas. La primera implicación positiva de la redefinición del destino turístico desde una perspectiva basada en el consumo es, sin duda, adaptar mejor los destinos a las preferencias de los turistas, con el fin de facilitar los flujos y el consumo turístico. La flexibilización del concepto de destino, basado en sistemas y subsistemas, permite la comprensión, tanto en su conjunto, como desde el punto de vista de atractivos específicos o núcleos de alojamiento. Esto, ayuda en la detección de potencialidades y motiva a la colaboración entre los grupos de interés. En conjunto, esta tesis contribuye a la mejora de la planificación y la gestión del destino mediante la adaptación de los destinos turísticos a las necesidades del consumidor y proporcionando a los actores turísticos información sobre cómo los turistas consumen geográficamente el destino que, al mismo tiempo, contribuirán a buscar oportunidades de mercado entre las partes interesadas del destino.

La investigación futura debería centrarse en la gobernanza de los sistemas y subsistemas de los destinos.

Introduction

Social scientists have widely addressed the topic of borders and their effect on the economic and sociological aspects of human experience. Tourism and political boundaries has been a subject of special interest during the 1970s and again in the 2000s (Porcaro, 2017). An existing body of literature on cross-boundary areas reveals the undervalued possibilities of adjacent tourism areas on either side of the borderline, which effectively acts as a barrier to further tourism development (Blasco, Guia, & Prats, 2014; Ioannides, Nielsen, & Billing, 2006; Matznetter, 1979). In fact, destinations may be artificially divided and this can hinder the natural development of tourism in an area to a greater or lesser extent. When destination areas transcend political boundaries, individual neighbouring tourism actors may suffer a lack of co-development initiatives and inconsistencies in terms of tourism regulations, policies and promotion, because they belong to different administrative systems (Gunn, 1993; Ioannides et al., 2006; Kang, Kim, & Nicholls, 2014; Lovelock & Boyd, 2006; Yang, 2018)

Furthermore, most research surrounding this issue tends to focus on international borders, and fails to take sub-national and local administrative boundaries into consideration. Timothy (2002) maintains that international borders are the most significant influence exercised on human experience. However, he also noted the significant effect sub-national boundaries and local civil divisions can also exerd. In fact, international borders in many parts of the world have substantially increased their degree of permeability by allowing tourists freedom of movement. In contrast, sub-national and local boundaries hold more areas of jurisdiction regarding policies and regulations which affect the tourism phenomenon. Moreover, as tourism shares geographical spaces with other community interests, local and regional public administrations normally lead tourism destination planning and management (Saraniemi & Kylänen, 2011). Therefore, most tourism destinations are, in practice, defined on the basis of

regional or local administrative boundaries for the managerial convenience of public administration.

Regional and local tourism destinations are generally accepted as an appropriate unit of analysis (Haywood, 1986) However, researchers and practitioners from various tourism disciplines continue to debate the concept of tourism destinations and their geographical boundaries. A number of authors have reviewed the concept of a tourism destination from classical authors to the most recent times and have been able to identify several approaches to destinations, the most relevant of which are outlined below (Framke, 2002; Jovicic, 2019; Saraniemi & Kylänen, 2011).

In the 1970s, the classical approach defined a tourism destination as a geographical unit that needed to meet certain criteria such as having tourism attractions, accommodation, and transport facilities in order to be considered a destination. This approach regarded tourists as mere consumers, overlooking their potential role in leading changes in destination structure (Framke, 2002; Jovicic, 2019).

During the mid-1990s, researchers began take a systemic perspective (Jovicic, 2019) of tourism destinations (Jovicic, 2019). In contrast to the geographical unit, the sociologists Edensor (2009) and Liburd (2002) put the tourist at the centre of tourism experience, refering to the concept of destination as a construction of the tourism space. Here, a tourism space is a place for consumption, and a destination become dubious as a spatial concept.

Later, marketing-oriented perspectives viewed destinations as agglomerations of separate components and products designed to meet the needs of tourists (Gunn, 1993). This view purports that destinations can be interpreted subjectively by consumers depending on their travel itinerary, cultural and educational background, purpose of visit, and past experiences (Buhalis, 2000).

Finally, in customer-oriented research, the concept of destination is reduced solely to a service environment which facilitates the tourism experience, and

only refers to the physical environment surrounding a service encounter in a tourism destination or an attraction (Saraniemi & Kylänen, 2011).

Despite multiple contributions from various perspectives, the literature fails to find a consensus on the geographical boundaries of destinations, or their content (Framke, 2002). However, from a holistic perspective, these multiple approaches prove that destinations are spaces in which a complex interaction takes place between different stakeholders (public or private), the local population and tourists in the co-creation and consumption of experiences (Saraniemi & Kylänen, 2011). Thus, most definitions of a tourism destination fail to consider this complexity, tending to offer only a partial vision the destination.

Leiper's basic definition of a tourism destination is one of the most widely accepted due to its simplicity and extensiveness; this dissertation, acknowledges tourism destinations as 'a geographical area to which tourists travel to visit attractions' (Leiper, 1995). Lew & McKercher (2006, p. 405) specify more, and define a 'local destination' as 'the area containing products and activities that could normally be consumed in a daytrip from the heart of the destination'. These definitions focus on the tourist's perspective of the destinations, for being the final consumers of the destinations.

Due to the important role tourists play in the process of defining a tourism destination, this thesis focuses on the tourists' viewpoint. Thus, it's focal point is the understanding that destinations are functional and convenient areas in terms of tourist mobility, and for the consumption of attractions and services.

The complexity of the tourism destination concept has compelled most studies on tourism destinations to take the existing boundaries of destinations for granted, without considering other alternatives. However, a growing number of studies advocate the obsolescence of administrative-based DMOs. These studies disapprove the traditional concept of DMO, which meshes everything an area contains into one single, static brand that is only distinguished by its borderlines, arguing that administrative-based destinations fail to take tourists preferences or the tourism industry functions into account (Beritelli, Bieger, & Laesser, 2014;

Beritelli, Reinhold, Laesser, & Bieger, 2015; Buhalis, 2000; Saarinen, 2004). Many authors recognize the critical role tourists play in the process of defining a tourism destination by, promoting the activation and deactivation of places through their flows, and contributing to the shape, dimension, and structure of the destination (Asero, Gozzo, & Tomaselli, 2015; Baggio & Scaglione, 2017; Hong, Ma, & Huan, 2015). Therefore, they argue that destination managers should recognize how tourists consume a destination in order to adapt it to consumers' needs and improve how it is planned and managed (Beritelli et al., 2014; Blasco et al., 2014; Dredge, 1999; Paulino & Prats, 2013).

For some time, authors like Gunn (1993) and Dredge (1999) have been pointing out that tourists do not necessarily restrict their visits within the administrative boundaries of a destination, and that a symbiosis between an attraction and its surrounding attractions and services exists which is generated by tourist consumption. Thus, administrative boundaries may not be the best spatial configuration to boost tourist flows. However, increasingly, tourism mobility patterns have been exponentially growing. They have become more complex and are providing a growing body of evidence to prove that a destination model based on administrative boundaries is severely outdated. Administrative boundaries are progressively permeable for tourists', yet continue to be strict regarding planning and management. Thus, previously unsolved debates on the definition of tourism destination boundaries need to be revisited, and its planning modeled (Framke, 2002; Getz, 1986), in order to ascertain the most appropriate geographical attachment of destinations for effective tourism planning and management.

Previous literature has widely explored tourists travel patterns (Lue, Crompton, & Fesenmaier, 1993; Mckercher & Lew, 2004; Shoval & Ahas, 2017; Vu, Li, Law, & Ye, 2015) and the push and pull factors influencing trips within a destination (Chhetri & Arrowsmith, 2008; Lau & McKercher, 2006; Lew & McKercher, 2006; Mckercher & Lau, 2008). Some authors have even explored tourists' direct flows and 'activated paths', offering a critical viewpoint as to how the destinations are currently being managed (Baggio & Scaglione, 2017; Kang, Lee, Kim, & Park, 2018;

Shih, 2006; Smallwood, Beckley, & Moore, 2012). However, none have ventured into the topic of reframing tourism destinations taking travel patterns within a destination during the entire stay at the destination into account. Other researchers have attempted to redefine tourism destinations bearing the functionality criteria in mind (Blasco et al., 2014; Paulino & Prats, 2013). However, this theoretical approach fails to reflect the complexity of travel patterns; thus, the destinations suggested may not coincide with those that are geographically consumed.

This doctoral thesis adopts a different stance, and explores travel patterns within a destination in order to define the destination from the perspective of the tourist. Ultimately, it is the tourist who consumes a destination; therefore, this study aims to rethink tourism destinations and redefine them according to tourist functionality. The main aim is to understand how tourists geographically consume a destination geographically from their arrival to their departure, and not simply understand tourist direct flows as a means to redefining tourism destination boundaries.

Empirical analysis was carried out in three European rural destinations where tourists have a high degree of freedom to organize their own trips, and are heavily dependent on their own car to travel around (Connell & Page, 2008; Smallwood et al., 2012): 1) a Mediterranean coastal Natural Park, 2) a Mediterranean mountain Natural Park and 3) and a British upland National Park. Thus, this thesis contributes to the literature by filling the gap outlined previously, and is especially extrapolable to similar rural tourism destinations.

Data from visitation patterns within a destination were collected in order to understand how tourists consume destinations and which factors affect their territorial patterns. Data collection consisted of visitor questionnaire surveys at the main accommodation hubs and attractions. The data was analysed using a network analysis program and then represented in graphs, tables, charts and maps.

The travel patterns within a destination were analysed and presented in three chapters of the thesis. These correspond to three articles published in three different journals. The first two publications aim to understand the relationship, due to the territoriality of travel patterns, among the two main elements of the destination: accommodation hubs and attractions; whereas the third article is focused on the network of attractions visited.

Specifically, the first publication examines the role of accommodation hubs, as their particular location in relation to attractions heavily determines how a destination is geographically consumed. The service sector, and accommodation in particular, is an essential element of a tourism destination, and without which, the destination cannot be developed (Chhetri & Arrowsmith, 2008; Kušen, 2010; Leiper, 1990; Lew & McKercher, 2006; Mckercher & Lau, 2008). Travel patterns in rural destinations are less predictable as both attractions and the service industry are more dispersed compared to urban or resort destinations (Connell & Page, 2008). Existing literature points to 'base-camp' or 'hub-and-spoke' as the most frequent travel pattern in these types of destinations, where accommodation hubs are considered a central element of the tourism destination from which tourist do side trips to proximal attractions (Lue et al., 1993). Thus, to a large extent, the way in which a destination is consumed can be explained by analysing visitation patterns to attractions and the frequency with which they are connected to accommodation hubs. The push and pull factors which influence how far a tourist ventures from their accommodation were subsequently explored in order to find the main factors influencing territoriality in travel patterns.

Similar to this, the second publication examines the spatial relationship between accommodation hubs and attractions according to travel patterns, this time focusing on attractions. This chapter is based on the essential role of attractions, which are considered the main decisive reason for visiting a destination and the elements around which tourism develops (Kušen, 2010; Leiper, 1990). Despite their centrality, tourism attractions are part of a complex tourism network which requires the support of tourism industry services for tourists' use (Leask, 2008;

Swarbrooke & Page, 2002). Gunn (1993) already recognized the centrality of attractions (nucleus), but also included necessary neighbouring support services and facilities. Inspired by the attractions model developed by Gunn, this publication explores the attractions catchment area with regard to accommodation, as it is an essential element of the tourism support service. Thus, the analysis is based on the range of flows that an attraction is able to generate from neighbouring accommodation points, potentially extending their influence area beyond administrative boundaries. Furthermore, this publication centres on understanding the factors which influence the relationship between attractions and accommodation points regarding territoriality patterns within a destination.

The third publication focuses on developing a method to define tourism destinations, and takes into account the most frequent travel patterns within a destination. Multi-destination trips are especially common in touring destinations such as rural areas. Here, individual attractions depend heavily on each other, forming a cumulative effect that is greater than the sum of its parts (Connell & Page, 2008; Lue et al., 1993). Hense, this chapter examines attractions frequently visited together during the same stay at a destination to find out latent destinations formed by a network of attractions. Subsequently, accommodation hubs have been added to the layout in order to determine if the latent destinations can be operatives for disposing a central accommodation, following base-camp travel patterns (Lue et al., 1993).

All three publications explore overlapping areas, rejecting the concept of a tourism destination being a rigid unit in a delimited geographical area (Beritelli et al., 2014, 2015; Dredge, 1999), and viewing a destination as a complex network of systems and subsystems connected by frequent travel patterns.

The results of these three publications shed light on significant discrepancies between official destinations defined by political boundaries, and those defined by tourist visitation patterns. Each study demonstrates that the present approach to destination planning and management, which is based on

administrative boundaries, is suboptimal. This thesis adds empirical evidence that tourists are convenience-oriented, and that time-distance and communication networks, together with the indispensable attractiveness of attractions and accommodation offers, constitute the main factors influencing travel patterns within a destination. The main contribution of this thesis is, therefore to offer a deeper understanding of how tourists consume a destination, and propose a method to redefine tourism destinations, taking travel patterns within a destination into account. The focus is firstly on the territorial relationship of the two main elements of the destination (the accommodation hubs and the attractions), and secondly, on the network relationship between the attractions themselves.

A fundamental aspect of this research is to be faithful to how tourists geographically consume a destination. Secondary travel patterns, as well as the geographical proximity of the main elements of the destination (attractions and accommodation points), produce thousands of different travel patterns which overlap geographically. Although, the analysis tends to focus on predominant travel patterns with the aim of detecting latent consumption-based destinations, in order to be faithful to geographical consumption patterns, overlapping areas between destination systems have also been considered. Results from the analysis of travel patterns from hub consumption systems, attraction influence areas, and attraction networks invariably point to a certain degree of overlapping in all three case studies. In light of these considerations, the three publications suggest that overlapping areas need to be explored, considering that each tourism actor can be part of more than one system.

Summing up, this doctoral thesis contributes to re-defining destinations from a consumption-based perspective in order to facilitate more effective tourism destination planning and management and promote tourism consumption, as well as offer better opportunities for tourism stakeholders. Future research should continue discussing the definition of consumer-based tourism destinations in order to provide a method for implementing successful

governance, taking the various subsystems and the overlapping areas of consumption-based destinations into account.

The chapters of this doctoral thesis are organized in the following way. The next section presents the overall objectives of the doctoral thesis and the aim of this publication. This is followed by three chapters corresponding to the three journal publications encompassed in this study under the topic 'Redefining tourism destination boundaries from a consumption-based perspective'. Lastly, the general conclusions detail the general outcome, the main contributions of this doctoral thesis and its limitations, as well as future lines of research.

OBJECTIVES OF THE DOCTORAL THESIS

This section outlines the research question and the general objectives of this doctoral thesis, as well as the specific research objectives of each of the publications contained in this compendium.

This thesis is titled 'Redefining tourism destination boundaries from a consumption-based perspective' and the research question is as follows:

Given that destination planning and management based on administrative boundaries is presently inefficient, would destination management and planning improve if they were defined on the basis of consumption?

To achieve the ultimate purpose of redefining tourism destinations from the perspective of consumption, a series of general objectives are set:

- Propose a method capable of revealing consumption-based destinations, and which can be replicated in other similar destinations
- Identify destinations according to tourists' consumption patterns
- Compare administrative based destinations with consumption-based ones in order to detect differences and missing opportunities
- Deepen knowledge of main factors hindering or fostering tourists' travel patterns in nature and rural-based destinations, and which determine the definition of consumption-based tourism destinations in contrast to administrative-based destinations

This dissertation is a research process comprising a compendium of three publications. As such, the research has been developed in three different articles, each responding to its own research questions and aimed at accomplishing specific objectives. Thus, each of the three journal publications focuses on a specific research area, and as a whole, contributes to achieving the general objectives of this doctoral thesis by answering the thesis research question. The specific research objectives are indicated below, together with a summary of each journal article.

The first journal article, entitled 'Tourist Hub Consumption Systems: Convenient Flexibility Versus Administrative Constraint', focuses on the territoriality of tourists' travel patterns between accommodation hubs and attractions. In the literature, very few studies address the topic of territoriality of tourist flows in the area surrounding accommodation, and those that do, deal with an urban or sun-and-beach context (Shoval et al., 2011; Smallwood et al., 2012). Moreover, they focus on territoriality patterns, without considering they could be used as a tool to redefine destinations. Thus, the aim of this journal article is to rethink tourism destinations by fulfilling these main objectives:

- To examine how tourism destinations defined by visitation patterns from accommodation hubs differ from destinations defined by administrative boundaries
- To determine the key factors which should inform the design and management of hub consumption systems in relation to tourism visitation patterns

The second article, entitled 'Establishing influence areas of attractions in rural destinations', sheds light on the relationship between attractions and accommodation points, with the focus on attractions. Although the existing literature widely discusses attractions and their relationships with other elements of a destination, no previous literature explores the influence area of attractions regarding the territoriality of travel patterns from accommodation points. Therefore, this article contributes to identifying the accommodation influence area of each attraction based on visitation patterns. Furthermore, this publication explores the factors explaining the territoriality of tourist flows, and the particular visitation patterns which differ between influence areas of attractions. The main objectives of this second journal article, which contribute to the general aim of redefining tourism destinations from a consumption-based perspective, are listed below:

- To identify the influence area of individual attractions regarding visitation patterns between accommodation points and attractions

- To determine common territoriality patterns in the relationship between accommodation points and attractions, and to examine the factors which generate differences between attraction influence areas
- To examine neighbouring influence areas of attractions which share accommodation points to discover potential opportunities

Previous articles offer only a partial picture of a destination, as the focus is set on one of the essential elements of the destination: either attractions or accommodation. The first two articles in this thesis represent a valuable information source in order to understand the territoriality of travel patterns and the factors affecting them. On the other hand, the third article, titled 'Identifying tourism destinations from tourists' travel patterns', focuses on redefining tourism destinations without a fixed element, and analyses the visitation patterns of tourists while they are staying at a destination. This article proposes a method for defining coherent functional areas for tourist use based on the network of attractions frequently visited during a tourist's stay at a destination. Previous literature has already attempted to fill this gap (Beritelli et al., 2015; Baggio & Scaglione, Shih, 2006; Smallwood, et al., 2012; Kang, Lee, Kim, & Park, 2018); however, they have only focused on direct flows without considering the whole tourism experience during the stay at the destination. In addition, this article, explores a method for detecting overlapping destinations by following secondary travel patterns. Accordingly, the specific objectives of this journal article are as follows:

- To implement a method which can identify tourism destinations by taking travel patterns within a destination into account, and comparing them with the present administrative-based destinations.
- To detect overlapping destinations by exploring the elements of a destination which are significantly affected to a great extent by secondary travel patterns, thus considering these elements to belong to more than one destination.

Together, the three journal articles contribute to the existing body of literature by offering a critical point of view to the administrative-based destinations, and by providing the demand-side perspective of destinations. The significant differences between administrative-based and consumption-based destinations denotes that present destinations and their stakeholders are missing the opportunity to better plan and manage tourism, as they are not considering how tourists really geographically consume destinations.

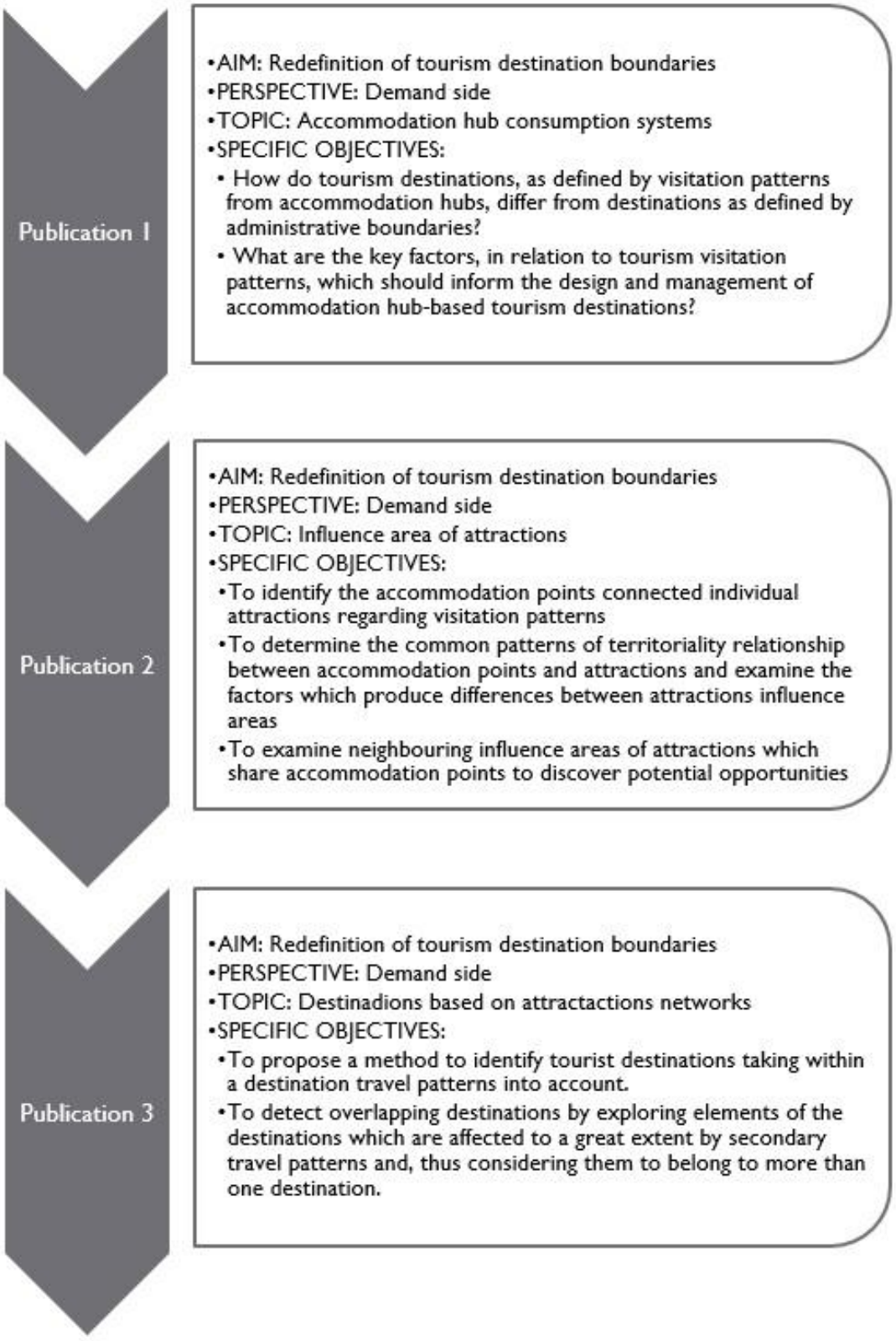

FIGURE 1 - THESIS OUTLINE

PUBLICATION 1

Tourist Hub Consumption Systems: Convenient Flexibility Versus Administrative Constraint

REPRODUCTION OF THE ORIGINAL ARTICLE PUBLISHED IN JOURNAL OF HOSPITALITY AND TOURISM MANAGEMENT[1]

Paulino, I., Prats, L. and Schofield, P. (2019). Tourist hub consumption systems: convenient flexibility versus administrative constraint. *Journal of Hospitality and Tourism Management*, 41, 69-79.

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[1] For editing reasons, the position of the tables and figures may slightly vary between the original article and its transcription.

Tourist Hub Consumption Systems: Convenient Flexibility Versus Administrative Constraint

Journal of Hospitality and Tourism Management

Isabel Paulino, Lluís Prats, Peter Schofield

Abstract

The extant literature shows that political borders may artificially divide latent tourist destinations without considering consumer preferences (Ioannides, Nielsen, & Billing, 2006; Lovelock & Boyd, 2006; Paulino & Prats, 2013). This study critically examines the traditional way of defining tourist destinations following administrative criteria and advocates a more visitor-oriented model of destination planning and management based on tourists' spatial visitation patterns (Dredge, 1999). This represents a demand side approach which should facilitate more effective management of tourist flows, the realisation of benefits from synergies between destination stakeholders, and the planning of new infrastructure and services in line with changes in market demand. The first step, then, is to identify the demand-side destinations by examining tourists' visitation patterns within a destination.

This study uses network analysis in combination with GIS to examine three European tourist destinations. It focuses on the networks between accommodation hubs and attractions formed by tourists' spatial visitation patterns within a destination in order to critically assess the legitimacy of their administratively defined boundaries versus their visitor defined spatial configurations. The findings show that tourists geographically consume destinations using convenient radial trips from accommodation hubs, and as such, the visitation patterns are not prescribed by or aligned with political borders. Tourist visitation patterns are influenced by the spatial configuration of attractions and other features in proximity to their accommodation. This accommodation hub-based consumption pattern suggests that destinations should evolve to a more flexible system of stakeholder governance, which acknowledges the incongruity between the tourist destination prescribed by administrative boundaries and that defined by tourist visitation patterns.

Keywords: Tourist behaviour, within-destination travel patterns, territoriality of trips, accommodation influence area, overlapping destinations, destination boundaries

Introduction

Modern European Destination Management Organisations (DMOs) are mostly tied to public administrations, which implement administrative regulation and policies on tourism within their international, regional or local borders. As such, most DMOs are still attached to their political boundaries, managing and promoting destinations on the basis of administrative criteria (Saraniemi & Kylänen, 2011). Public administrations and their policies tend to privilege particular spaces within their territory and to neglect, marginalize or exclude others (Brenner, 2009; Kang et al., 2014). By comparison, tourism phenomenon do not stop at administrative boundaries. Largely due to technological innovation, tourists are able to gather information from many sources (Llodrà-Riera, Martínez-Ruiz, Jiménez-Zarco, & Izquierdo-Yusta, 2015), which makes them less dependent on DMO's information. Thus, they are able to visit places without being constrained by administrative boundaries. Tourists take side trips venturing either close to or further from accommodation points, depending mostly on the spatial distribution and amount of attractions, their attractiveness and other characteristics of place (Lew & McKercher, 2006). Thus, tourism destinations should arguably be redefined to account for their geographical consumption by tourists in order to improve the planning and management of tourist attractions, accommodation and the transportation links between them.

This study critically examines this perspective using a research framework which integrates a number of relevant concepts from the extant literature namely: a critical approach to traditional tourism destination delimitation (Beritelli et al., 2015), travel patterns (Lew & McKercher, 2006; Lue et al., 1993), the notion of the local tourism destination (Lew & McKercher, 2006) and the geographical overlapping of destinations (Dredge, 1999). The particular focus of the study is on tourist accommodation hubs and their network of attractions connected by tourists' aggregated visitation patterns with the purpose of redefining tourism destinations in consideration of hub consumption systems.

Previous research has highlighted the fundamental role of understanding tourists' movements for the planning and management of attractions,

accommodation or transport links (Lue et al., 1993; McKercher & Lew, 2004). Furthermore, the territoriality of individual hotel locations has been explored in an urban context (Shoval, McKercher, Ng, & Birenboim, 2011). However, the purpose of these studies was not to consider destination limits from the consumer perspective. Furthermore, the extent of territoriality is still largely unknown, particularly at tourism destination level and specifically in rural locations. Thus, following the extant literature, which considers the hub-and-spoke travel pattern the most common, as well as considering territoriality patterns in the area surrounding accommodation, the first aim of the present study is to establish the existence of differences between administrative-based destination boundaries and those defined by tourist visitation patterns. The second aim of the study is to highlight the key factors which affect tourists' spatial visitation patterns from accommodation hubs within a destination. This will facilitate the identification of hub-based tourism destinations from the tourist perspective.

The key difference between this study and previous research relates to both the scale of the analysis and its purpose. Firstly, this study focuses at the destination level and secondly, its main purpose is not only to focus on visitation patterns from destination accommodation hubs, but to consider this territoriality to gain insights into the attendant network characteristics in order to inform the design of tourism destinations in line with contemporary tourism needs. This re-orientation could potentially facilitate the management of environmental and social impacts and the development of new tourism products and services (Kim, Thapa, & Jang, 2019), while informing transportation and communication infrastructure planning, and providing opportunities for collaboration between tourism organization.

To address the existing gap in the literature and contribute to theory development, the study focused on two research questions:

1. How do tourism destinations, as defined by visitation patterns from accommodation hubs, differ from destinations as defined by administrative boundaries?

2. What are the key factors, in relation to tourism visitation patterns, which should inform the design and management of accommodation hub-based tourism destinations?

Three case studies were selected to facilitate the triangulation of data through a comparative analysis of tourist visitation patterns between accommodation hubs and attractions in different situations. The three cases were: 1) a Mediterranean coastal natural park destination; 2) a Mediterranean mountain natural park destination; 3) a British upland national park destination. All three cases are in rural areas where hub-and-spoke (or base-camp) patterns are predominant because of extensive car use (Connell & Page, 2008; Smallwood et al., 2012). Data was elicited at each destination from visitor questionnaire surveys at the main accommodation hubs and attractions to identify which attractions were visited from each accommodation point. Network analysis and GIS were then used to examine and map the characteristics of tourist visitation patterns.

The remainder of the paper is structured as follows. First, the extant literature on tourism destinations and tourist travel patterns together with their associated methodologies is presented. Second, we explain the research method employed in the study and outline the case studies in more detail. Thirdly, we present and discuss the findings, and finally, we outline the theoretical contribution of this research and its planning and management implications, address the study's limitations, and make recommendations for further research.

Literature Review

Tourism destinations: supply and demand side perspectives

The tourists' view of a destination may not always coincide with the political perspective, as their geographical consumption is not constrained by these restrictions, but is instead influenced by a range of push and pull factors. If destinations are artificially divided by geographical and/or political barriers, they fail to take into consideration consumer preferences or tourism industry functions (Buhalis, 2000). An example of this discrepancy can be found in many case studies based on cross-border tourism areas (Blasco, Guia, & Prats, 2014; Ioannides et al., 2006; Lovelock & Boyd, 2006). These studies have noted tensions arising when the respective national interests of the two neighbouring countries do not coincide with those of the local trans-frontier destinations. These impediments are not restricted to an international level; local and regional destinations share similar problems as they are delineated following the same criteria. Administrations may differ in their policies and goals, to which should also be added a general lack of planning and collaboration on either side of the border. In fact, the traditional concept of DMOs is considered to be obsolete due to the impossibility of integrating the geography, political administration, the businesses, the residents and the tourists into one system. Meshing everything a territory contains into a single brand means making a 'big hash' of colourless mass only distinguished by its borders (Beritelli et al., 2015, p. 17).

From a demand side perspective, tourists do not stop at political borders unless there are physical impediments (Paulino & Prats, 2013). Moreover, new communication technologies offer tourists a wide range of information sources outside of traditional channels such as tourism information offices. Although there are many promotional channels which still follow the classical conception of tourism delimitation based on administrative boundaries, time after time tourists take advantage of internet and mobile technologies to organize their trips with independence and prioritize demand-side criteria. Therefore, travel patterns are increasingly less affected by cognitive distances imposed by

boundaries and are less path dependant on promotion based on administrative boundaries (Bauder & Freytag, 2015).

Leiper (1995) defined tourism destinations as a geographical area to which tourists travel to visit some attractions. The attractions therefore constitute the main decisive reason for visiting a particular destination because they provide activities and experiences (Gunn, 1993b; Kušen, 2010; Leiper, 1990; Richards, 2002). Additionally, attractions need to be close to service components, including accommodation, to facilitate tourism development. Once a tourist is at the destination, s/he tends to visit some attractions from a central accommodation point (Lew & McKercher, 2006). Additionally, Dredge (1999) has noted the need for identifying subsystems based on tourism travel patterns in order to plan and manage destinations effectively. Each subsystem should provide tourist accommodation and services in their central position. Thus, subsystems may overlap, which means that a single element may be part of several hub consumption systems, according to particular tourist travel patterns (Dredge, 1999). Finally, while tourism destinations are traditionally perceived as static all-inclusive areas, tourists' tastes and fashions evolve over time causing the activation of certain places and the deactivation of others. In this process, new suppliers join and exit as their markets and new business opportunities change. Consequently, there is a need to abandon the concept of a tourism destination as a rigid unit that denotes a delimited geographical area, and move to a more dynamic concept of subsystems (Beritelli et al., 2014, 2015).

Tourist travel patterns

Travel patterns have been traditionally represented as linear path models to display tourist flows along the spatial structure of recreation opportunities. Lue, Crompton, & Fesenmaier (1993) identified five relevant linear itinerary patterns adopted by pleasure travelers: 1) the single destination pattern, when an attraction is the only destination; 2) the en-route pattern, when a secondary destination is visited on the way to a primary destination; 3) the base-camp or hub-and-spoke pattern, which uses a base-camp to do side trips to attractions in

the area; 4) the regional tour pattern, when several destinations within a region are visited and 5) the trip chaining pattern, which involves touring along a route which links several destinations. Chancellor & Cole (2008) found that multi-destination trips are far more common than single destination trips in rural areas. Moreover, the vast majority of trips follow a hub-and-spoke pattern, to maximise the number of visits to the surrounding attractions (Lue et al., 1993). Smallwood et al. (2012) found that at Ningaloo marine national park tourists were predominantly either static (34%) or travelled in a hub-and-spoke pattern (66%). Both configurations share the common element of a single accommodation point from where they visit attractions, but differ in respect of the exploration width. Additionally, they are territorially compatible with other multi-destination trips, if we consider that 'when a new accommodation point appears, a new destination is invoked' (Dredge, 1999, p. 781).

Lew & McKercher (2006, p. 405) define the 'local destination' from the demand point of view by considering it as 'the area containing products and activities that could normally be consumed in a day trip from the heart of the destination'. In addition, the definition is closely related to the hub-and-spoke pattern if we acknowledge the accommodation as the central element of the destination. Going a step further, Bujosa, Riera, & Pons (2015, p. 2) affirm that the tourists' 'recreational destination' can be depicted as a network, consisting of different nodes (several locations and landscape elements) that are connected to each other due to tourist trips. They affirm that the aggregation of these connections leads to a macro-spatial analysis of intra-destination movements.

The key relationship between tourist accommodation and visitation patterns is highlighted by Lew & McKercher (2006) who conceptualized the territoriality of day trips, categorizing explorations according to how far tourists venture from the accommodation point. They found four main categories of exploration: 1) no movement, where tourists remain at the accommodation; 2) convenient-based movement, which is characterized by an exploration in the immediate proximity of the accommodation; 3) concentric exploration, consisting of multi-nodal side trips around the accommodation influence area, and 4) unrestricted destination-

wide movement, where tourists are likely to feel uninhibited throughout the destination and venture further away. Few studies have documented distances that tourists venture from their accommodation in nature-based destinations. Smallwood et al (2012) found that most tourists in their study travelled less than 20 km from their accommodation, although secondary peaks were found corresponding with the location of accommodations. Studies which have documented territoriality in urban destinations (McKercher & Lau, 2008; Shoval et al., 2011) also found that accommodation (hotel) location was a critical factor influencing attraction visitation in the destination, particularly with regard to minor attractions. Iconic attractions can draw tourists' flows regardless of the hotel location, whereas other places of touristic interest within the city tend to spatially concentrate around hotels (Shoval et al., 2011).

The complexity of urban attraction visitation was also highlighted by McKercher & Lau's (2008) study. They identified 11 movement or itinerary styles taking into account territoriality from the hotel and linearity of travel patterns. However, urban travel patterns may not be representative of itineraries in rural destinations due to the differences in both destination characteristics and tourist behaviour. Nature-based destinations are normally characterized by a scarcity of support facilities (Gunn, 1993b; Lue et al., 1993), which makes tourism activity more dependent upon a symbiotic relationship with the support services offered by base-camps. Moreover, the more extensive use of private car transportation to visit spatially dispersed attractions, induces tourists to build their own itineraries (Connell & Page, 2008; Page, 2004; Shih, 2006).

Factors influencing tourist travel patterns

In any given area, tourists do not use the recreational possibilities randomly (Zillinger, 2007). Rather, their use is connected to tourist accommodation hubs. Consequently, knowledge about which attractions are connected to each accommodation hub through trips and which factors affect these patterns is critical for planning tourist amenities and facilities. Attractions are the key element in the tourist experience of place; they strongly influence whether

tourists move widely or narrowly within a destination whether urban or rural (Chhetri & Arrowsmith, 2008; Lew & McKercher, 2006; McKercher & Lau, 2008). More specifically, the spatial distribution of attractions, the inter-attraction distances, their intensity, attractiveness level and/or uniqueness and their characteristics are the main factors which influence both tourists' travel patterns and the distances travelled from their accommodation. The distance to an attraction is perceived as one of the most important friction factors which influence travel patterns. In line with the concept of distance decay, demand for attractions generally declines with the distance travelled from the accommodation and from one attraction to another (McKercher & Lew, 2004, 2003; Nyaupane & Graefe, 2008). However, this concept assumes 1) rational decision making on the part of the consumer, who would decide to visit the closer option between two similar experiences, and 2) that tourism supply is distributed uniformly over space. In reality, tourists may not act rationally and tourism opportunities are distributed inconsistently (McKercher & Lew, 2004).

The spatial distribution and intensity of attractions and facilities, particularly accommodation, in an area are strongly influenced by a destination's topography (Lew & McKercher, 2006), which, in turn, affects travel patterns. Therefore, while the flow of tourists tends to be more easily predicted in compact destinations with fewer attractions and accommodation hubs, in rural destinations the dispersal of attractions and accommodation hubs tends to induce a wider variety of movements which are more difficult to predict (Lew & McKercher, 2006). The spatial characteristics of attractions also predispose different visitor behaviours. Point attractions represent a specific place, like monuments, waterfalls or planned events, where tourists tend to concentrate. By comparison, line attractions, like rivers, beaches, routes or trails encourage a bi-dimensional dispersion, and area attractions such as scenic landscapes, produce a wide dispersion (Wall, 1997).

The relevance and uniqueness of attractions and market access also influence tourists' travel patterns. Prominent or unique attractions tend to draw tourists over greater distances (Lew & McKercher, 2006). Moreover, the theory of market

access affirms that proximate attractions with similar characteristics and attractiveness levels to less proximate ones, have a competitive advantage as they are more convenient (Pearce, 1989). Destinations which provide infrastructure and tourist facilities, particularly accommodation, are also more likely to attract a greater number of visitors (Chhetri & Arrowsmith, 2008). Both the quantity and quality of tourist accommodation are influential i.e. the number of beds, its dispersion or concentration and its type also affect the way a destination is consumed (Dredge, 1999; Shoval et al., 2011).

Distances travelled by tourists from their accommodation are also affected by a wide range of factors including: length of stay, trip purpose, familiarity with the destination, distance travelled from home, personal choices, travel group composition, markers, budget, tourists' sociocultural background, tourists' psychological profile, cultural distance, transportation services and level of tourism intermediation (Barros & Machado, 2010; Lau & McKercher, 2006; Leiper, 1990; Oppermann, 1997; Plog, 1974; Thornton, Shaw, & Williams, 1997).

Given this level of theoretical complexity, to define the destinations from the demand-side it is essential to focus on empirical data. Examining tourists' territorial travel patterns will shed light on the demand-side destination and enable it to be compared with the extant administratively defined destination. The next section outlines the method adopted for the study's primary research.

METHODS

Innovative data collection methods using GIS, geotagged pictures on social media or passive mobile positioning can be problematic in rural areas because of the existence of black areas. Traditional tourist intercept surveys were therefore used to collect primary data from three case study areas because of their proven reliability and avoidance of excessive micro-scale geographical data (Paulino, Prats, Blasco, & Russo, 2016). Optimum survey locations were identified in each destination, at both accommodation hubs and attractions. Attractions were selected from a content analysis of guide books according to their level of

attractiveness (Paulino & Prats, 2013). Accommodation hubs were selected from official registers on the basis of the number of beds offered by municipality. The number of survey days in each location reflected the accommodation beds and the number and level of attractions in each location, in addition to considering labour days, weekends and public holidays. Moreover, during the survey period in each destination, a number of additional locations were added to the schedule, based on high frequency responses from respondents, in order to obtain more representative samples.

Day trippers were excluded from the survey because they did not stay overnight. Long-stay tourists (over 60 nights) were also excluded given that they tend not to go sightseeing, but to experience life in a similar way as residents (Ono, 2008). The sample therefore consisted of leisure tourists who had been in the destination area for at least one night. A total of 3,163 completed questionnaires were obtained from the following case study destinations: The Ebro Delta, Spain (887); the Ports, Spain (835); the Peak District, UK (1,441).

Participants were asked to identify the location of their accommodation and the attractions they had visited from that point. Individual data from the surveys at each destination was aggregated into asymmetric matrices representing attractions (rows) and accommodation (columns). Each cell represented frequency of flows from a single accommodation point to an attraction. The data matrices were uploaded to Ucinet.6, a Network Analyst program (Baggio & Scaglione, 2017; Hwang, Gretzel, & Fesenmaier, 2006; Kang et al., 2018; Plog, 1974; Shih, 2006; Stienmetz & Fesenmaier, 2015) and outputs were represented with NetDraw and ArcGIS. Whereas graphs coming from NetDraw allow a better visualisation of nodes and frequencies, ArcGIS maps show how the spatial dimension affects the consumption and the discrepancies between the promoted destination and the consumed destination. Networks represent aggregated intra-destination movements from central accommodation hubs to tourist attractions, where peripheral nodes are the attractions connected to an accommodation hub (round nodes) due to flows (links among nodes). Weighted links among nodes represent aggregated individual flows. To simplify the

visualisations, only those attractions with a frequency of four or more visits are featured. The output figures feature ego-networks of a particular accommodation hub, whole destination network overview, and partial networks selecting main accommodation hubs. Subsequently, attractions in ego-networks have been classified in concentric circles representing the distance to an accommodation hub (Lew & McKercher, 2006). These distances were recorded as time distance, rather than spatial (Euclidean or road) distance given the former's relevance in tourists' decision making in relation to trip planning (McKercher & Lew, 2003).

THE CASE STUDY DESTINATIONS

Case study 1, the Ebro Delta, is a Mediterranean coastal area in Spain characterized by lagoons, marshes, rice fields and natural beaches, the natural environment of which is protected by the Natural Park of the Ebro Delta. The Ebro river divides this area into two supra-local administrative divisions: Montsià and Baix Ebre (Figure 1), but results include patterns of visitation to the neighbouring Autonomous Communities, Provinces and Comarcas. From a tourism perspective, the Terres de l'Ebre DMO is responsible for Montsià, Terra Alta, Baix Ebre, Ribera d'Ebre administrative areas, which includes this case study and part of case study 2: The Ports area, located 70km away.

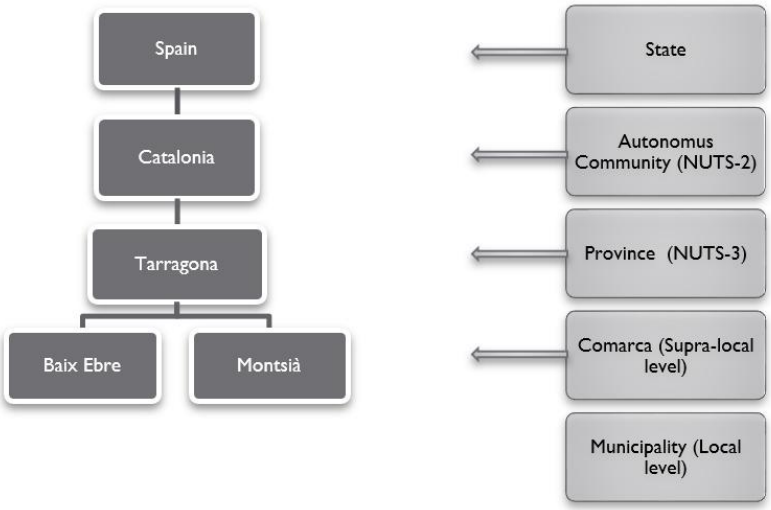

FIGURE 1: THE ADMINISTRATIVE STRUCTURE IN THE EBRO DELTA AREA, SPAIN

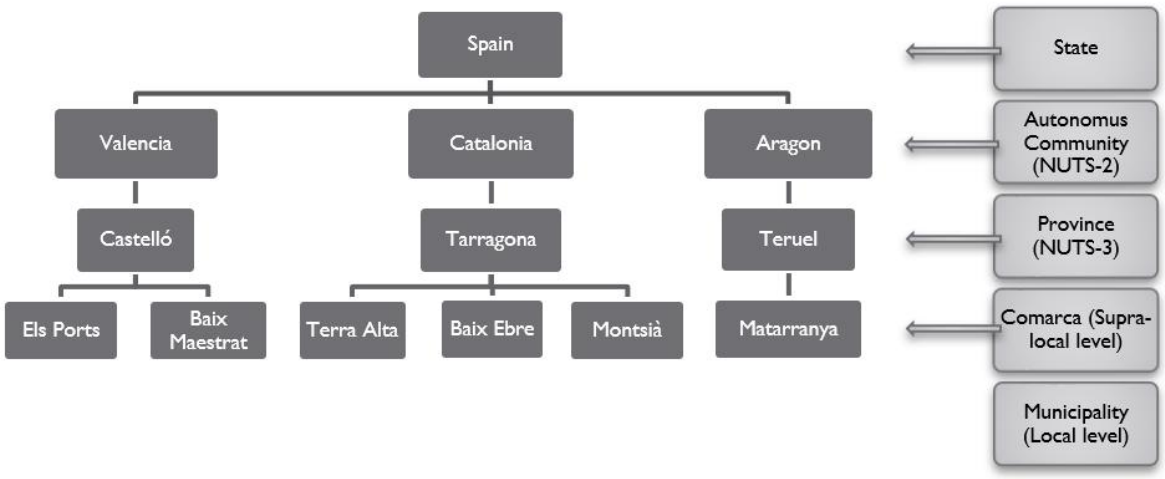

FIGURE 2: THE ADMINISTRATIVE STRUCTURE IN THE PORTS AREA, SPAIN

The Ports mountain range is divided into three autonomous communities, which correspond to the strongest administrative division within the country (Figure 2). Furthermore, lower administrative levels subdivide the three autonomous communities.

As the functions of the Spanish state are of little applicability at a promotion and management level, this area does not share any policy in regard to tourism planning. For example, each administration has declared different levels of protection for the mountain range, which is managed separately by their respective administrations. The heart of the Catalan side is the Ports Natural Park, the Valencian side, Tinença de Benifassà Natural Parc, and the Aragon side is a Hunting Reserve. The natural border that forms the slope of the mountain range makes it difficult to visit all the range in the same trip. However, Paulino & Prats (2013) have already studied this case study and detected that in spite of administrative boundaries, the north-west side of the mountain range has the potential to be a destination due to the geographical distribution of tourism attractions and accommodation. Therefore, this area has been selected to check tourist patterns.

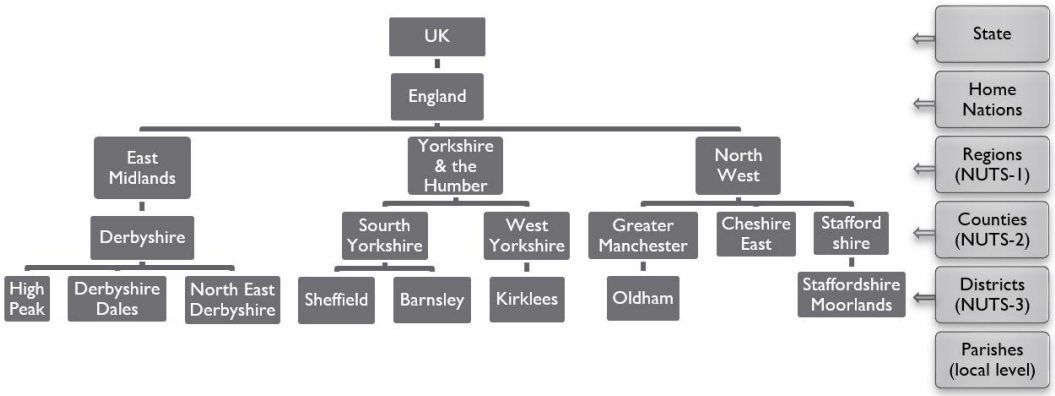

FIGURE 3: THE ADMINISTRATIVE STRUCTURE IN THE PEAK DISTRICT AREA, UK

Case study 3 is the Peak District, which is surrounded by several of the most populated cities in the north of England and, as such, is one of the most visited National Parks in Europe. Although most of the park is within the county of Derbyshire, the Peak District is divided into six county administrative regions, which are part of three distinct English regions. Furthermore, and at supra-local level, the Peak District is divided into several districts (Figure 3). The DMO - Visit Peak District and Derbyshire - manages the whole of Derbyshire, including those National Park areas which are not in the Derbyshire administrative area.

The three case study destinations share similar cultural, natural and sport/adventure attractions. Moreover, the attractions are accessed predominantly by car using a hub-and-spoke travel pattern. However, there are a number of differences. For example, cultural attractions in the Mediterranean destinations are characterised by gastronomy and festivities/events, whereas in the Peak District, they are more focused on built heritage. Moreover, in the mild climate of the Mediterranean destinations, tourists take advantage of the beaches, rivers and waterfalls.

RESULTS AND DISCUSSION

In this section, outputs from the data analysis are presented as figures and tables and discussed. Firstly, the results of the transboundary visitation patterns are provided. Then, the hub consumption systems are analysed to highlight the key factors influencing travel patterns. These factors include time distance, attraction

characteristics, intensity of attractions, topography and network connections, rather than political boundaries, in line with the extant travel patterns literature. Finally, the overlapping areas of the hub consumption systems are presented, showing different levels of overlapping. To explain the results, most relevant figures and tables have been selected.

Administrative boundaries

In line with Buhalis' (2000) suggestions, the results show that tourist visitation patterns from accommodation hubs to attractions are not generally constrained by administrative boundaries, i.e. tourist geographical consumption does not reflect the way in which these attractions are promoted and managed by the relevant tourist authorities. In the three destinations, all hub consumption systems located next to an administrative boundary transcend the borderline of the different administrative levels. However, the frequency of links between nodes reveals some influence of administrative boundaries on visitation choices. This is particularly the case in relation to the least renowned attractions which reflect a certain degree of administrative boundaries influence on visitation choices, as a result of psychological barriers and path-dependence on promotional strategies over time. This path dependency due to the effect of public administrations and policy, has already been discussed by Kang et al. (2014), who found a positive effect of domestic tourism development due to tourism policies. However, Kang et al. (2014) supported Brenner's concept of state spatiality (2009) in which systemic transformations may occur to create new geographies of territorial organization or regulatory activity and they demonstrated spatial dependence by showing that tourism development remains clustered with a clear tendency to expand along neighbouring regions.

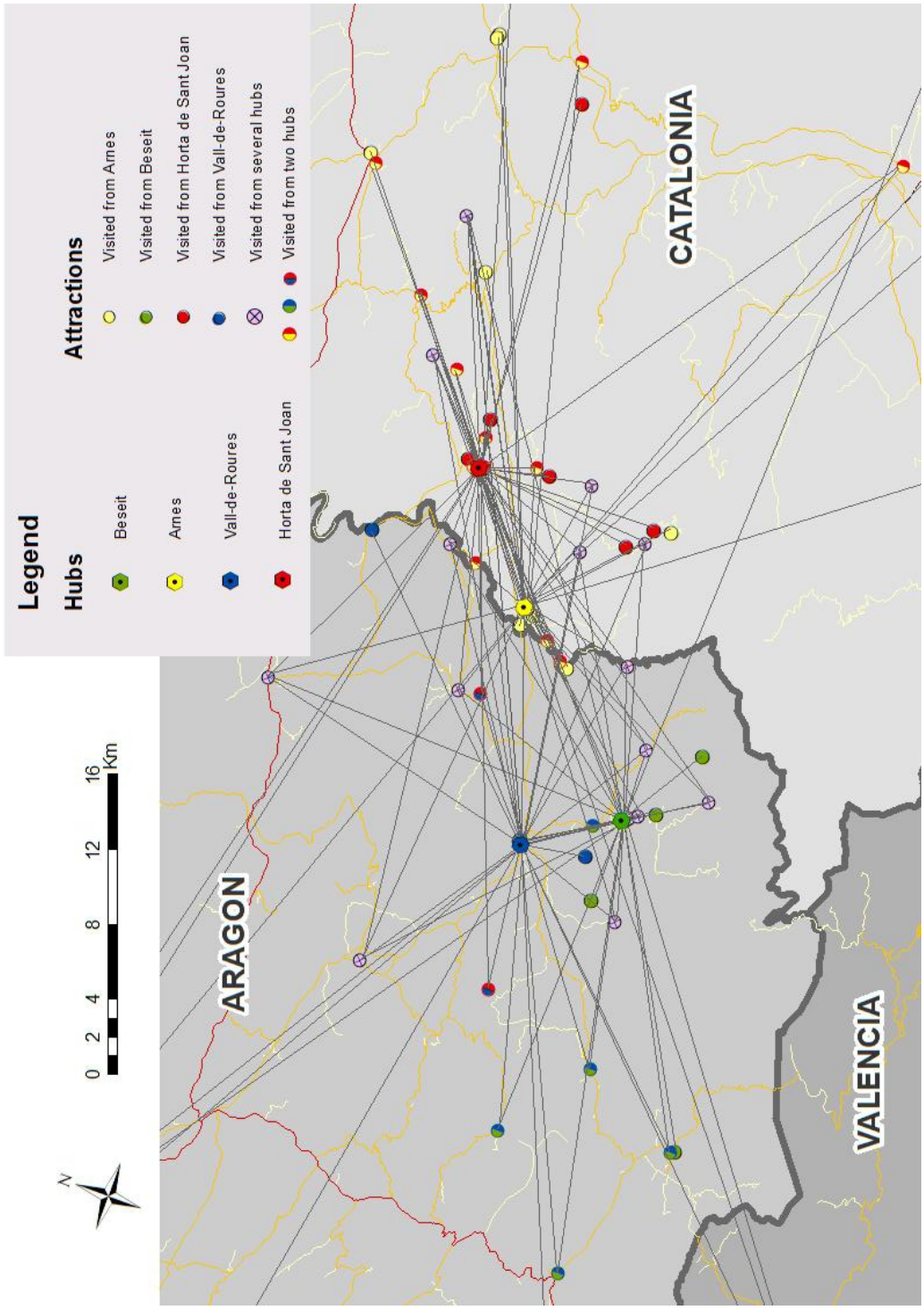

FIGURE 4: SPATIAL DISTRIBUTION OF ACCOMMODATION HUBS AND THE MAIN ATTRACTIONS VISITED IN THE PORTS

Figure 4 clearly shows a transboundary consumption pattern in the destination because of the high level of interconnectivity between its accommodation hubs and attractions on the Aragon and Catalan sides of the mountain range. In particular, the four hub consumption systems are clearly transboundary, which highlights the sharp contrast between the destination as defined by tourist visitation patterns and that delineated by the administrative boundaries in the area. Moreover, the closeness of the main accommodation hubs in contrast with

the lack of accommodation hubs in the surrounding area, intensify this cross-border effect, which suggests the consideration of a transboundary destination

Hub Consumption Systems

Accommodation at destinations tends to concentrate in hubs, which exerts an important effect on how destinations are geographically consumed. This tendency generates hub consumption systems, comprising a central accommodation hub in connection with a number of attractions, places and areas visited from the hub. The results in this section show frequency graphs of aggregated tourists' visitation patterns from the accommodation hubs at each destination. Furthermore, the hub consumption systems have been analysed to determine the main factors affecting visitation patterns, which, in turn, have been compared with those identified in previous studies.

Due to the importance of the distance decay factor, as highlighted in the literature, we have adapted Lew & McKercher's (2006) exploration model to classify attractions in five concentric circles representing how far (in time distance) tourists venture from their accommodation (Figure 5).

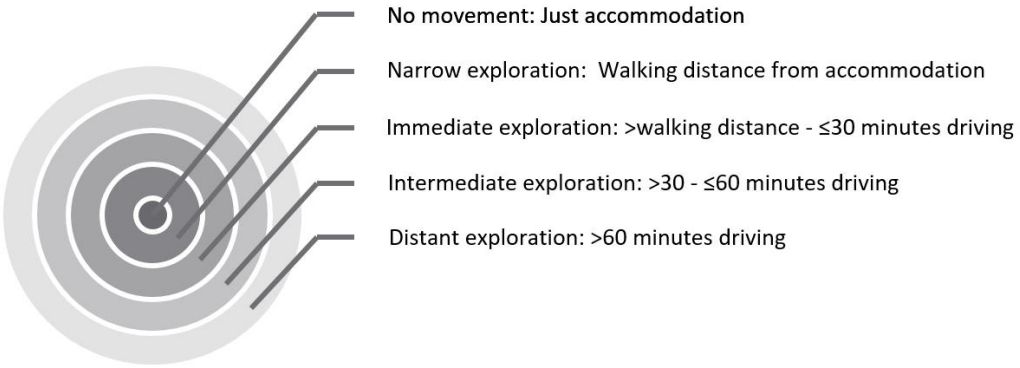

FIGURE 5: TOURISTS' EXPLORATION MODEL BASED ON DISTANCE DECAY

Visitation patterns around accommodation points show a predominance of convenient visits (Figures 6 & 7, and Table 1), in line with previous travel pattern findings (Mckercher & Lau, 2008; Shoval et al., 2011; Smallwood et al., 2012). Going more deeply into territoriality than previous research, the present study is able to show distance decay influence by estimating driving time distance from

the accommodation hub. In each of the three destinations, the network influence area of accommodation hubs decreases sharply above a driving time distance of 30 minutes from the hubs (Table 1) and is practically non existent upwards of 40 minutes.

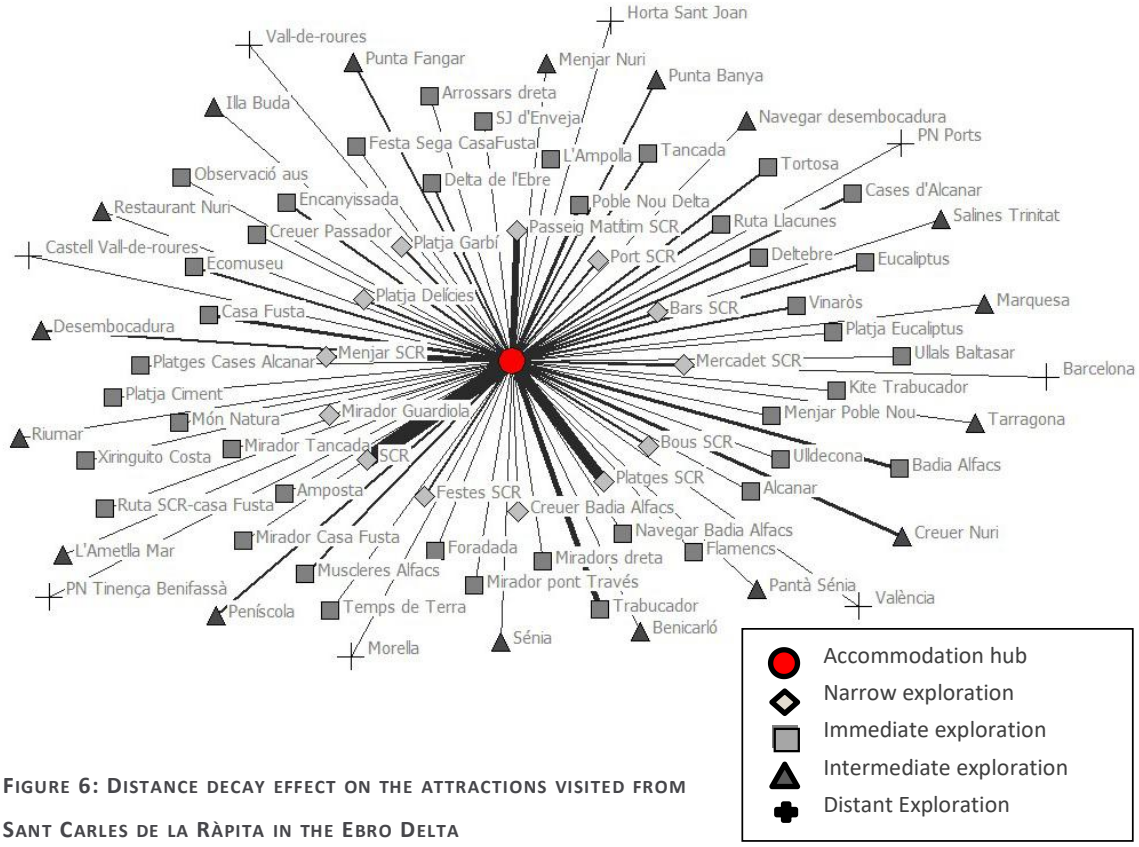

FIGURE 6: DISTANCE DECAY EFFECT ON THE ATTRACTIONS VISITED FROM SANT CARLES DE LA RÀPITA IN THE EBRO DELTA

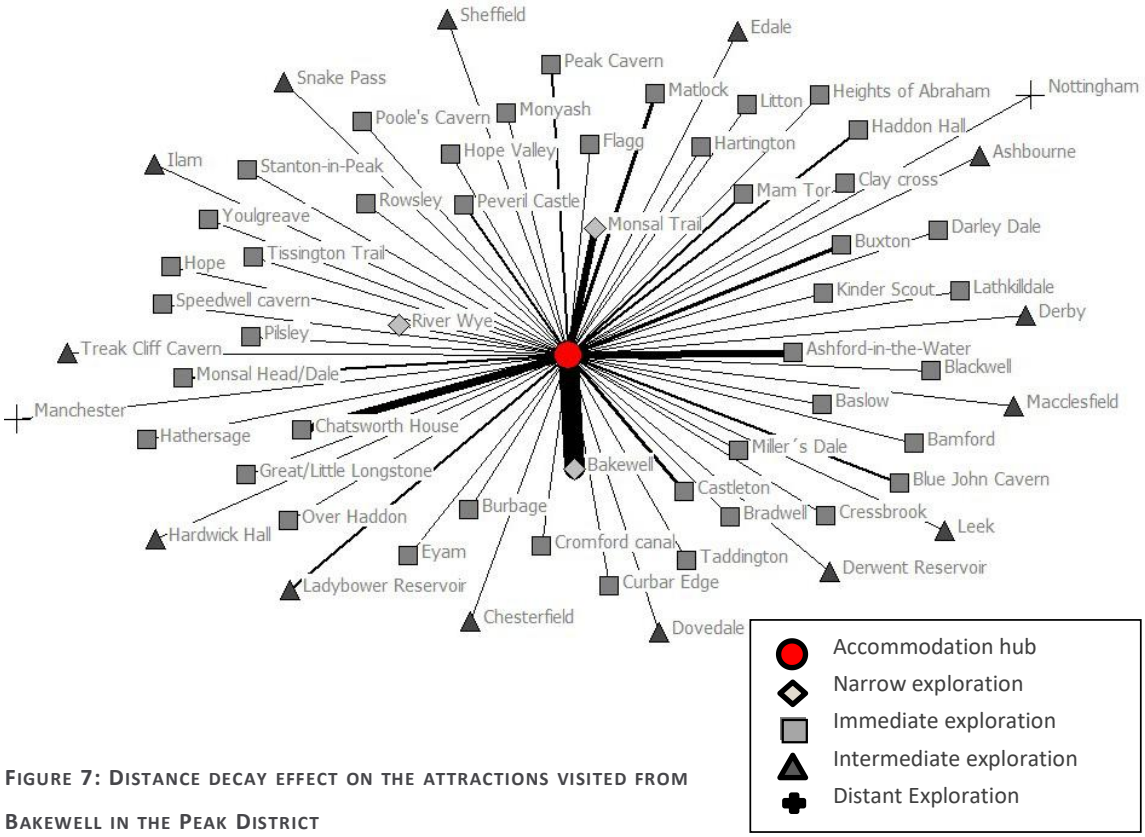

FIGURE 7: DISTANCE DECAY EFFECT ON THE ATTRACTIONS VISITED FROM BAKEWELL IN THE PEAK DISTRICT

Exploration distance from the accommodation hub	From Sant Carles de la Rapita	From Arnes	From Bakewell
Narrow exploration: walking distance	48%	32%	41%
Immediate exploration: >walking distance≤30 min. driving	37%	57%	51%
Intermediate exploration: >30≤60 min. driving	12%	9%	7%
Distant Exploration: >60 min. driving	3%	2%	1%

TABLE 1: DISTANCE DECAY EFFECT ON THE ATTRACTIONS VISITED FROM THE MAIN ACCOMMODATION HUB IN EACH DESTINATION

In addition to showing tourists' tendency to explore the narrow and the immediate area regarding territoriality, the results indicate that tourists' movements are more concentrated or dispersed by the influence of factors such as the spatial relationship between hubs and attractions, market access, agglomeration of attractions, and the spatial characteristics of the destination.

Regarding attraction characteristics, the results at all destinations support the theory that tourists are more willing to travel longer distances to visit places which are unique or more attractive (Lew & McKercher, 2006, p. 441). By comparison, visits to attractions located at either short or intermediate distances from accommodation hubs include both unique places and those with low attractiveness level, which supports the results presented by Shoval et al. (2011), while low level attractions are only visited when in closer proximity to accommodation (Lew & McKercher, 2006, p. 411).

By contrast, coastal hub consumption systems, like Sant Carles de la Ràpita (Figure 6), show the combined influence of attraction specificity and attractiveness level on visitation patterns. The duality of patterns reflects a tendency towards static behaviour typical of beach destinations (Smallwood et al., 2012) with hub-and-spoke patterns characteristic of natural areas (Lue et al., 1993). This hub in comparison with the other case study areas shows, on one hand, the highest percentage of narrow exploration typical of static patterns and, on the other hand, the higher percentage of intermediate and distant visits influenced by renowned attraction located at a longer time distance.

In relation to market access, the findings provide empirical evidence of market access theory (Pearce, 1989). In the Ebro Delta destination, the higher frequency of visits to closer attractions shows their competitive advantage over attractions with similar characteristics but at greater distance. Here, some attractions, like beaches, markets and festivals, can be similarly found at the immediate and intermediate area but tourists show a preference for more convenient locations.

Differences in intensity of aggregated visits between the case study destinations are also evident. Tourists at the *Ports* and especially at the Ebro Delta destinations visit a larger variety of attractions, compared with the Peak District, where tourist visits are concentrated among a smaller number of attractions which produces more repetitive travel patterns (Lew & McKercher, 2006). It is likely that the differences in intensity are also linked with the length of stay at destinations. Whereas Mediterranean destinations are more holiday-based

(means of 9.7 days in Ebro Delta and 7.9 days in Ports), the Peak District is more of a short break or long weekend destination (mean of 3.6 days). When tourists have less time, they tend to prioritize renowned and/or closer attractions (Barros & Machado, 2010; Lau & McKercher, 2006).

Map representation provides evidence of visitation patterns affected by topography and road network quality. Indeed, good road connections generally motivate tourists to take side trips to more distant locations. This is evident in the case of the L'Ampolla hub in the Ebro Delta destination, where a high speed road facilitates access to distant attractions. The influence of topography and road network access on attraction visitation frequency is also evident in the Peak District, where tourist activity is concentrated in the more accessible central area. Similarly, in the Ports destination, most attractions are located far from the steepest parts of the mountain range and close to the road network linking Horta de Sant Joan to Vall-de-Roures.

Overlapping Systems

Figures 8, 9 and 10 show the visitation patterns from accommodation hubs in the three case study locations and demonstrate the existence of overlapping hub consumption systems in each case, thereby supporting Dredge's (1999) theory. In order to compare the degree of overlapping in each case, the analysis focused on the number of the same attractions, and the repeat visits to those attractions (represented by line thickness), visited from each hub. The more shared attractions and more repeatedly visited, the higher the degree of overlapping among the hub consumption systems.

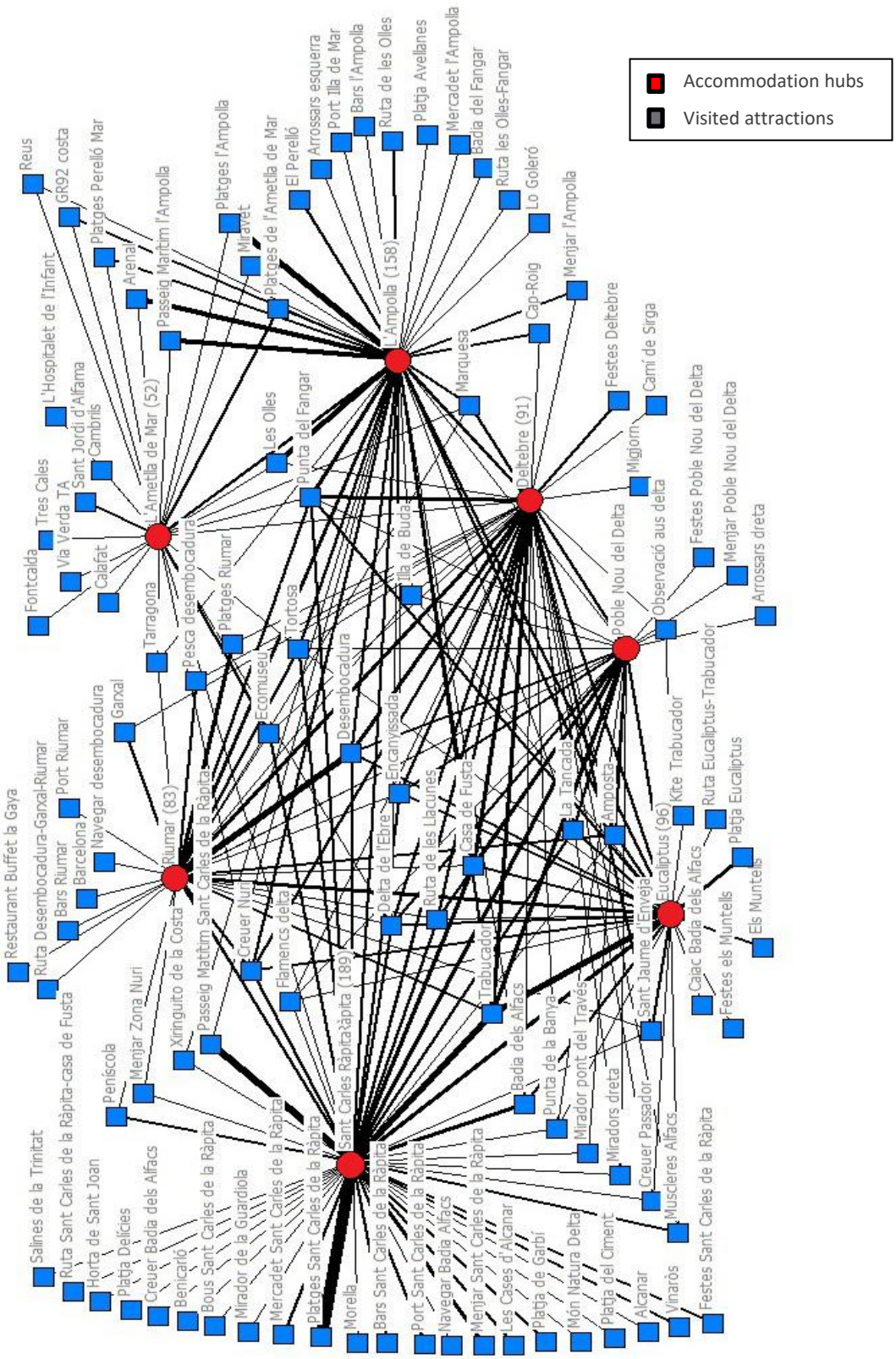

FIGURE 8: OVERVIEW OF ACCOMMODATION HUBS AND INTENSITY OF VISITATION TO PLACES IN EBRO DELTA

Figure 8 depicts the Ebro Delta coastal destination and shows the strong influence of the main hubs, which promote the existence of overlapping hub

consumption systems following the coastline. Focusing on the two main hubs of the Ebro Delta (Sant Carles de la Ràpita & l'Ampolla), there is evidence that tourists occasionally visit the same attractions from these two accommodation hubs, most of them located within the Natural Park, while tourists staying in each hub mainly visit a large number of different attractions. This shows that their hub consumption systems are just slightly overlapping, which can be explained by the relatively large geographic distance between them compared with the other hubs in the destination.

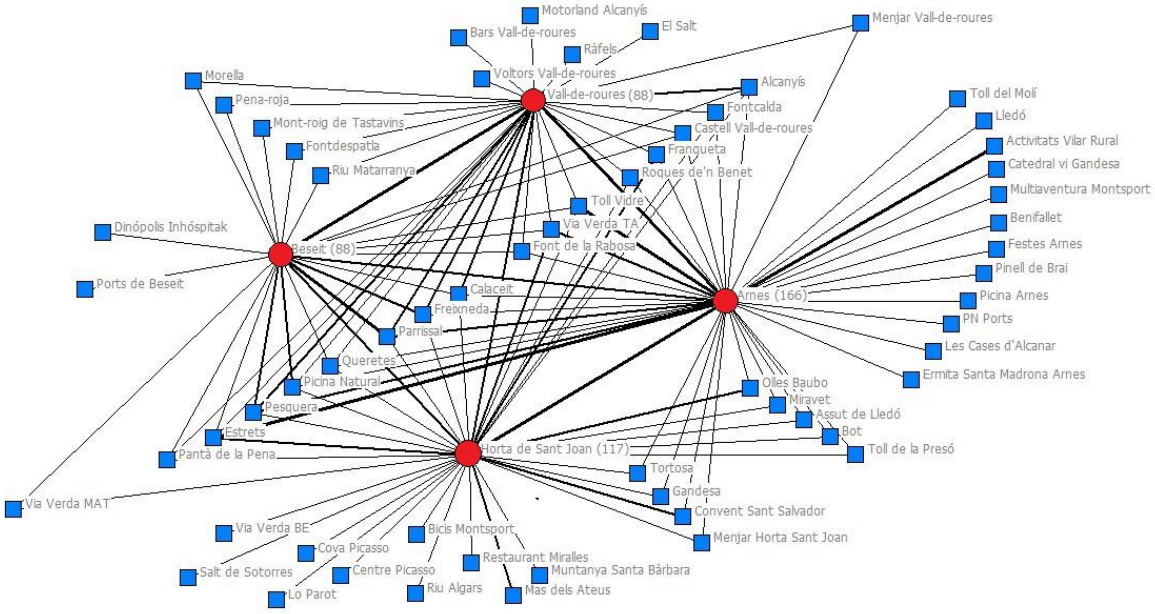

FIGURE 9: SHARED INTENSITY GRAPH OF VISITS TO ATTRACTIONS FROM THE MAIN ACCOMMODATION HUBS OF THE PORTS

Figure 9 shows a shared intensity graph displaying the main hub consumption systems and their associated flows in the Ports mountain range area. The results show a considerable degree of overlapping between the main hub consumption systems. The attractions which are visited from only one hub are mainly local attractions with low attractiveness or distant attractions with very low frequency visitation. The lack of nearby accommodation hubs, other than the four featured here, together with the high frequency of visits to the same attractions from each hub, denote the existence of a latent cross-border destination (compare Figures 4 & 9).

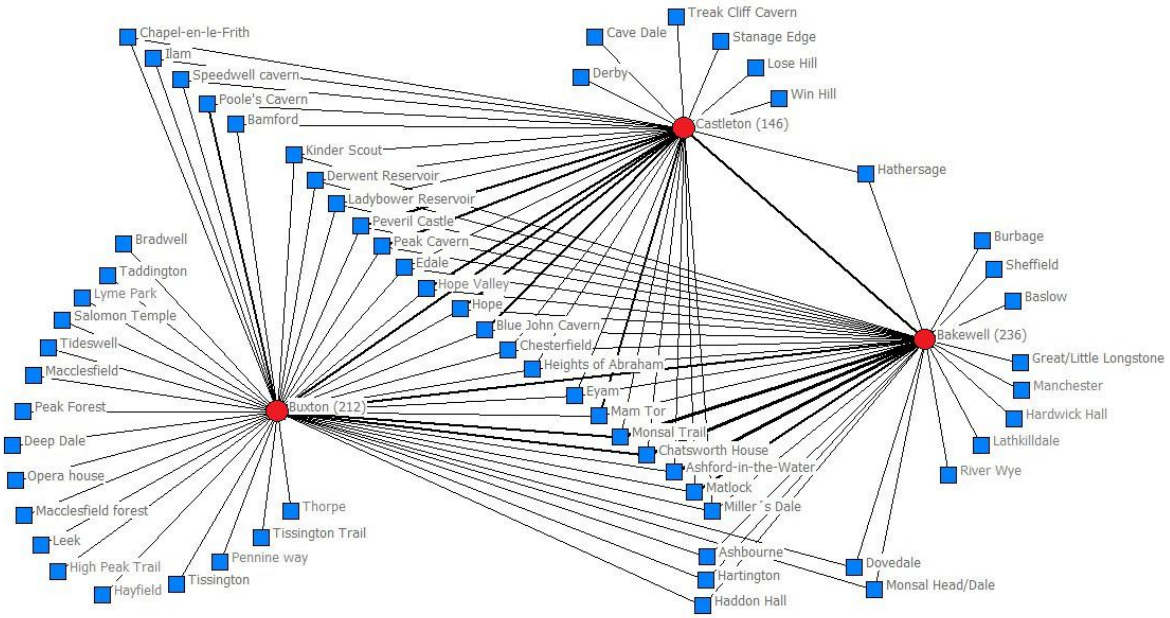

FIGURE 10: SHARED INTENSITY GRAPH OF VISIT TO ATTRACTIONS FROM THE MAIN ACCOMMODATION HUBS OF THE PEAK DISTRICT

Figure 10 displays a shared intensity graph of three main accommodation hubs in the Peak District National Park. It shows a high level of overlapping between these hub consumption systems, as they share the majority of more frequently visited attractions. By comparison, each hub has a number of attractions which are visited only by tourists from its own accommodation; these are the local attractions in close proximity to the individual hubs which can be easily accessed from each one, as in the clear case of Buxton.

CONCLUSIONS

This study has focused on two research questions relating to 1) tourism destinations as demarcated by administrative boundaries versus destinations defined by geographic consumption i.e. tourist visitation patterns and 2) the key factors influencing territoriality of visitation patterns in rural areas that determine the hub consumption systems. The findings have shown that visitation patterns in the three rural case study destinations are only rarely influenced by administrative boundaries. More frequently, they are influenced by time distance between accommodation hubs and attractions. In line with previous

studies (Mckercher & Lau, 2008; Shoval, McKercher, Ng, & Birenboim, 2011; Smallwood et al., 2012), the findings show that most visits to attractions are through convenient, short trips around accommodation hubs. Interestingly, the results provide empirical evidence that most visits are taken to attractions located around 30 minutes driving time distance from the accommodation and there is a significant decrease in visits around 40 minutes' time distance away. While time distance is a key factor in attraction visitation, other factors including the attractiveness and uniqueness of places, the agglomeration of attractions, market access, and the overall spatial characteristics of the destination are also influential in the case study areas.

A key contribution of the study relates to the importance of the location of accommodation points relative to tourist attractions. The findings suggest that hub consumption systems in rural areas should be constituted by a central accommodation hub surrounded by tourism attractions and services located in the influence area. More specifically, tourist elements linked to a specific hub should be located in the immediate area of exploration, within 30 minutes driving time from that hub. Additionally, places of medium and high level attractiveness level could be located at intermediate distance, while unique attractions could even be located at distance from the hub. Furthermore, the evidence for overlapping hub consumption systems, which supports Dredge's (1999) claims, demonstrates that tourism actors and indeed, administrative destinations are part of several subsystems of accommodation hubs. The findings therefore indicate that destinations, which are administratively defined and managed, are foregoing many opportunities to more effectively plan, market and manage tourism visitation because they have neglected the realities of visitation patterns. Given that these destinations are unlikely to be unrepresentative of other rural destinations in Europe where tourists stay at accommodation points and visit attractions from these base camps, destinations would benefit from officially recognizing hub consumption systems, identifying the requisite elements in each area, and collaborating with relevant tourism actors both within and across political boundaries.

In this paper we have focused on the geographical consumption of destinations with specific reference to the centrality of accommodation. As such, the influence area of a single visitor attraction has been neglected to an extent. Furthermore, focusing on visitation patterns from accommodation sources precludes the analysis of multi-destination travel patterns such as en-route travel patterns. Future research should therefore examine both the relationship between single attractions and surrounding accommodation, and also the connection between the main destination and neighbouring destinations to address multi-destination travel patterns. Another consideration for future research should be the governance of each hub consumption system, relating to the extent to which they overlap. Finally, this study represents a cross sectional analysis of travel patterns at one point in time; however, destinations evolve at the same rate as factors affecting tourists' mobility patterns and market changes (Beritelli et al., 2014, 2015). Therefore, hub consumption systems will need to be monitored over time to update the activation or deactivation of places in response to the market changes and to ensure that they continue to reflect the dynamics of geographic consumption.

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PUBLICATION 2

Establishing influence areas of attractions in rural destinations

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Establishing influence areas of attractions in rural destinations

Journal of Tourism Planning an Development

Isabel Paulino, Lluís Prats And Peter A. Whalley

Abstract

This research provides a critical approach to the assessment and evaluation of tourism destinations from the perspective of traditional administratively-based boundaries. It suggests that researchers and managers should abandon their focus on destinations as all-inclusive administratively-defined areas, readjusting to a more flexible model tied to tourists' travel patterns. Given the centrality of attractions, the flows that they are able to generate from neighbouring accommodation hubs explains an important share of the way a destination is consumed. The analysis also explores how several factors affect the influence areas of attractions, and how the elements of conjoining destinations can be interconnected due to tourism flows representing overlapping influence areas and traversing administrative boundaries.

Based on three rural case studies, this research investigates the within-destination travel patterns, focusing on the relationship between accommodation hubs and attractions as represented by visitor flows. The graphical representation of such flows has enabled the identification of influence areas of attractions which traverse administrative boundaries, and overlap with those of other attractions. The application of a distance decay curve approach clarifies the relationship between accommodations and the visiting of attractions. Furthermore, the overlapping of several attractions influence areas allows the detection of unexploited cooperation within the destination.

Keywords: Destination planning; destination management; within a destination travel patterns; tourist attraction management; accommodation management, rural areas

Introduction

Researchers and practitioners alike still disagree on how a destination should be defined depending on their disciplinary background and perspective: be it economic geography–oriented, historically-politically oriented, marketing management–oriented or customer-oriented. Commonly, a destination is considered to be a unit of action where different stakeholders, including public-sector organizations, private-sector companies, hosts, and guests interact through co-creation and consumption of experiences (Saraniemi & Kylänen, 2011). In practice, many national, regional and local authorities have established destination areas based upon administrative boundaries for the planning and managing of tourism within the area.

Tourists, by way of contrast, do not restrict their visits on the basis of administrative boundaries (Dredge, 1999). Furthermore, as assistive and mobile technologies become more widespread in their application, tourists are more empowered to organize their own itineraries on the basis of more personalized criteria using a wide range of information sources outside of traditional channels and with both the media and social media playing an increasingly prominent role (Llodrà-Riera, Martínez-Ruiz, Jiménez-Zarco, & Izquierdo-Yusta, 2015). Destination areas may transcend political boundaries, thereby individual tourism actors may be limiting development initiatives between tourism actors for the reason of ignoring how the tourists geographically consume the destination (Gunn, 1993; Ioannides, Nielsen, & Billing, 2006; Lovelock & Boyd, 2006, Yang, 2018).

Recognising the need to rethink tourism destinations, authors such as Beritelli, Reinhold, Laesser, & Bieger (2015), Dredge (1999) and Paulino & Prats (2013) have suggested the need to abandon the view of tourism destinations as static all-inclusive geographical areas, distinguished by prescribed boundaries, to move to a more dynamic model of tourism destinations based on how tourists actually consume the space. Going a step further, Yang (2018) conceptualizes the shape, dimension and structure of the cooperation between attractions in Shanghai on

the basis of tourists' mobility and travel notes, as opposed to the government's perspective.

Leask (2010) has identified several key challenges to be addressed regarding tourism attractions, including evaluating the effect of visitor attractions within a destination area, identifying the supply elements related with visitor attractions and moving away from descriptive work towards empirical work in order to lead to the development of models applicable to the attraction sector. In order to fill these gaps and in meeting the requirement to understand tourists desires and needs, the aim of this paper is to rethink tourism destinations by considering how tourists consume destinations, with the focus on the visitation of tourism attractions. Given that attractions are considered to be the central element of the leisure tourism process and the basic elements around which a tourism destination develops (Gunn, 1993; Kušen, 2010; Leask, 2010; Leiper, 1990; Lew, 1987; Richards, 2002), this paper seeks to clarify the territorial influence of tourism attractions once the tourist is at the destination, extending the sphere of analysis beyond administrative boundaries. To do so, the extent to which attractions generate visitor flows from surrounding centres of accommodation and the factors which can be identified as affecting their territorial reach are analysed. Understanding the demand side constitutes an opportunity to plan and manage more effectively the destination and to shed light on opportunities for cooperation between attractions themselves, as well as between attraction and accommodation providers.

As a secondary goal, this study seeks to bring rural destinations back into research debates. The logistical complexities and extra effort needed when collecting data in a rural context, has left these destinations overlooked (Orellana, Bregt, Ligtenberg, & Wachowicz, 2012; Zoltan & McKercher, 2015); whereas urban and mature coastal destinations have been quite extensively studied (Bujosa, Riera, & Pons, 2015; Caldeira & Kastenholz, 2017; McKercher & Lau, 2008; Shoval, McKercher, Ng, & Birenboim, 2011).

Several conceptual papers have set out to describe the spatial patterns of tourists' movements at the destination level (Lew & McKercher, 2006; Lue, Crompton, & Fesenmaier, 1993; Oppermann, 1995), setting a precedent of case study analysis seeking to distinguish latent destinations within wider areas beyond administrative boundaries through the analysis of tourist flows (Baggio & Scaglione, 2017; Beritelli et al., 2015; Raun, Ahas, & Tiru, 2016). These studies, however, tend to focus on 'tracks' ignoring the territorial relationship between accommodation and attractions whilst others have highlighted such territoriality, but focusing on the accommodation hub in line with Lew & McKercher's (2006) territorial model (Caldeira & Kastenholz, 2017; McKercher & Lau, 2008; Shoval et al., 2011; Smallwood, Beckley, & Moore, 2012).

Truchet, Piguet, Aubert, & Callois (2016) have attempted to fill this gap by analysing the extent to which tourists' attractions influence the spatial development of tourism through the use of econometric analysis. They demonstrate that the influence (or catchment) area of attractions frequently operates on a supra-local level or even regional scale and consider the effect of attractions on tourism development. Tourism, however, is a complicated phenomenon due to the number of variables affecting tourists' flows; thus, in common with gravity models, estimating an attraction's influence area without considering tourists' patterns of visitation to attractions may lead to inaccurate assumptions regarding the scope and influence of attractions.

Here, a different stance is adopted, and the purpose of this research is to identify the spatial territoriality of attractions when considering aggregated travel patterns between accommodation and attractions. Initially, we consider the influence areas of an individual attraction by identifying the range of accommodation points from which tourist flows emanate. At this stage, we focus on factors explaining the particular visitation patterns. Secondly, we overlap the influence areas of several attractions through the identification of shared accommodation hubs of several attractions, highlighting the potential for the clustering of attractions.

The study cases are drawn from three European destinations: 1) a Mediterranean coastal Natural Park, 2) a Mediterranean mountain Natural Park and 3) and a British upland National Park. The intrinsic characteristics of rural destinations tend to lend themselves to a predominance of car-based trips, thereby encouraging multi-destination patterns of movement, rather than single attraction travel patterns (Blasco, Guia, & Prats, 2014; Connell & Page, 2008; Lue et al., 1993; Smallwood et al., 2012). The plurality and relative distinctiveness of the study cases can hopefully ensure the wider representativeness of the results and applicability to other similar rural destinations.

Data collection consisted of visitor questionnaire surveys at the main accommodation hubs and attractions. The data was analysed using a network analysis program and then represented in graphs and maps. The results are presented and discussed in terms of six main thematic areas: time distance, attraction characteristics, accommodation hubs, infrastructure, administrative boundaries and multiple attractions.

A main contribution is a deeper understanding of the role of tourist attractions in how a destination is consumed, and of their spatial relationship with and to points of accommodation. From the perspective of the planning and management of a particular individual attraction, it is of great utility to know where the tourists visiting are actually staying overnight, in what volumes and which factors influence such flows. The managers of attractions can gain a clearer picture of the influence areas of similar or neighbouring attractions, not only providing a potential catalyst for collaboration between attractions and accommodation providers, but also between attractions themselves. The conclusions of this paper are equally of value for regional and local administrations and for the managers of Destination Management/Marketing Organisations (DMOs) and may contribute to improvements in the managing and planning of destinations beyond the view of destinations as political/administrative constructs by taking into account the actual movements and patterns of consumption of tourists.

LITERATURE REVIEW

Influence area of an attraction

Attractions are considered the basic element around which tourism develops (Lew, 1987) and as the core element in generating demand and in shaping destination appeal (Weidenfeld, Butler, & Williams, 2010). Leask (2008, 2010 & 2016) provides a review of the literature addressing visitor attractions and the debate around what constitutes a visitor attraction. Here, however, we consider the essence of the demand-side perspective; thus, tourist attractions are those elements of a 'non-home' place which motivate travelers to visit them (Lew, 1987).

The concept of influence/catchment area considers the spatial relationship between attractions and their relative tourist generating-areas, (Chancellor & Cole, 2008; Eagles, Johnson, Potwarka, & Parent, 2015; Swarbrooke & Page, 2002), generally ignoring flows from accommodation to attractions within a destination. During the 1960's, Gravity models popularized a probabilistic formulation for predicting spatial interaction, which were also applied in tourism research. Despite their widespread implementation, these models became neglected in the tourism literature during the 1980's due to a lack of theoretical underpinning and the need to consider a host of assumptions about individual choice behaviour (Morley, Rosselló, & Santana-Gallego, 2014; Sen & Smith, 1995). Although gravity models have re-emerged recently with improvements in tourism demand modelling, such probabilistic approaches can still overlook the complexity of travel flows.

Regarding travel patterns, there are few studies which consider the influence area or territoriality of flows, and furthermore they put the focus on the accommodation side. (Shoval et al., 2011, Lew & McKercher, 2006; Smallwood et al., 2012). Despite a lack of empirical grounding, the influence area within a destination can be theoretically conceptualized through the Model of Attractions developed by Gunn (1993) who recognized the centrality of attractions (or a

nucleus) which need to include an outer zone with services and facilities able to support tourism.

The existence of a major attraction tends to stimulate the development of destinations by encouraging the establishment of support services and amenities required by tourists (Swarbrooke & Page, 2002). Despite their centrality, tourist attractions are merely one part of a complex tourism network within the destination and are interdependent with the wider tourism industry (Leask, 2008). Yang (2018) demonstrates how tourists' mobility affects the shape, dimension, and structure of cooperation in the destination, which is not always aligned with the arrangements supported by government. Service components are also an essential part of the attraction system, of which accommodation supply is the most important. If there is a lack of accommodation supply in the influence area of an attraction, intensive tourism activity is not likely to develop, even if there is a unique attraction (Lew & McKercher, 2006; McKercher & Lau, 2008). Fundamentally, locations which provide the requisite infrastructure for visitors are more likely to attract a greater number of visitors than those without (Chhetri & Arrowsmith, 2008).

As attractions constitute a key motivation for visiting a particular destination (Gunn, 1993; Kušen, 2010; Leiper, 1990; Richards, 2002), tourists' logical decision-making process first entails deciding upon an attraction to visit (whether it is a specific site, or a wider area) and then choosing a proximal site of accommodation (Gunn, 1993; Leiper, 1990). Furthermore, in multi-destination trips, where several attractions form the objective of the trip (Lue et al., 1993), tourists must consider the spatial dispersion of the different attractions and their attractiveness level as well as selecting their accommodation base. Moreover, once the tourist is at the destination, unplanned visits to attractions may occur as further information is received in-situ (Leiper, 1990; Prats & Marin, 2014). As result, each attraction is able to generate flows from a range of surrounding accommodation, potentially extending their influence area beyond the administrative boundaries.

In the case of single-destination travel patterns, tourists tend to choose accommodation and other services close to the attraction they intend to visit (Krakover & Wang, 2008). Attractions, however, are not isolated elements and flows within a destination cannot be explained by focusing upon a single attraction. A far more common situation is that each tourist engages with a range of attractions: that is to say, a nuclear mix (Leiper, 1990; Weidenfeld et al., 2010). In fact, multi-destination trips are especially common in touring destinations (such as rural areas) due to the spatial dispersion of tourism attractions and the degree of freedom allowed by the predominance of own car use. Thus, the logical single-destination pattern becomes more complicated in the case of multi-destination (or attraction) travel patterns. The literature suggests that tourists will choose accommodation which is located in the influence area of the attractions forming the key objective of the trip, and following the base-camp travel pattern (Lew & McKercher, 2006; Lue et al., 1993). In a nuclear mix, flows are affected by the cumulative effect of attractions (Connell & Page, 2008; Lue et al., 1993), with clustered attractions offering a critical mass that cannot be achieved individually, resulting in an increased market penetration of the influence area and in a better capacity to attract people from further afield (Lue et al., 1993; Weidenfeld et al., 2010).

Accordingly, individual attractions depend heavily on each other, to create a complex system that is greater than the sum of its parts (Leiper, 1995; Yang, 2018). As the literature on cooperation networks demonstrates, stakeholders within a destination usually work together to reach the same goals, seek market opportunities and find common points of interest (Jesus & Franco, 2016; Yang 2018). However, government often coordinates collaborative marketing and management activities between attractions, conditioning the cooperation network and preventing cooperation following consumer needs (Yang, 2018).

Factors affecting attraction consumption

Several factors affect the distances that tourists are willing to travel from their accommodation to visit attractions. Tourists are driven by their own motivations

to visit tourist attractions, generated by information received from a range of markers (Richards, 2002). Regardless of their intrinsic motivations, tourists may feel obliged to visit renowned or well established attractions (Lew & McKercher, 2006) and influenced by destination branding efforts, guide books and word of mouth (both traditional and electronic) (Prats & Marin, 2014; Xiang & Gretzel, 2010). Thus, regarding within destination travel patterns, such renowned attractions are likely to generate greater flows and from further away than more local scale attractions (Lew & McKercher, 2006; Pearce, 1989; Shoval et al., 2011).

The level of interest in a particular attraction is moderated by the Distance Decay law; this suggests that demand for activities decreases as the distance travelled, time, cost, or effort increases (McKercher & Lew, 2004). In rural destinations, the physical characteristics and dispersed nature of attractions across a destination may increase such time distances. As tourists are 'outcome' oriented, transit time is seen as a friction factor (Dietvorst & Ashworth, 1995; Lew & McKercher, 2006; Paulino & Prats, 2013).

Service and infrastructure components also exert a significant influence over the evolution of destinations and their spatial structure (Dredge, 1999). Given that accommodation is essential, the spatial relationship between the attractions and accommodation supply considerably affects the way a destination is consumed (Lew & McKercher, 2006; McKercher & Lau, 2008). Rural destinations are commonly characterized by more dispersed and lower levels of service components compared to more 'massified' urban or resort destinations. Truchet et al. (2016) found that whilst green areas generally have a positive and significant effect on tourism development, they do not foster any further tourism development beyond a certain point and are rather more associated with diffuse forms of tourism. Thus, spatial patterns may be less predictable in rural areas and may largely rely on neighbouring accommodation provision.

The distances that tourists are willing to travel also depend on each tourist's personal or intrinsic factors. Lew and McKercher's (2006) territoriality model demonstrates that Psychocentric tourists, at one end of the spectrum, tend to

remain in close proximity to their accommodation; whereas Allocentric tourists, at the other end, exhibit more unrestricted destination-wide movement. Moreover, attractions can seek to capture tourists' interest by appealing to their specific characteristics, values and motivations (Dredge, 1999). Personal factors aside however, the specific geographical nature of rural destinations tends to encourage tourists to establish a base-camp and subsequently explore attractions located within the concentric area (Connell & Page, 2008; Lew & McKercher, 2006; Lue et al., 1993).

Many factors affect motivation and the distances that tourists are willing to travel within a destination. Some factors relate to tourist characteristics, i.e. personal motivations, group composition, previous experience of the destination, length of stay, distance travelled from home to the destination or socio-economical characteristics. Other factors relate to the characteristics of the destination itself, i.e. attraction characteristics, attraction accessibility and spatial characteristics, and level of intermediation, among others (Lew & McKercher, 2006).

In the case of a nuclear mix, the number of variables increases as consideration must be given to the specific characteristics of each individual attraction as well as to the spatial relationship within and between them and the exogenous accommodation supply (Dredge, 1999; McKercher & Lau, 2008). Given the long list of factors influencing travel patterns, this paper adopts an empirical approach by analysing within destination travel patterns with the focus on attractions, in order to examine how tourist geographically consume a destination and explore the main factors affecting territoriality.

Case Study Areas and Methods

Case Study Areas

Three rural areas with quite varied attributes and features were selected to provide the basis for comparison between quite different destinations, yet all characterized by the spatial dispersion of both attractions and hubs of accommodation. In each case tourists demonstrate a high degree of freedom of movement and a tendency for touring behaviour.

The Ebro Delta is a coastal Natural Park featuring lagoons, marshes and natural beaches located at the Catalan Mediterranean coast (Spain). Tourism activities range from bird-watching to beach tourism including a wide range of rural, active and adventure activities and gastronomy. This area is divided by two supra-local administrations, with the Ebro river forming the dividing line between the two. The Natural Park delineation encompasses both sides of the river, but its functions with regard to tourism are limited. At the regional level, the Natural Park forms part of a larger branded destination area called the Terres de l'Ebre. This branded destination area also includes part of another selected case: The Ports area. The proximity of the two areas was one of the reasons for their selection, given that the identification of cross-boundary activity by tourists was a key focus of the study.

The Ports area is mountainous and is located just 70 km away from the Ebro Delta. The area is known for its rivers, trails and cultural heritage mostly linked to local gastronomy and rural towns. The Ports mountain range is divided into 3 Autonomous Communities (Catalonia, Aragon and Valencia). In this area there are several DMOs, each having coverage delineated by the relevant administrative boundary, with none having coverage of the entire mountain range in terms of either marketing efforts or in the planning and management of tourism. Equally, the natural protection of the area is not managed by one individual entity, and each autonomous community manages its natural environment separately. The study in this case focuses on the western side of the

mountain range as the slope works as a geographical border impeding flows of visitors from one side to the other (Paulino & Prats, 2013).

The third case, the Peak District National Park in the UK, is popular for its heritage and its wide range of nature-based activities. This constitutes an interesting case, representing a different administrative, topographical and climatic context. Moreover, in contrast with the other areas, the Peak District is surrounded by some of the most populous cities of the UK, and is one of the most visited National Parks in Europe. Although there are different administrative regions across which the National Park is spread, tourism is managed by one individual DMO: Visit Peak District and Derbyshire.

Methodology

Data collection at the three destinations sought to capture the range of accommodation points generating flows to attractions, and the frequency of such flows. The rural characteristics of the destinations restricted the use of innovative methods of data collection, partly due to a lack of mobile telephone network coverage (Paulino, Prats, Blasco, & Russo, 2016). Instead, direct surveys to tourists were selected as being a reliable and orthodox method.

Surveys were conducted in pre-selected places of attraction and accommodation hubs within the selected destinations. The pre-selection of attraction sites was carried out through content analysis of guide books and DMO websites for the attractions and of official registers for accommodation providers. A minimum of 4 generalist guide books of different scope were selected for each destination and content analysis considered the size and frequency of pictures, the amount of textual description, highlighted text and repetitions to classify the attractions into 3 categories of attractiveness or prominence: high, medium and low.

A pre-planning exercise was carried out to calculate the total amount of survey-days to be conducted in each location, based on the perceived level of attractiveness of attractions and the number of bed spaces available at

accommodation hubs and to equally incorporate the number of weekends, holiday and working days in each location.

The selection of survey participants was carried out randomly but in order to meet with accepted definitions of tourist, focused exclusively on leisure tourists excluding day visitors, those visiting for business purposes, tourists who had just arrived at the destination area, and tourists with a length of stay exceeding 60 nights (Ono, 2008). The selected respondents where then asked where they were currently staying overnight, and the attractions visited during that stay. To capture the demand-side perspective of the destination, tourists were allowed to freely identify tourist attractions, rather than selecting from a list. In total, more than 150 attractions and 60 accommodation points were identified in each destination area.

There is a wealth of literature using a wide range of methodologies and techniques to analyse the spatial patterns of tourists (Paulino et al., 2016). This paper uses mixed methods including geographical analysis, network analysis and summary statistics.

The individual survey data for each destination was aggregated into three single asymmetric matrices representing attractions (rows) and accommodation hubs (columns). Each cell represents the frequency of flows from a single accommodation to an attraction. The three matrices were input to the *Ucinet n*etwork analysis program and then graphically represented though *NetDraw* to provide a general overview of the results. Network graphs represent accommodation hubs (peripheral nodes around attractions) connected to an attraction (round red nodes) through tourist flows (links among nodes). Each *g*raph represents aggregated individual flows by weighted links.

From this, a table for each attraction was created including the number of flows and distance to each of the identified accommodation sites. Distance calculations were carried out using the driving time distance following the quickest route according to Google maps. Indeed, differences in road quality and topography in rural areas may lead to anomalous results using geodesic or road distances and

furthermore, tourism is a matter of use of time (Dietvorst & Ashworth, 1995). This data was used to classify accommodation with regard to time distance from an attraction, to calculate average time-distances and to graphically represent the distribution of time flows.

Graphs, tables and matrices were analysed in order to select the most representative cases illustrating the concept of 'within destination' influence areas and to help in the identification of influential factors. The selection represents the diversity of attraction characteristics considered in the literature as set out in the following table (Leask, 2010; Swarbrooke & Page, 2002; Wall, 1997):

Destination	Attractions	Attractiveness level	Spatial Characteristics	Type of access	Attraction type	Accommodation hub proximity
Ports	Vall-de-Roures	High	Point	Free	Cultural	Walking distance
	Toll del vidre	Low	Point	Free	Natural	Within 30 min.
	La Pesquera	Medium	Line	Paying	Natural	Within 30 min.
	Beseit	Medium	Point	Free	Cultural	Walking distance
	Parrissal	High	Area	Paying	Natural / Active	Within 30 min.
Ebro Delta	Trabucador	High	Line	Free	Natura l /beach	Within 30 min.
	St. Carles Ràpita	High	Point	Free	Cultural / beach	Walking distance
	Tancada	Low	Area	Free	Natural	Within 30 min.
	Desembocadura	Medium	Area	Free	Natural	Within 30 min.
	Casa de Fusta	Medium	Area	Free	Natural/ Cultural	Within 30 min.
	Creuers Delta Ebre	High	Point	Paying	Natural	Within 30 min.
Peak District	Chatsworth House	High	Point	Paying	Cultural	Within 30 min.
	Buxton	Hih	Point	Free	Cultural	Walking distance
	Mam Tor	Medium	Area	Free	Natural / Active	Within 30 min.
	Castleton	High	Point	Free	Cultural	Walking distance
	Bakewell	High	Point	Free	Cultural	Walking distance
	Monsal trail	Medium	Line	Free	Natural / Active	Within 30 min.

TABLE 1: SELECTION OF REPRESENTED ATTRACTIONS AND ITS CHARACTERISTICS

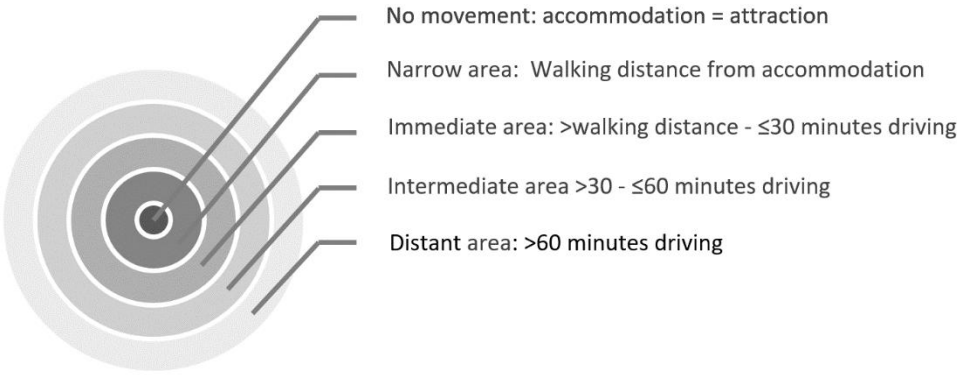

FIGURE 1: CONCENTRIC CIRCLES REPRESENTING DISTANCE OF FLOWS FROM ACCOMMODATION TO ATTRACTIONS

The final outputs presented in this study consist of ego-networks graphs, maps, distance decay graphs, tables and multi-network graphs. Ego-network graphs represent the influence area of a single attraction, where accommodation nodes are categorised according to Lew & McKercher's (2006) concentric circle model, showing time distance between the attraction and accommodations (Figure 1). Maps represent the spatial distribution and frequency-flows of attractions' influence areas represented in municipality-based maps using *ArcGis*. Distance decay graphs show the decay curve representing time distance and its frequency from an attraction to points of accommodation used by visiting tourists. The table shows a summary of the accommodation concentric categories and the main statistical calculations of the most representative attractions. Finally, multi-network graphs were constructed by combining several ego-networks to show the influence areas of multiple attractions. Lower visitation frequencies in these graphs have been cleared up to make it easier to identify the main patterns.

RESULTS

Here we present the results from the data analysis. Six main thematic areas were identified, which are presented and discussed below.

Time distance

The classification of accommodation hubs using concentric circles regarding time distance to attractions shows that attractions draw tourists mostly from the

narrow and immediate accommodation points in a minimum of 50% and a maximum of 93% of the cases (Table 2), with 80% of the flows coming from accommodation situated within 30 minutes' driving distance from the attraction and a meantime distance of under 30 minutes in most cases. This clearly demonstrates that tourists tend to base their accommodation within the immediate area of the attraction they visit regardless other factors.

Destination	Attraction	Attractiveness level	Narrow flows	Immediate flows	Intermediate lows	Distant flows	Flows mean (minutes)	Distant flows mean (minutes)
Ports	Beseit	Medium	36%	51%	10%	3%	16	81
	Parrissal	High	0%	50%	43%	7%	33	98
	Pesquera	Medium	0%	85%	9%	5%	25	82
	Toll del vidre	Low	0%	63%	30%	7%	33	73
	Vall-de-Roures	High	24%	58%	7%	11%	21	90
Ebro Delta	Casa de Fusta	Medium	0%	76%	22%	3%	21	68
	Creuers Delta Ebre	High	0%	71%	20%	9%	29	83
	Desembocadura	High	30%	38%	27%	5%	23	78
	St. Carles Ràpita	High	55%	32%	11%	2%	12	67
	Tancada	Low	0%	71%	25%	4%	20	71
	Trabucador	High	0%	74%	23%	4%	24	81
Peak District	Chatsworth House	High	0%	77%	20%	3%	22	82
	Buxton	High	54%	35%	10%	2%	13	68
	Bakewell	High	40%	48%	11%	1%	14	79
	Castleton	High	37%	47%	12%	3%	15	79
	Mam Tor	Medium	0%	79%	16%	5%	20	82
	Monsal trail	Medium	0%	93%	5%	2%	14	89

TABLE 2: PROPORTION OF FLOWS FROM ACCOMMODATION ACCORDING TO CONCENTRIC CATEGORIES AND THE AVERAGE TIME DISTANCE TO SELECTED ATTRACTION

Considering distance decay to be a universal law, the decay curve of flows generated from accommodation to attractions should follow a similar pattern. An idealised distance decay curve should tend to resemble figure 2, where the closest accommodation generates most tourists' flows, which then tend to decrease as the time distance increases. The spatial distribution, however, is not uniform and several factors can have a bearing on the influence areas of attractions. As a result, the distance decay curves examined in this study do

differ depending on the characteristics of a particular attraction, related infrastructure or the distribution of accommodation hubs.

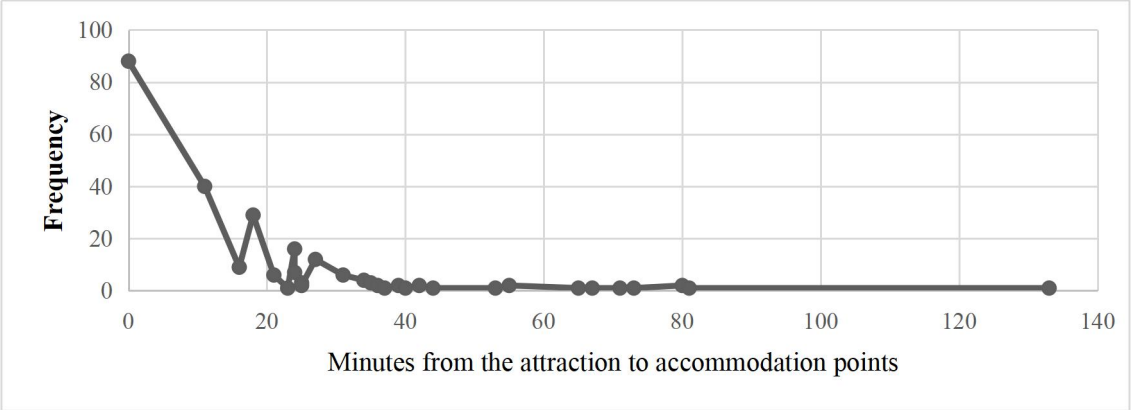

FIGURE 2: DISTANCE DECAY GRAPH OF BESEIT INFLUENCE AREA

Although not uniformly so, tourists do tend to base themselves close to the attractions they visit, showing that tourists' flows are constricted by travel time and highlighting the centrality of accommodation hubs. Furthermore, the frequency of flows in the decay curves falls off quite markedly at around 30 minutes, which means that most visits to attractions come from accommodation within such a time-distance from the attraction in question.

Characteristics of attractions

The overall level of attractiveness of attractions has been identified as a significant factor affecting the territoriality of influence areas. Here, the main differences identified between differing attractions consist of the number of flows and the number of accommodation points, rather than the maximal distances that tourists are willing to travel. The more attractive or unique the attraction is, the greater the number of flows received, and from a wider range of accommodation points. (Figures 3 & 4).

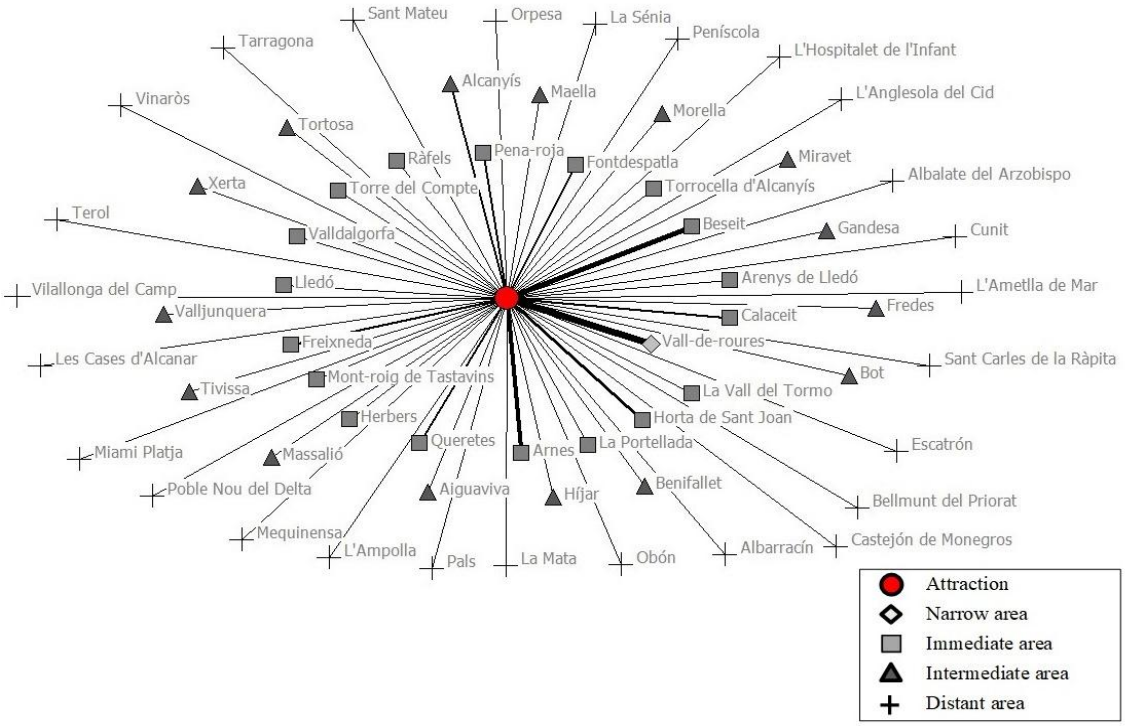

FIGURE 3: CONCENTRIC CIRCLES OF ACCOMMODATION GENERATING FLOWS TO VALL-DE-ROURES

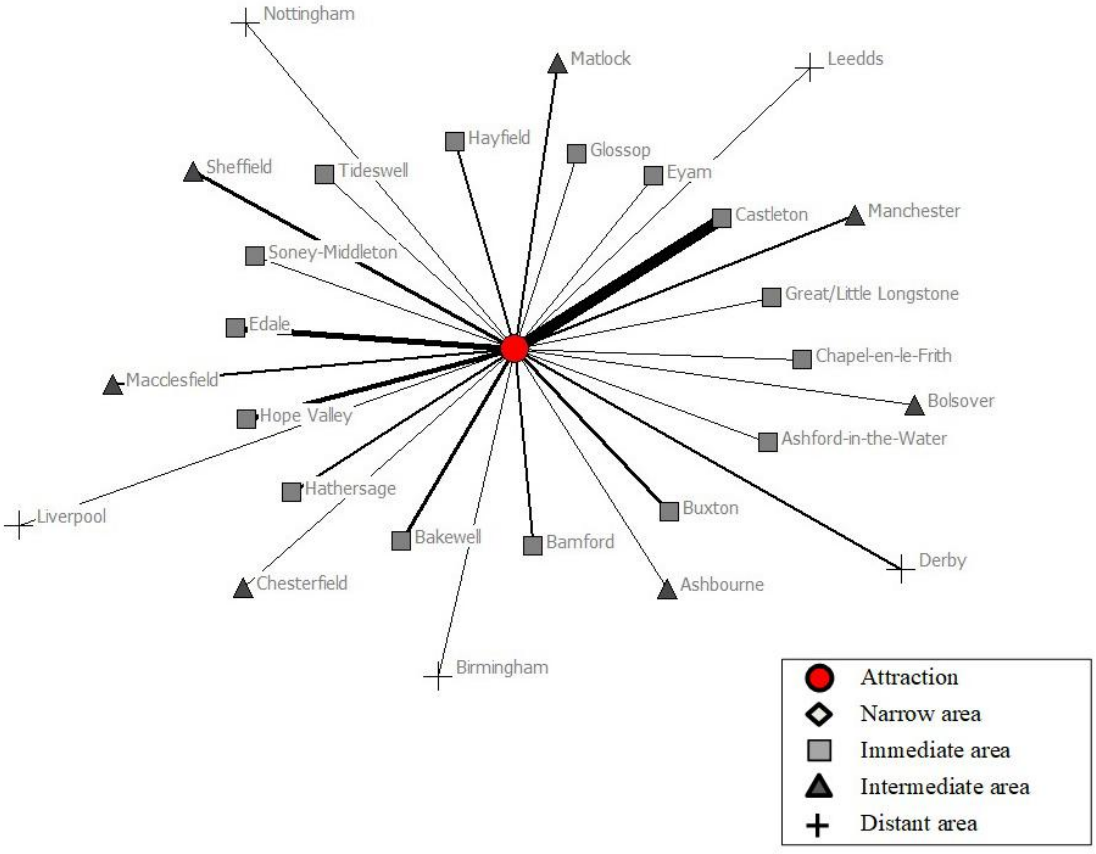

FIGURE 4: CONCENTRIC CIRCLES OF ACCOMMODATION GENERATING FLOWS TO MAM TOR

Evident differences can be noticed in the volume of flows and diversity of accommodation points between a 'high-level' attraction (Figure 3) and a 'medium-level' attraction (Figure 4). This is not to say, however, that medium and low-level attractions are not able to generate flows from further afield, and the results show that both medium and low-level attractions still receive flows from accommodation situated in the intermediate and distant areas. In fact, distance flows average and mean distance are similar in all the cases and differences cannot be attributed to the identified or perceived attractiveness level (Table 2).

With regard to other attraction characteristics such as accessibility, physical location or attraction characteristics, the results do not suggest clear differences in territoriality. Although attractions' influence areas show some distinct patterns of territoriality, they are not conclusive and many other factors may account for these differences.

Accommodation hubs

The accommodation offer is not uniformly distributed across the space. It tends rather to be concentrated in specific locations creating accommodation hubs, the specific location of which and its spatial relationship with the attraction strongly influence flows. Indeed, the specific location of accommodation hubs appears to account for the main differences between distance decay curves and influence areas.

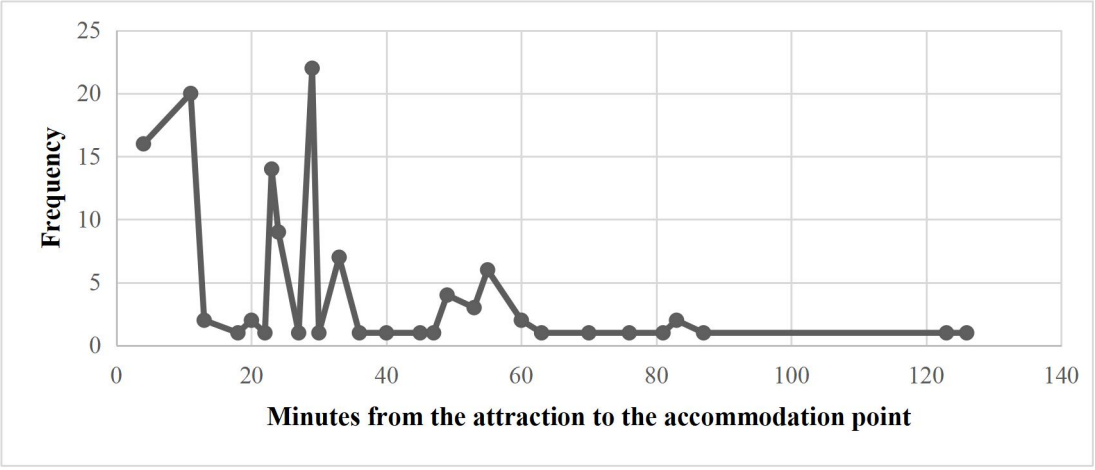

FIGURE 5: DISTANCE DECAY GRAPH OF CREUERS DELTA EBRE INFLUENCE AREA

Figure 5 shows the impact of an accommodation hub situated 29 minutes' time-distance from Creuers Delta Ebre. This accommodation point generates substantially more flows to the attraction than more proximal ones by simply offering more bed spaces.

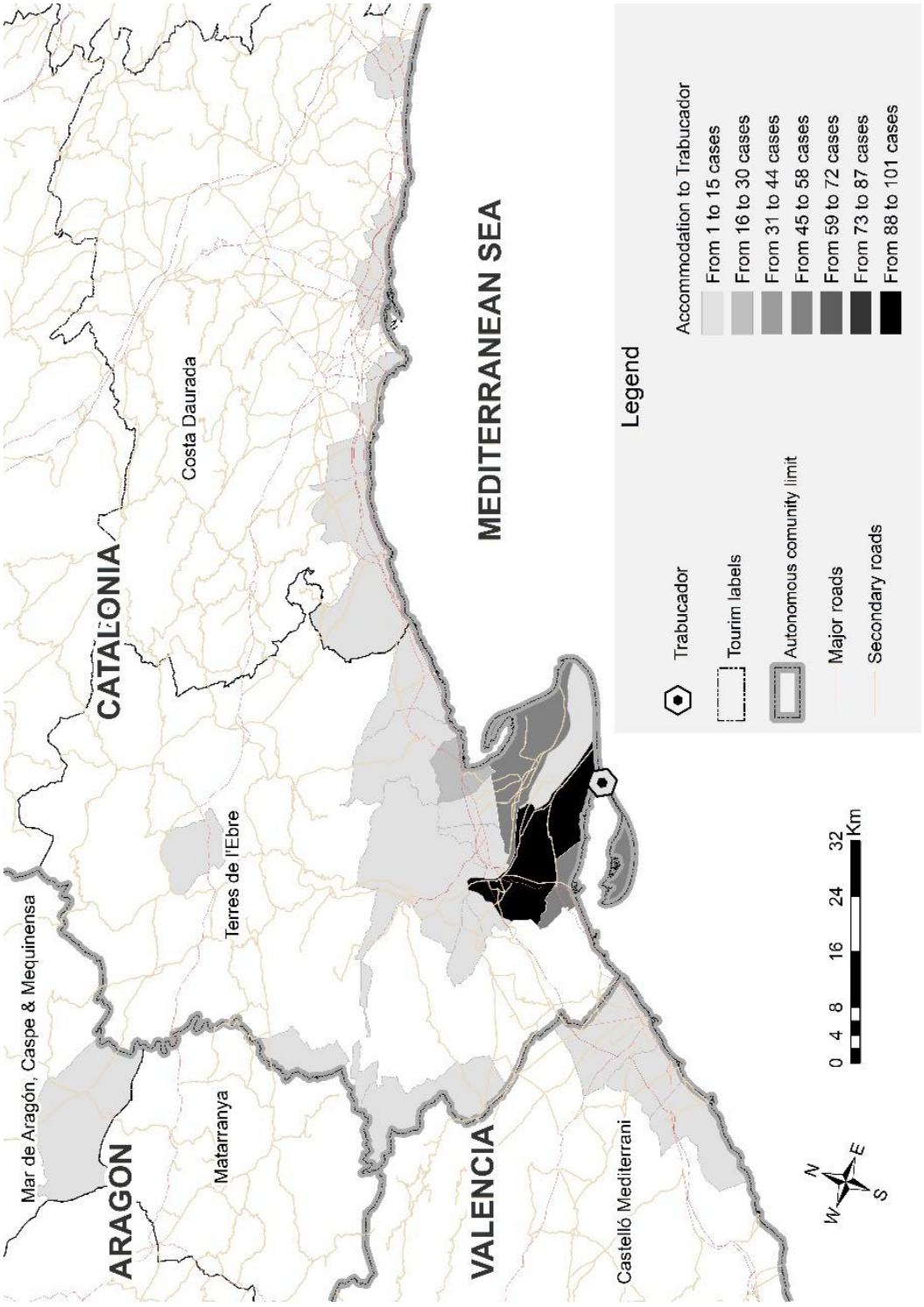

FIGURE 6: MAP OF TRABUCADOR INFLUENCE AREA

Furthermore, figure 6 illustrates on a map the role of accommodation hubs in generating flows to an attraction. Although the closest accommodation hubs supply the majority of visitors to this attraction; the map shows how the influence area follows the typically elongated spread of accommodation from coastal destinations (Smith, 1992). Conversely, many towns located close to the attraction generate little or zero flows due to the lack of accommodation offer.

Despite tourists' tendency to stay overnight close to attractions, significant differences have been detected between attractions with nearby accommodation and those without. In general, most flows come from the closest accommodation hub available in preference over more distant ones.

Certain attractions are both highly attractive and offer a significant number of beds within walking distance of the main attractions. Therefore, most tourists visiting them do, logically, stay overnight in the same town (Figure 7).

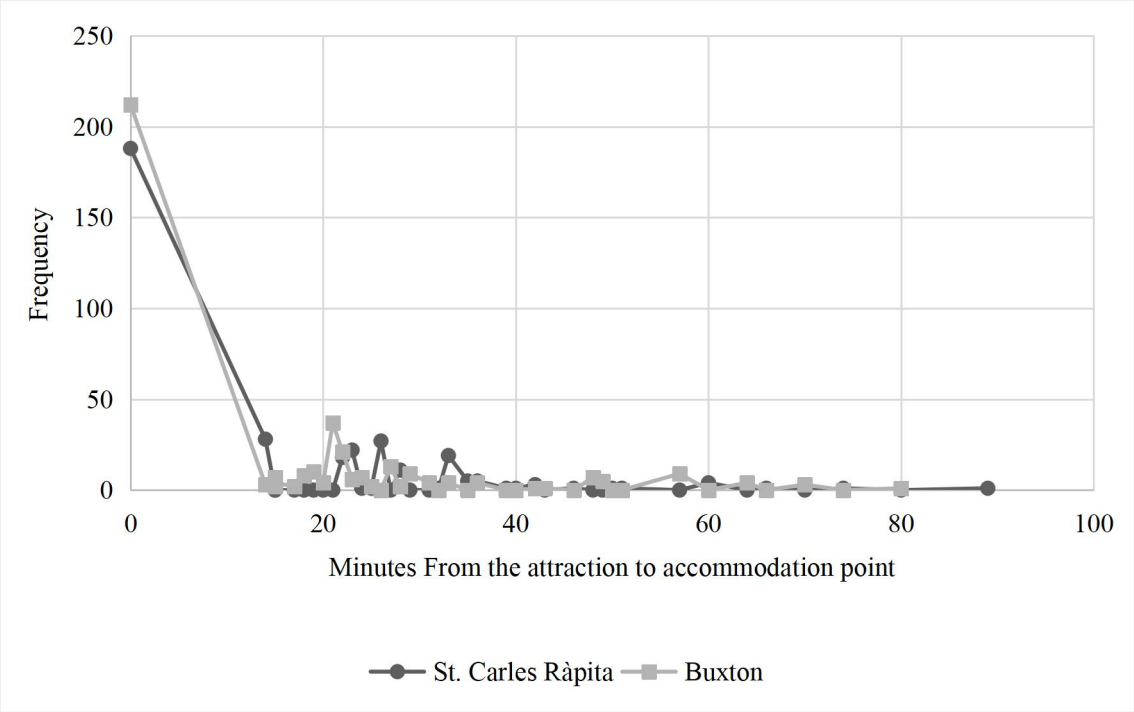

FIGURE 7: DISTANCE DECAY GRAPH OF ST. CARLES RÀPITA AND BUXTON INFLUENCE AREAS

When attractions do have a significant provision of beds within walking distance, as well as other accommodation hubs nearby, their decay curves still demonstrate this closeness tendency but with accommodation in the less immediate area also playing an important role (Figure 8 & Table 2).

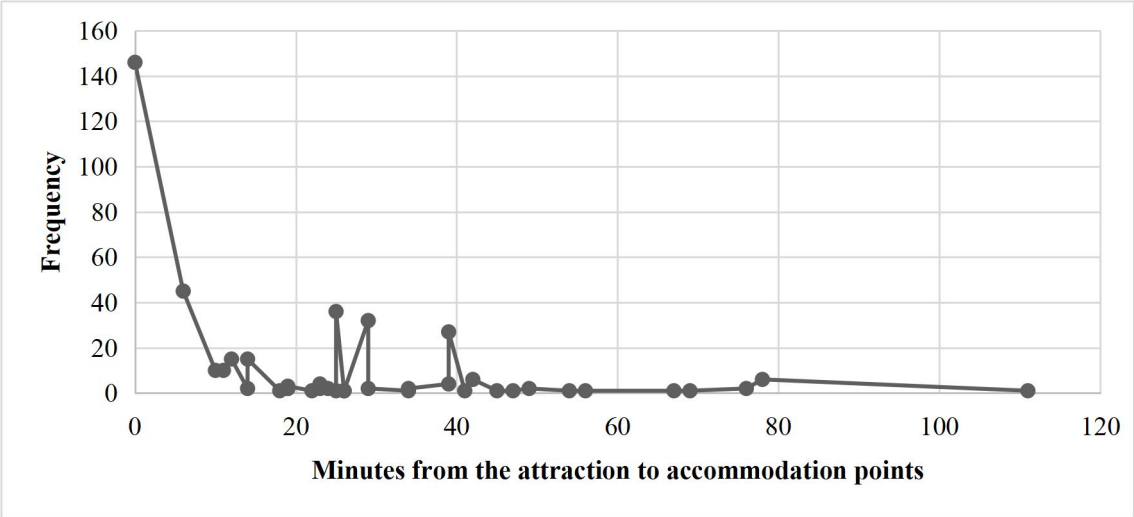

FIGURE 8: DISTANCE DECAY GRAPH OF CASTLETON INFLUENCE AREA

In other cases where accommodation is not available at a walking distance from an attraction, the closeness tendency is also apparent, since most flows come from the immediate area coinciding with the closest accommodation offer. The mean time-length of flows to such attractions is higher in these cases, given that accommodation points are more distant. Their influence areas usually show a delayed frequency pattern, including more flows from the intermediate area compared to attractions with accommodation offered in closer proximity (Figure 9 & Table 2).

Figure 9 compares two 'high-level' attractions, one with a large number of bed spaces within walking distance (Vall-de-Roures) and the other without (Chatsworth House). Contrasting with Vall-de-Roures, whose decay curve peaks within walking distance, Chatsworth House receives its peak flows from the immediate area coinciding with the closest accommodation hub (Bakewell). Several accommodation hubs at both immediate and intermediate distance are still significant regarding the amount of flows to Chatsworth House, showing this delayed pattern of frequency.

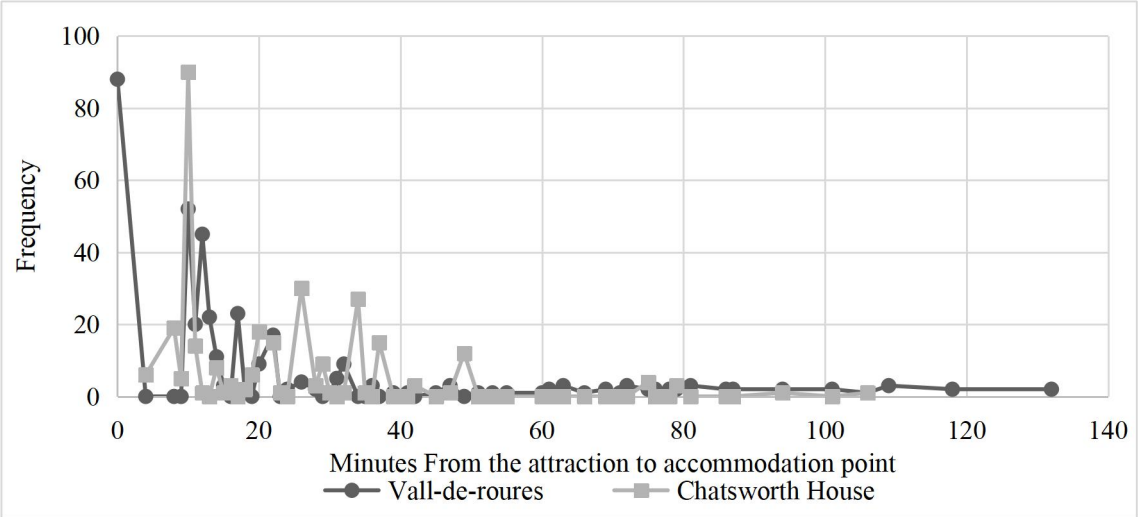

FIGURE 9: DISTANCE DECAY GRAPH OF VALL-DE-ROURES AND CHATSWORTH HOUSE INFLUENCE AREAS

Infrastructure

As previously suggested, the characteristics of a destination, such as topography and rurality, influence the quality of infrastructure. The amount and quality of roads is naturally related to time distance from accommodation to attractions and can produce significant differences in influence areas.

The Pesquera map (Figure 10) is a good example illustrating how the road network and topography affect flows between attractions and accommodation centres. In Ports', the main mountain ridge passes from south to north, partially coinciding with the administrative boundary between Aragon and Catalonia. The mountain range is so steep that practically no roads connect the western and eastern sides of the mountain. Tourists staying on the coastal side or at the eastern side of the ridge have to circumnavigate the mountain range to get to Pesquera and other nearby attractions. This has the effect of restricting flows coming from accommodation which are geodetically close, but on the other side of the mountain range. Conversely, some border municipalities from Catalonia situated on the same side of the mountain range host many tourists visiting the Pesquera attraction by virtue of the good road connection between them.

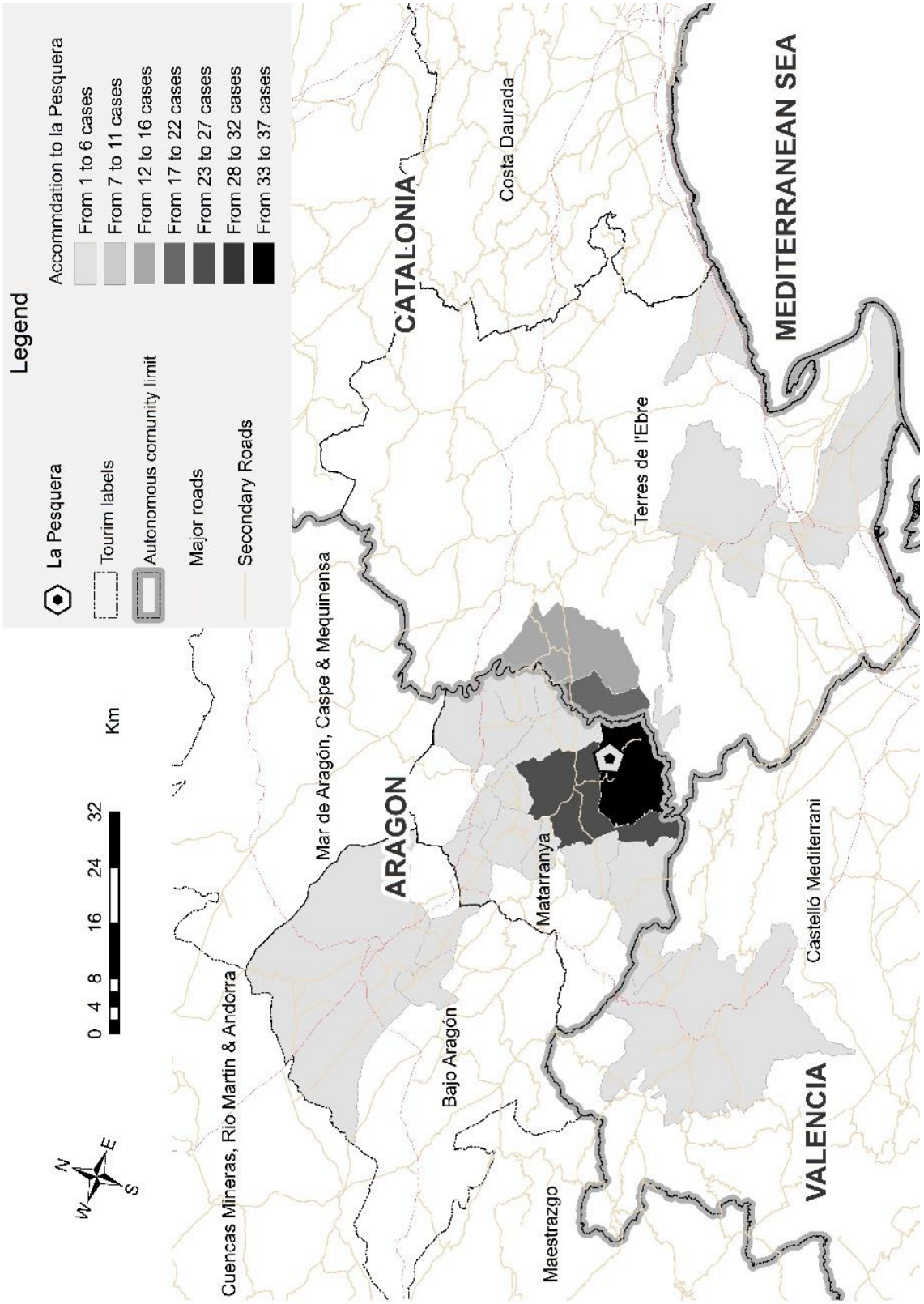

FIGURE 10: MAP OF PESQUERA INFLUENCE AREA IN PORTS

This influence of infrastructure is equally apparent in the Toll del Vidre decay curve (Figure 11). Tourists can only access this attraction via a narrow and twisting mountain road which takes 26 minutes driving from Arnes, the closest accommodation hub. Furthermore, tourists staying in other accommodation further afield also have to get to Arnes first and then follow this same mountain road.

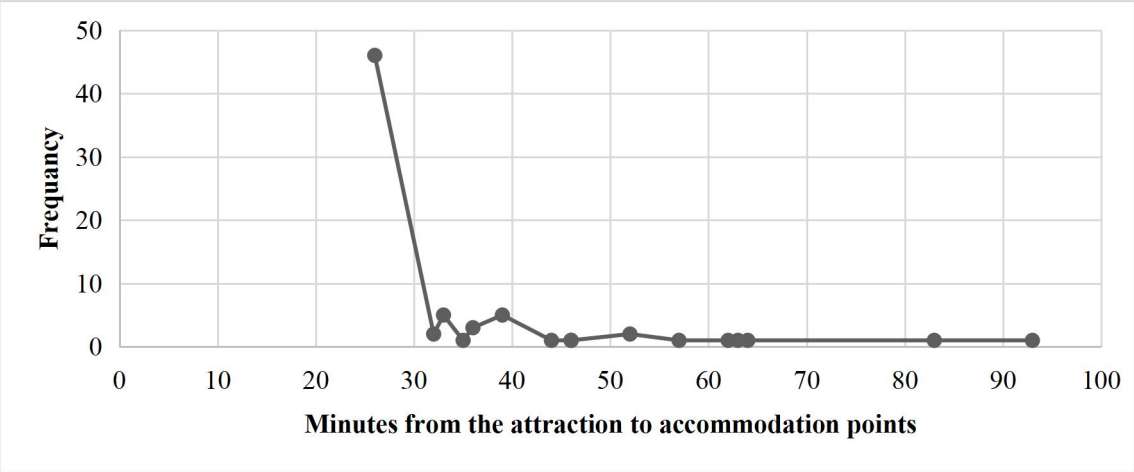

FIGURE11: DISTANCE DECAY GRAPH OF TOLL DEL VIDRE INFLUENCE AREA

Administrative boundaries

The maps of all three destinations clearly show how the influence areas of attractions are not confined to the administrative limits of the local authority or DMO boundary. Tourists mostly base themselves at accommodation hubs close to the attractions visited regardless of their location in terms of administrative boundaries, or even being within the same DMO area.

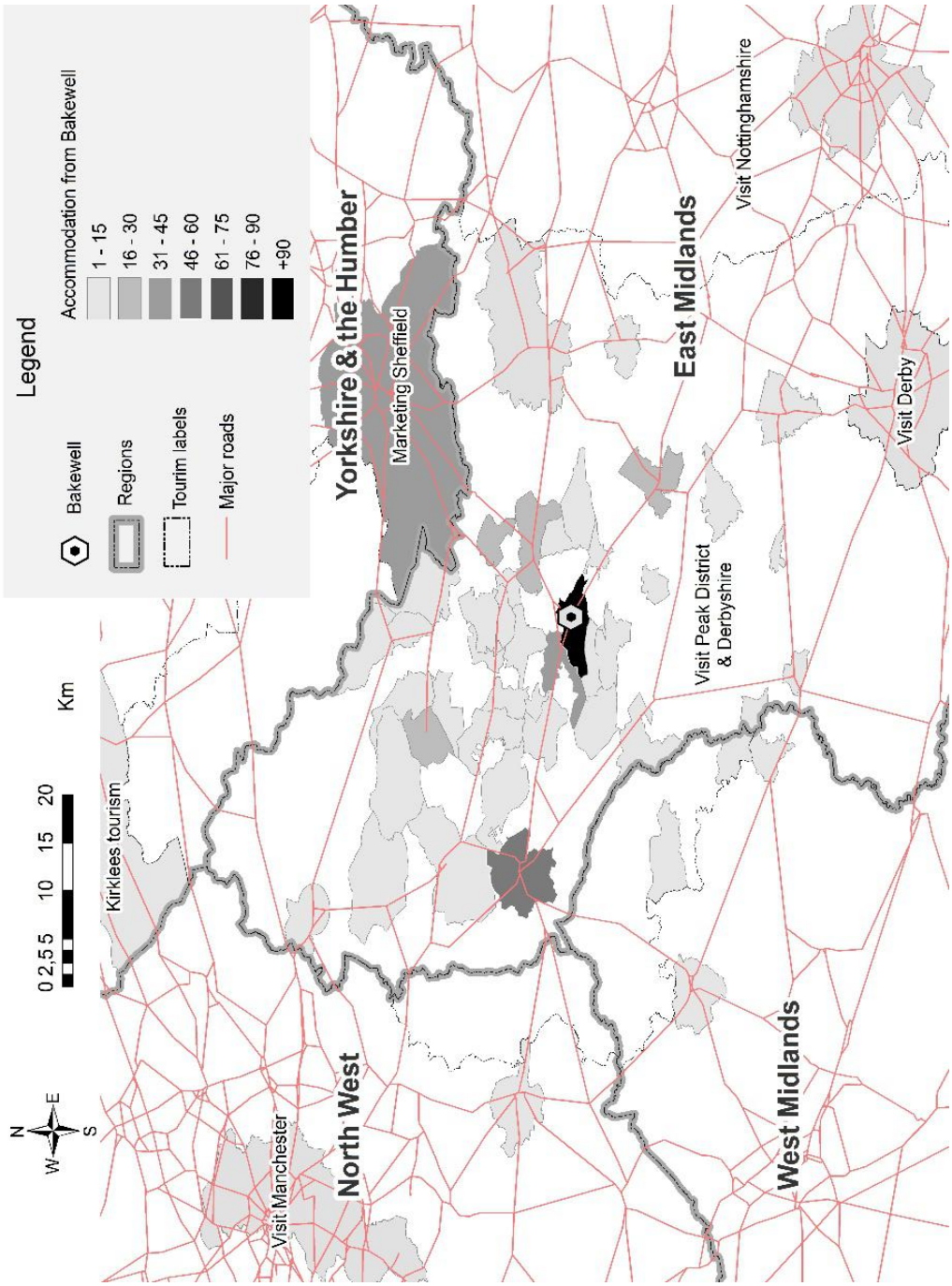

FIGURE 12: MAP OF BAKEWELL INFLUENCE AREA IN PEAK DISTRICT

As an example of this we have selected Bakewell, which is an attraction centrally located in the Peak District National Park to avoid more obvious transboundary flows. The map (Figure 12) illustrates, firstly that the Bakewell influence area extends beyond several administrative boundaries, and secondly, the significance of flows from accommodation in Sheffield, which is managed by another DMO and is part of another administrative region. Accommodation in

South Derbyshire, conversely, despite falling within the DMO's administrative scope, generates negligible flows to Bakewell.

Multiple attraction

Multi-attraction graphs provide the means to represent the influence areas of several attractions from within the same destination area simultaneously. They entail more complexity of analysis due to the wider range influencing factors associated with each of the attractions and accommodation hubs, as well as the spatial relationship between them. It is, therefore, difficult to find a single influencing factor which explains the differences in tourist flows, being influenced by a combination of factors. Multi-attraction graphs are, however, useful in that they allow us to identify the overlapping influence areas of the selected attractions, based upon the accommodations points from which tourists' flows originate to each attraction and the volume of such flows.

The examples used here illustrate both the influence areas of attractions without contiguous accommodation (Figures 14), attractions with a nearby accommodation offer (Figure 15) and a combination of attractions with accommodation and without (Figure 13). These results show differing degrees of overlap of influence areas, depending on the shared accommodation point and the frequency of flows coming from them.

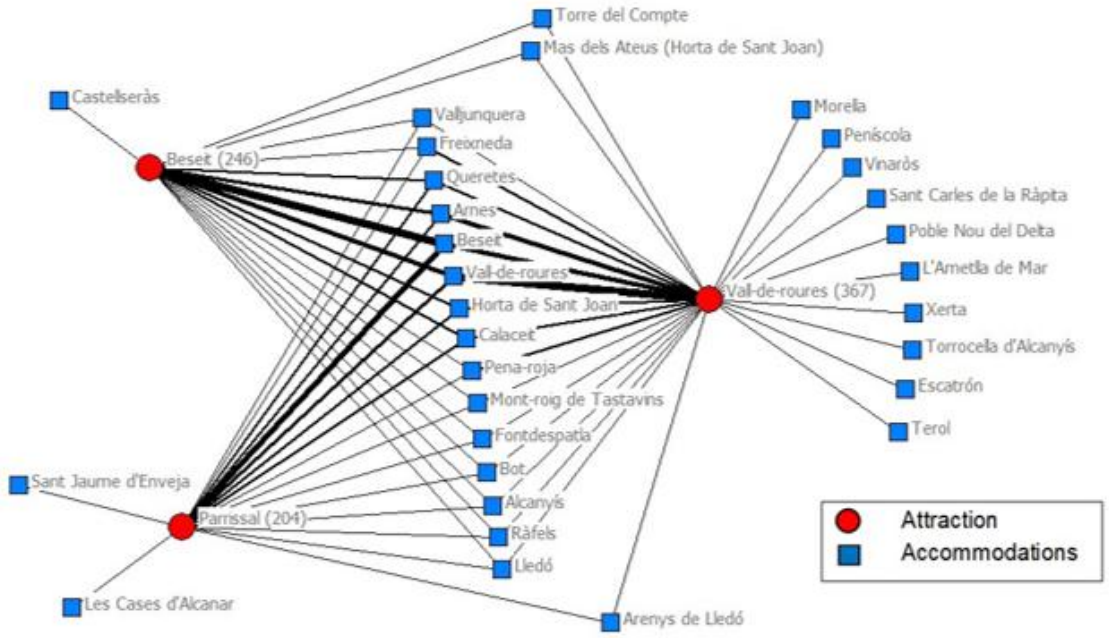

FIGURE 13: ACCOMMODATION POINTS GENERATING FLOWS OF INTENSITY HIGHER THAN 1 TO THE THREE MAIN ATTRACTIONS OF PORTS: BESEIT AND VALL-DE-ROURES WITH ACCOMMODATION WITHIN WALKING DISTANCE AND PARRISSAL WITHOUT

Figure 13 represents an example of three attractions with an evident overlapping in their influence areas, with the most frequent flows of tourists coming from the same accommodation points. With reference to figure 1, this graph indicates that these attractions and their related hubs of accommodation are naturally combined in some form of nuclear mix, as proposed by Leiper (1990). This, in turn, suggests that the overall level of attractiveness (and therefore level of visitation) is likely to be increased through this cumulative effect.

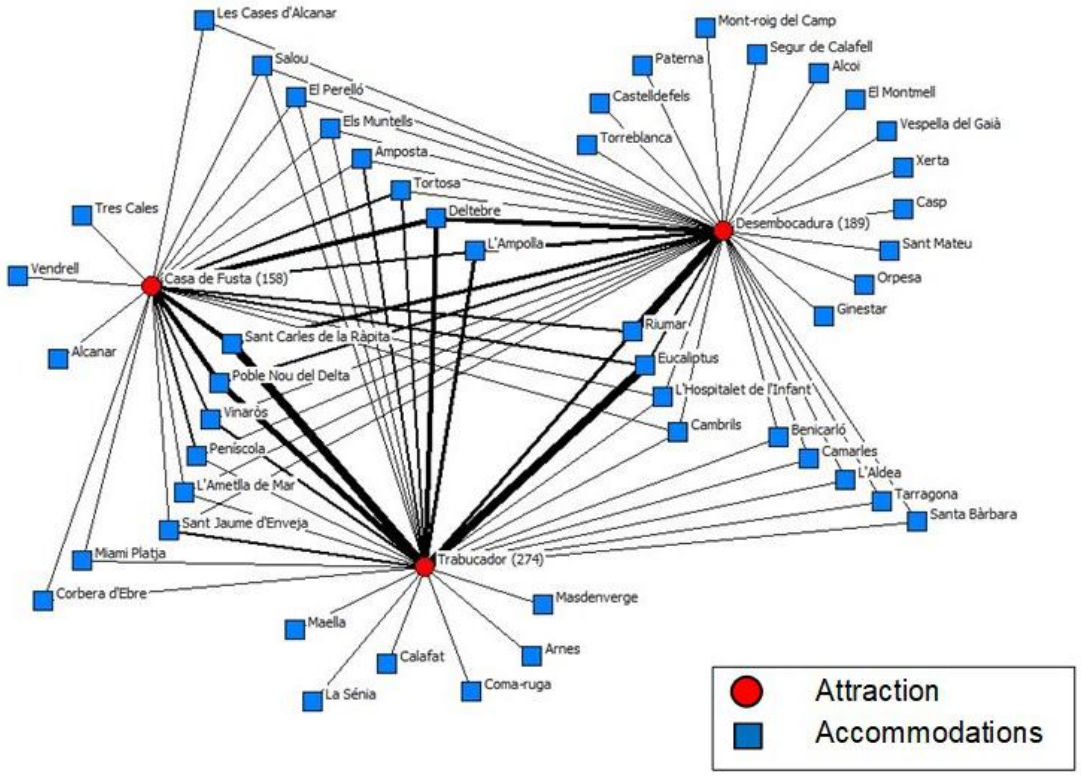

FIGURE 14: ACCOMMODATION POINTS GENERATING ANY FLOWS TO THE THREE MAIN ATTRACTIONS OF EBRO DELTA WITHOUT ACCOMMODATION WITHIN WALKING DISTANCE

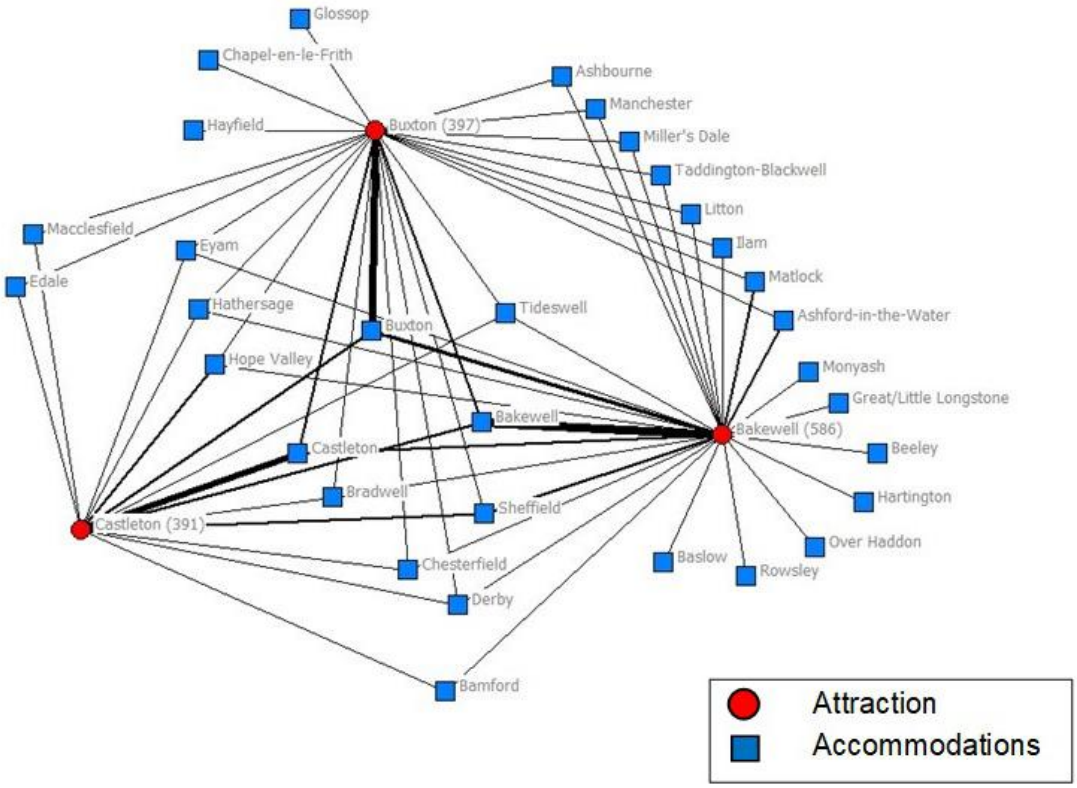

FIGURE 15: ACCOMMODATION POINTS GENERATING FLOWS OF INTENSITY HIGHER THAN 2 TO THE THREE MAIN ATTRACTIONS OF PEAK DISTRICT WITH ACCOMMODATION WITHIN WALKING DISTANCE.

In the case of partially overlapping influence areas (Figures 14 & 15), the attractions analysed tend to be more distant from the tourists' points of accommodation. This may represent different potentialities in terms of increasing the individual influence areas depending on each case. Isolated attractions without accommodation offered within the narrow nearby area, such as Mam Tor, Trabucador, Toll del Vidre or Creuers Delta Ebre are dependent on proximal accommodation hubs for the necessary support facilities for tourists (Figure 14 & Table 2). Otherwise, whilst attractions next to accommodation hubs, like St. Carles Ràpita, Buxton or Bakewell, tend to rely less on more widespread surrounding accommodation (Figure 15), they may still be interested in expanding their influence area either through collaboration with other attractions with conjoining influence areas, or by re-focusing their marketing efforts based upon this improved understanding.

Discussion & conclusions

This paper examines tourists' travel patterns, both within and between identified destination areas, in order to establish the scope and strength of linkages between points of accommodation and attractions in three different nature-based destinations as a means of challenging the current orthodoxy of administrative boundary-defined destinations and DMOs.

The results demonstrate that tourist do not restrict their movements on the basis of administrative or destination brand boundaries. As in Truchet et al.'s (2016) study, which found that influence area of attractions often goes beyond the supralocal or even regional level, none of the identified influence areas of the single attractions coincide with the destination areas, or with their administrative boundaries. In fact, the graphical representation of tourist movements demonstrates that the influence areas of the attractions in this study correspond rather more with convenient travel patterns, supporting the call to abandon the static all-inclusive geographical area approach tourism destinations (Blasco et al., 2014; Beritelli et al., 2015; Dredge, 1999; Paulino & Prats, 2013) as

the results here imply a much more dynamic model of tourism destinations based on how tourists actually consume the space.

In line with Lew & McKercher's (2006) Mackercher & Lau's (2008) and McKercher & Lew's (2004) findings about the influence areas of attractions in all three cases are largely determined by the spatial relationship between the accommodation supply and attractions. However, whilst a strong body of literature affirms that attractions are the core elements around which tourism develops (Gunn, 1993; Kušen, 2010; Leiper, 1990; Lew, 1987; Richards, 2002), these results clearly demonstrate that attractions and accommodation are interdependent and that the location and capacity of accommodation hubs also exerts a significant impact on tourist flows within a destination. This has been identified through the application of a distinctly different methodological approach to that of the aforementioned. Whilst they primarily consider the influence of attractions on the tourist's decision-making process, this research analyses travel patterns when tourists are already at the destination. Thus, the present study contributes to our understanding of interdependence between attractions and wider tourism industry, as suggested by Dredge (1999) and Leask (2008).

Data from the three destinations of study does ratify previous research with regard to the closeness tendency of flows between accommodation and attraction and the apparent decrease of flows between the two as time-distance increases (McKercher & Lew, 2004). The results here are, however, only partially comparable with findings in the extant literature, where the focus has been more on the territoriality of accommodation rather than that of attractions, and represents travel patterns within urban or sun and beach destinations (rather than rural) (Shoval et al., 2011; Smallwood et al., 2012). Furthermore, as opposed to spatial distance in the above mentioned works this paper takes the time-distance as a key metric, since tourists are outcome oriented and tend to minimize transit time (Dietvorst & Ashworth, 1995; Lew & Mckerker, 2006),.

Despite key differences, the results in the decay curves are similar to the findings of Smallwood et al. (2012), showing that the movements of tourists are highly

constrained by distance. Flows clearly peak at the narrow and immediate area and then quickly dwindle, ending with a long tail representing small flows from further away. In fact, 80% of the identified flows to attractions come from nearby accommodation hubs situated within the narrow and immediate area and most flows from accommodation hubs to attractions start to fall off dramatically beyond the 30 minutes' time-distance, whereas Smallwood et al. found this to occur at a geographical distance of 20 km.

Shoval et al. (2011) did find that accommodation location exerts a significant impact on tourist movements in an urban context, with a large share of visits carried out in proximity to accommodation. Although the present case studies does clearly demonstrate a similar tendency of closeness, the spatial dispersion of attractions in rural destinations and the focus on attractions' territoriality produces certain differences from Shoval et al.'s study. Many rural attractions suffer from a lack of accommodation within walking distance; meaning that the mean time-distance of the influence area is strongly affected by the location of the closest accommodation hub. Indeed, attractions with substantial accommodation provision within walking distance register their flow peak at the narrow area, whereas attractions without such local provision show the peak at the immediate area coinciding with the closest accommodation hubs.

The relevance of the 'closeness tendency' for accommodation hubs is also clearly observed in the practice of tourists basing their accommodation in accommodation hubs (including both resorts, towns and major cities), which are also themselves host to a renowned attraction. This confirms the previous results of Chhetri & Arrowsmith (2008) that attractions which provide accommodation opportunities for visitors are more likely to attract a greater number of tourists than those without.

Topography and the quality and coverage of road networks also affect the visitation patterns between the accommodation offer and attractions, and therefore produce differences between distance decay curves and influence

areas (Lew & McKercher, 2006). An example from the literature is the presence of the Hong Kong Harbour acting as a barrier in Shoval et al.' s (2011) study.

The results also indicate that the overall attractiveness level of attractions determines the number of flows and the diversity of accommodation points of their influence area. Previous literature has suggested that renowned attractions should generate more flows from distant areas than sites of medium and low attractiveness (Lew & McKercher, 2006; Pearce, 1989; Shoval et al., 2011), but the results from this study do not, however, confirm this. Although attractions do differ in the total amount of flows relative to their attractiveness level, most medium and low attractions still receive flows from accommodation points sited in the intermediate and distant areas in a similar proportion to 'high' attractions.

According to the literature, multi-destination patterns and touring behaviour are far more common than single-destination travel patterns in rural areas (Connell & Page, 2008; Lue et al., 1993). As the results demonstrate, attractions are likely to be interconnected with neighbouring attractions due to tourist flows coming from the same accommodation hub. This implies that the influence area of an individual attraction is not an isolated system, but can be considered interdependent of a larger system representing a symbiotic relationship between attractions and accommodations hubs affected by a range factors (Dredge, 1999; Gunn, 1993; Leask, 2008).

A destination is actually likely to include several attractions, each of which will have their own influence areas, which may overlap to a greater or lesser degree.

The examination of influence areas of multiple attractions provides a means to explore the relevance of Leiper's concept of a Nuclear Mix (1990) and the centrality of accommodation hubs (Shoval et al., 2011). The analysis carried out allows for the overlapping of several attractions' influence areas in order to identify the shared hubs of accommodation and the scope of the multi-attraction's influence area. Combining nuclear mix influence areas and single attractions' distance decay; we can see that most visitation by tourists is likely to occur at attractions located within 30 minutes travel-time of a shared

accommodation point. Despite this contribution, the multidimensional factors of each individual attraction and the spatial relationship between attractions themselves and between attractions and accommodation hubs causes complexity and make the accurate prediction od tourists' movements difficult (Lew & McKercher, 2006).

The main value of taking such a multi-attraction approach is to reveal the undervalued potential of linking individual actors within a system, in pursuance of the cumulative effect of combining multiple attractions (Lue et al., 1993) with the aim of achieving a multilateral collaboration to seek market opportunities and facilitate effective tourism planning and management (Dredge, 1999; Jesus & Franco, 2016; Yang, 2018). The degree of overlapping of influence areas is able to show not only the inter-relatedness of multiple attractions across administrative boundaries, but also where potential may lie to expand the influence areas of individual attractions, both through the identification of their main sources of visitors (accommodation) and of other attractions forming part of the observed tourist patterns.

In the case of major overlapping of multi-attractions' influence areas, tourists can often be seen to visit these attractions from the same accommodation points. However, nuclear mix patterns of destination development are not granted, and in this case, the development opportunity relies more on encouraging concentric style movement, characterized by multi-nodal exploration of 'safe' areas (Lew & McKercher, 2006).

Further to this, clustered attractions have the potential to increase market penetration by offering a critical mass that is not offered individually (Leiper, 1990; Lue et al., 1993). This, again, provides a motive and rationale for greater cross-border collaboration between individual attractions, in order to attract tourists visiting attractions which although nearby in geographical terms, may fall under the administrative and promotional remit of a separate body (Beritelli et al., 2015).

In the case of the minor overlapping of influence areas, the potential lies more in expanding the reach of individual attractions' influence areas. Collaboration in such instances is particularly interesting where attractions are geographically dispersed across rural areas, and typically lack any contiguous accommodation. A lack of the necessary supporting facilities and infrastructure in these satellite attractions drives tourists to depend upon a symbiotic relationship with the support services offered at the 'base-camp' location (Lue et al., 1993). Thus, following the tourists' tendency to closeness of visitation and accommodation hubs, remote attractions without their own accommodation should focus on collaborating with 'base-camp' areas situated in the immediate and intermediate areas. These base-camp locations may also benefit from such collaboration as a means to increase the length stay of tourists (and thereby expenditure) by offering them more options and making the place worthier of visitation.

In conclusion, the identification of the existence of overlapping influence areas demonstrates that, when viewed in terms of tourists' travel patterns, destinations have no clear boundaries, but are rather interrelated subsystems. The results demonstrate that an understanding of attractions' influence areas is key to deciphering the role of individual actors in tourism destinations. At the same time, the overlapping of influence areas demonstrates the interconnection of individual actors within an interrelated system, and hence the importance of collaborating to seek market opportunities and to facilitate the effective planning and management of tourism.

Whilst the demand side approach of this study does present a critical perspective on the marketing and management of tourist destinations, the omission of other actors' point of view, such as residents, administrators or tourism industry (particularly the managers of attraction and providers of accommodation) does represent a weakness. In addition, the demand side approach is focused on territoriality patterns once the tourist is at the destination, without exploring motivational factors influencing tourists' decisions or other personal factors.

With regard to the methodological approach employed, technological limitations faced in rural destinations have prevented the use of more advanced techniques able to capture more data from a wider area or to track individual tourists. Furthermore, the methodology employed did not allow for the calculation of the exact degree of significance of each influencing factor, nor it was able to confirm the nature of more minor influencing factors, which potentially enrich the precision of gravity models. Moreover, the nature of the data collected was only able to show aggregated influence areas based on a limited number of variables.

Future research should explore influence areas and distance decay graphs in regard to tourist profile, length of stay or distance travelled from home. Finally, in regard to multi-attraction' influence areas, some cases point to a latent destination as identified from the point of view of tourist consumption, something which could be more fully explored through the examination of direct flows between attractions. Furthermore, questions such as whether patterns of consumption were pre-planned and motivated by factors exogenous to the destination, or driven by endogenous factors once at the destination, or indeed, whether tourists themselves even consider their movements as occurring at a 'destination' level, are certainly worthy of further consideration.

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PUBLICATION 3

Identifying tourism destinations from tourists' travel patterns

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IDENTIFYING TOURISM DESTINATIONS FROM TOURISTS' TRAVEL PATTERNS

JOURNAL OF DESTINATION MARKETING AND MANAGEMENT

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ABSTRACT

Traditionally, tourism destinations have been delineated following administrative boundaries. However, it is questionable whether these boundaries are the most desirable spatial configurations to facilitate tourists' flows and the management of services within a geographical area. Several authors have argued that the way in which tourists consume a destination needs to be taken into consideration in order to improve destination planning and management.

This study advocates the geographical functionality of destinations based on destination travel patterns for the geographical consumption of their attractions and services. Territoriality of aggregated travel patterns within two different rural areas are explored to propose consumer-based destinations which would be better adapted to consumer needs. Furthermore, consumer-based destinations may improve destination planning and management by providing tourism actors with information on how tourists consume the destination.

This study contributes with methodological innovation by combining network and geographical analysis to explore a network of aggregated travel patterns and its geographical attachment. Thus, the main contribution of this study is the opportunity to adapt the destination to tourists by identifying consumer-based destinations boundaries and the factors that influence the specific travel patterns within the destinations. Ultimately, these travel patterns determine the size and shape of destinations from a social construction perspective, which differs from an administrative one. Secondly, the study reveals the role that certain attractions and accommodation hubs play in overlapping different destinations regions, and the opportunities this offers for improving destination planning and management.

KEYWORDS: tourism destinations; destination planning; destination management; attraction clusters; tourist attraction management; within-a-destination travel patterns; rural areas

Introduction

Tourism destinations are commonly planned and managed following the administrative boundaries of the corresponding territorial administration, without considering how tourists geographically consume destinations. This means that a destination may not be adapted to consumers' needs. Thus, the destination may be missing out the opportunity to improve planning and management to the detriment of sustainability and business favourable circumstances. Furthermore, tourism mobility patterns have become more massive and complex, providing more evidence that the destination model based on administrative boundaries is severely outdated. There is a need to bring back previously unsolved debates on destination planning models and the definition of tourism destination boundaries (Framke, 2002; Getz, 1986). Tourists are the final consumers of a destination; therefore, destination managers need to ascertain the most appropriate and effective geographical attachment for the tourists' use.

Previous literature has highlighted the fundamental role of understanding tourists' movements in order to plan and manage tourist attractions, accommodation, or transport links, but without proposing a method to redefine destinations (Lue, Crompton, & Fesenmaier, 1993; McKercher & Lew, 2004; Shoval & Ahas, 2017). The concept of base-camp travel pattern (Lue et al., 1993), is directly linked to the definition of local destination (Lew & McKercher, 2006, p. 405) as: 'the area containing products and activities that could normally be consumed in a daytrip from the heart of the destination', which implies that tourists are convenience-oriented when geographically consuming the destination. Other researchers have suggested abandoning current destination limits, focusing on tourist's direct tourism flows and the spatial structure of attractions visited in sequence (Baggio & Scaglione, 2017; Beritelli, Reinhold, Laesser, & Bieger, 2015, Kang, Lee, Kim, & Park, 2018). However, they fail to explore the structure of attractions considering tourists' travel patterns throughout the complete stay at a destination. Therefore, there is the need for research which integrates the redefinition of tourism destination boundaries on

the basis of the how tourists geographically consume the destination during their complete stay.

In order to fill this gap, the main aim of the present study is to identify tourism destination boundaries based on how tourists travel patterns during their stay at the destination. This first entails dismantling existing tourism destination borders, and, second, redefining tourism destinations in a way that takes tourists' visitation patterns into account. Thus, the study focuses on aggregate travel patterns within a destination, to find systems of tourism attractions usually visited together. Furthermore, these systems should enable individual tourism attractions to belong to more than one destination system if travel patterns can justify it. Thus, new destinations should not be all-inclusive geographical areas distinguishable by border lines (Beritelli et al., 2015); but rather areas containing tourism attractions usually visited together, and which may overlap geographically (Dredge, 1999).

To achieve this general aim, the specific objectives of the present article are twofold: firstly, to propose and implement a method capable of identifying coherent functional areas for tourist use, based on the concept of local destinations (Lew & McKercher, 2006), the cumulative effect of tourist attractions (Lue et al., 1993) and the territoriality of travel patterns (Lew & McKercher, 2006). Secondly, to detect overlapping destinations by exploring factors influencing travel patterns and by focusing on elements of the destination largely affected by secondary travel patterns.

Two European nature-based areas have been selected as cases of study, one in the UK and the other in Spain. Data was collected using in-situ surveys from relevant preselected locations. Travel patterns from a number of individual tourists were compiled and aggregated to determine which places were usually visited together. The methods combine the analysis of the attractions' network (constructed from these aggregated data) and their geographical attachment. Specifically, community (i.e. cluster) analysis was applied on the aggregated individual network, allowing to distinguish groups of attractions frequently

visited together during the stay in an area representing the consumer-based latent destination. Then, networks were exported into maps in order to analyse the spatial relationships within grouped attractions and associated accommodation hubs.

The findings identify consumer-based destinations which partially overlap with the neighbouring ones and which are highly influenced by convenient travel patterns. Results identify time distance, the communication networks, accommodation hubs and certain prominent attractions as being elements which influence the resulting consumer-based destinations and their level of overlay.

This article contributes, firstly, with an innovative method capable of identifying consumer-based destinations, which can represent an opportunity to adapt the destination to consumer needs. Secondly, this method reveals the territoriality of travel patterns within a destination, as well as the role of certain attractions and accommodation within and across the detected destinations. This represents an opportunity to improve planning and management in order to seek market opportunities and promote the sustainability of the destination.

The rest of the paper is organised as follows. The next section outlines the literature review, which critically overviews tourism destinations and travel patterns to propose a research framework. Sections three and four introduce the case studies and the methodology, respectively. Section five presents the results and discussion on thematic topics. Finally, section six highlights the main output and contributions of the study, summarizes the main ideas, and outlines limitations and future research opportunities.

LITERATURE REVIEW

Tourism and political boundaries

Social scientists have widely addressed the topic of borders and their effect on tourism phenomenon (Porcaro, 2017). Most research on this topic focused on international borders and their effect on tourism, since they are the most

significant when exercising influence on human experience. An existing body of evidence observed the undervalued possibilities of adjacent tourism areas on either side of the borderline, producing the artificial political division of latent or 'natural' cross-border destinations. The destination as a network of neighbouring tourism actors may suffer a lack of co-development initiatives and inconsistencies in terms of tourism regulations, policies and promotion, because they belong to different administrative systems, which hinder the destination development to a greater or lesser extent (Gunn, 1993a; Kang, Kim, & Nicholls, 2014; Lovelock & Boyd, 2006; Matznetter, 1979; Yang, 2018). In fact, since most destinations are designed on an administrative basis, tourism policies tend to favour particular spaces within the area, and neglect, marginalize or exclude others (Kang et al., 2014). When croos-border cooperation exists, obstacles inhibiting tourism's development may appear when the administrative interests of the respective bordering areas differ from the interests of the regional cross-border destination (Ioannides, Nielsen, & Billing, 2006). Furthermore, governments often coordinate any cooperative marketing or management strategies between attractions. This influences cooperation between them in a way that makes them fail to focus on consumer needs (Yang, 2018).

Cross-border tourism literature provides ample evidence that tourists consume attractions from both sides of the border (Blasco, Guia, & Prats, 2014a&b; Ioannides, Nielsen, & Billing, 2006; Lovelock & Boyd, 2006). Yang (2018) compared tourist flows among attractions with the structure of tourist attraction cooperation as promoted by the government, and found that government policies were frequently inconsistent. These resulting tensions and impediments are not only found in destinations divided internationally, but at all administrative levels to a greater or lesser extent. A number of studies have supported the idea that these boundaries may also be an obstacle to the natural development of a destination (Framke, 2002; Paulino & Prats, 2013; Paulino, Prats, & Schofield, 2019). Timothy (2002), recognized that sub-national boundaries and local administrative divisions also effect tourism significantly, as these internal boundaries are involved in developing the majority of jurisdiction

regarding tourism policies and regulations. In fact, Destination Management Organizations (DMO) are mostly delimited following sub-national or local boundaries for the managerial convenience of the public administrations on which they depend.

Most research on tourism destinations take the existing boundaries of destinations for granted, without considering alternatives. However, an increasing number of studies advocate that administrative-based destinations are obsolete as they may not represent the destination visited by tourists. In fact, tourists do not necessarily stop when they reach the limit of a destination, which suggests that destinations are often artificially divided. Modern DMOs fail to take consumer preferences or tourism industry functions into consideration, by meshing everything within the DMO boundaries into one single, rigid brand which can only be distinguished by its borders (Beritelli et al., 2015; Buhalis, 2000; Saarinen, 2004).

The concept of tourism destinations

Researchers and practitioners of various tourism disciplines have been debating the concept of tourism destinations and their geographical boundaries since the 1970s. (Framke, 2002; Jovicic, 2019; Saraniemi & Kylänen, 2011). As yet, there is no consensus on whether tourism destinations should be fixed or fluid, functional or administrative-based, consumer-oriented or a production system, a geographical unit or value chain. (Asero, Gozzo, & Tomaselli, 2015; Buhalis, 2000; Edensor, 2009; Framke, 2002; Gunn, 1993b; Saraniemi & Kylänen, 2011).

Destination boundaries are hard to define as each destination may appear totally different in terms of shape, content, and its relationship with tourism actors (tourists, companies, residents or public administration), which leads to multiple approaches. Some consider the destination as a “Regiopolis” (Gunn, 1993), while others propose geographical clusters based on the time proximity of tourism assets (Blasco et al., 2014b; Paulino & Prats, 2013). Yet others focus on the supply side (Pearce, 1998), or even defend the need to consider both industry and tourist perspectives (Saraniemi & Kylänen, 2011). Although these varying

perspectives offer a critical view of tourism destinations following administrative boundaries, they fail to take into consideration the consumers' point of view. Several authors have pointed out the need to plan and manage destinations from the consumer's point of view, given that tourists play a central role in the definition of a destination and they are the ones who ultimately consume it (Beritelli et al., 2015; Dredge, 1999; Leiper, 1990).

Leiper (1995) already defined tourism destinations from a demand-side perspective as a geographical area to which tourists travel to visit attractions. In this respect, Hong, Ma, & Huan (2015) and Asero et al. (2015) found that network links between attractions and the shape, dimension and structure of the destination are closely correlated with tourist flows. Thus, tourism destinations should move to a more dynamic model of subsystems based on how tourists geographically consume the space and their travel patterns in order to finally abandon the concept of a tourism destination as a rigid unit labelled following a delimited geographical area (Dredge, 1999; Beritelli, Bieger & Laesser, 2014; Beritelli et al., 2015).

Tourism destination boundaries with a focus on travel patterns

Many economic and business-oriented studies criticize the present tourism destination boundaries, and request a new managerial approach based on the structure of destinations (Beritelli et al., 2014, Yang, 2018). Several studies argue that tourists aid in activating or deactivating places through their travel patterns. Therefore, destination structure and the network relationship are studied on the basis of tourist flows acting as activators on the supply side (Asero, et al., 2015; Baggio & Scaglione, 2017; Shih, 2006; Stienmetz & Fesenmaier, 2013, 2015). Following this approach, tourism is understood as a social process initiated by the demand side, and which needs to encourage private supply and public services (Beritelli et al., 2015). In fact, using the business-oriented approach to analyse tourists' 'touch points' is crucial in order to understand that tourism destinations are a system or network of elements connected by tourists' travel patterns, rather than being a continuous geographical space.

However, even if the business-oriented perspective were to consider tourist travel patterns, it is still too focused on the supply-side of destinations, as they ignore elements of destinations which are valuable for tourists, but not considered part of the value-chain. Moreover, most existing studies have failed to recognize the whole tourism phenomena within a destination as a system, and only view it as a linear value chain, or bilateral connection based on direct tourist flows or routes. Only Stiemetz & Fesenmaier (2015) considered the attractions connection from the perspective of the whole stay in the area, and not linear flows alone; however, their focus was on expenditure, and not on delimiting destinations from the viewpoint of tourists' travel patterns.

Travel patterns and influencing factors

Socio-geographic authors have contributed substantially to explaining and analysing tourist behaviour using grounded theory. One of the most important contributions to grounded theory from the field of geography is the usage of linear path models, which simplify thousands of individual, spatial tourist movements, showing schematic theoretic patterns (Lue et al., 1993). In contrast, few studies have provided a theoretical background to territoriality of travel patterns which categorize tourists' explorations of a destination according to how far they venture from the heart of the destination (Gunn, 1993; Lew & McKercher, 2006).

Although this socio-geographic contribution is essential in order to understand tourism phenomena, it fails to enter into the discussion on destination boundaries (Framke, 2002). In addition, its geographical analysis tends to be overattached to the continuity of space, failing to fully reflect the way tourists consume destinations (Beritelli et al., 2015). Only a few studies, which apply territorial models (Paulino, et al., 2019; Paulino, Prats, & Whalley, 2019), observed that within-a-destination travel patterns goes beyond the administrative boundaries. However, these studies only considered the bilateral relationship between accommodation and attractions, without exploring all the elements visited by tourists during their stay in the destination area.

Authors in the fields of sociology and geography have also contributed to knowledge surrounding the factors affecting travel patterns through multiple case studies. In the 1960s, gravity and spatial interaction models were popularized in order to explain human space movement. Mathematical formulations incorporating push and pull factors were used to analyse and forecast spatial interaction patterns (Haynes & Fotheringham, 1984; Sen & Smith, 1995). However, these models have been criticized for their lack of theoretical background, and the need of taking for granted assumptions regarding the number of influencing factors and their weight in the mathematical formula. Although an augmented version of the gravity equation has emerged latterly (Morley, Rosselló, & Santana-Gallego, 2014), results still lead to deviations.

Recently, various technologies have led to significant improvements in research on travel patterns (Shoval & Ahas, 2017). These are able to accurately collect, map and analyse tourists' time and space behaviour (Girardin, Dal Fiore, Blat, & Ratti, 2007; Raun, Ahas, & Tiru, 2016; Shoval, McKercher, Ng & Birenboim, 2011). As a result, a number of factors affecting travel patterns have been identified.

Most researchers agree that tourist attractions, supported by the service sector, are the main decisive pull factor for visiting a destination (Gunn, 1993; Kušen, 2010; Leiper, 1990) and the key element influencing travel patterns (Chhetri & Arrowsmith, 2008; McKercher & Lew 2004). Moreover, flows within a destination are modulated by the spatial distribution of tourism services and attractions such as the cumulative effect of tourism attractions (Lue et al., 1993). To this we can add market access, distance decay, 'time budget', communication networks, psychological barriers, cultural distance, and other factors, including personal ones (Lew & McKercher, 2006; McKercher & Lew, 2004; Smallwood, Beckley & Moore, 2012).

As evidenced, the spatial behaviour of tourists at a destination is complex and unique due to many factors. The theoretical background is therefore fragmented depending on particular factors and case studies. In turn, this leads to a lack of

references providing a clear foundation for the factors determining the complete territorial experience of tourists in a destination.

Research Framework

Adopting either a business-oriented perspective or a socio-geographic perspective reveals only a partial vision of the destination. Framke (2002) suggests merging both perspectives in order to understand the relationship between tourist behaviour and the destination as a marketing product. In line with the aims of this study, the author argues that both dimensions of a destination need to be considered: 1) the static dimension, or the place; and 2) the dynamic dimension, or the mix and agglomeration of products and services, which vary according to the changing tourist demand.

Parallel to this, tourism demand is changing rapidly and profoundly. Lately, tourist' mobility has grown and become increasingly massive and flexible, and traditional supply channels are being replaced with new ways to access information (Laesser, 2007; Llodrà-Riera, Martínez-Ruiz, Jiménez-Zarco, & Izquierdo-Yusta, 2015; Prats & Marin, 2014). In light of previous literature and rapid changes on the demand side, there is a need to resume the discussion on tourism destinations initiated 40 years ago. Classical models of a destination are no longer valid and need to be revised and reevaluated. Destinations need to adapt their structures and management in order to take consumer needs into account. This requires functional, flexible destinations that constantly adapt to the needs of tourists. In order to achieve this, researchers, firstly need to know how tourists geographically consume the destinations, and then use this information as a tool to redefine tourism destination boundaries.

To fill this gap, we use techniques borrowed from economics and business studies (Baggio & Scaglione, 2017; Stienmetz & Fesenmaier, 2013; 2015), but taking a destination approach (Gunn, 1993; Lew & McKercher, 2006). Here, we focus on tourists' territoriality patterns within the destination (from arrival to departure at the accommodation point). New appearing destinations focus on

tourists' functionality rather than administrative boundaries and allow for geographical overlapping (Dredge, 1999; Kang et al., 2014; Yang, 2018).

Subsequently, this manuscript is underpinned by socio-geographic literature (Lew & McKercher, 2006; Lue et al., 1993; McKercher & Lew, 2004), focusing on the territoriality of within-a-destination travel patterns and the factors that determine this geographical consumption. Deciphering these factors is relevant since they ultimately determine the shape and size of the consumer-based tourism destinations and the existence of overlapping areas. Furthermore, knowing them will allow to export this study to other similar study areas as well as to predict the evolution of territorial travel patterns when managing the destination.

Case studies

Most literature focuses more on analysing urban and mass tourism than in rural areas. This is probably due to the lower influx of tourists in rural areas and the methodological difficulties associated with gathering data and identifying diffuse travel patterns there. Contrarily, this contribution aims to bring rural areas back into the discussion, as they are ideal case studies for the topic under study. The scarcity of public transport and tourism intermediation in rural areas gives tourists a higher degree of freedom, leading to the predominance of car-based trips and multi-destination patterns (Connell & Page, 2008; Lue et al., 1993; Smallwood et al., 2012). Thus, rural areas offer the opportunity to study tourists' travel patterns without a strong influence of intermediation.

Specifically, two European natural areas were selected to carry out this research; one in the UK, and the other Spain. This enabled the method to be tested in two rural destinations with different characteristics. In spite of the differences in the selected areas, both show the typical spatial dispersion of tourism assets characteristically attached to natural and rural areas. Furthermore, the researchers had direct access to the two selected areas, as well as deep

knowledge of their characteristics, which helped to ensure a comprehensive analysis.

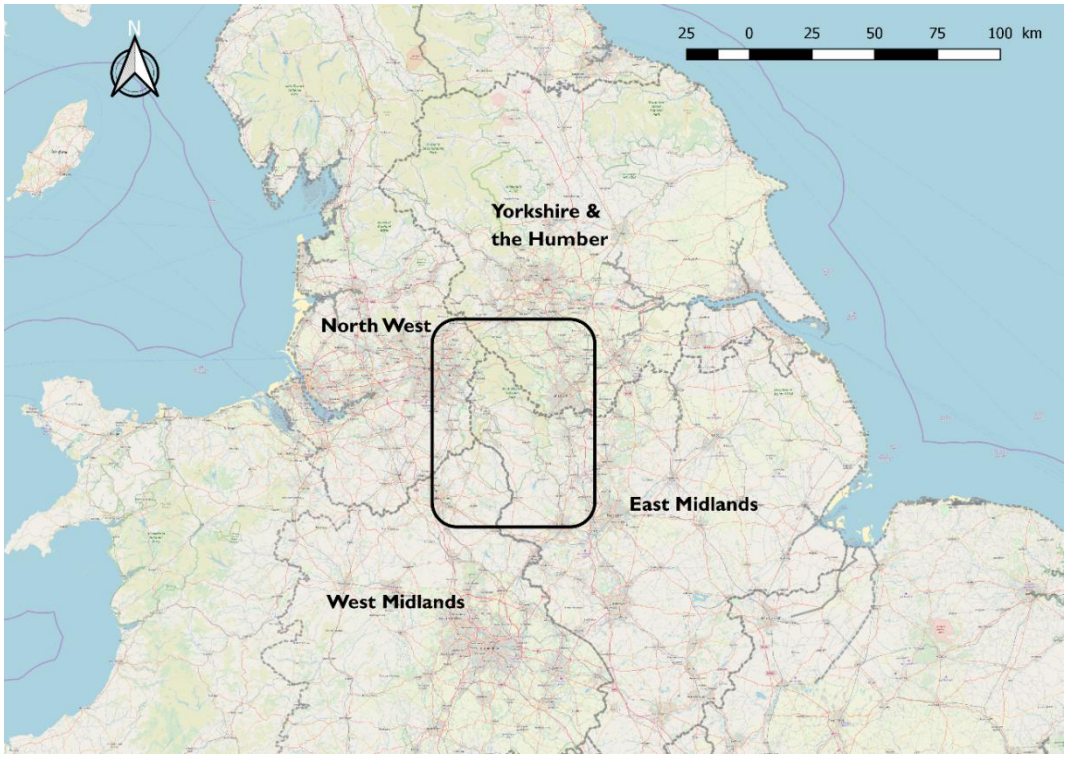

FIGURE 1: LOCATION OF THE UK CASE STUDY: THE PEAK DISTRICT

In the UK, the selected area was the Peak District National Park (Figure 1), which covers 1,440km2. This natural, rural area is popular for its heritage and wide range of nature-based activities. At a regional administration level, most of the Peak District falls within the county of Derbyshire, in the East Midlands and is managed by one individual DMO: Visit Peak District and Derbyshire. However, the Peak District also covers some parts of Yorkshire & the Humber, West Midlands and North West regions. In addition, the Peak District is divided into several counties and districts. The National Park is surrounded by some of the most populated cities in the UK, and this is expected to influence travel patterns in the area. In fact, with so many large cities nearby, the Peak District is one of Europe's most visited National Parks, and thus a good example of a crowded rural area.

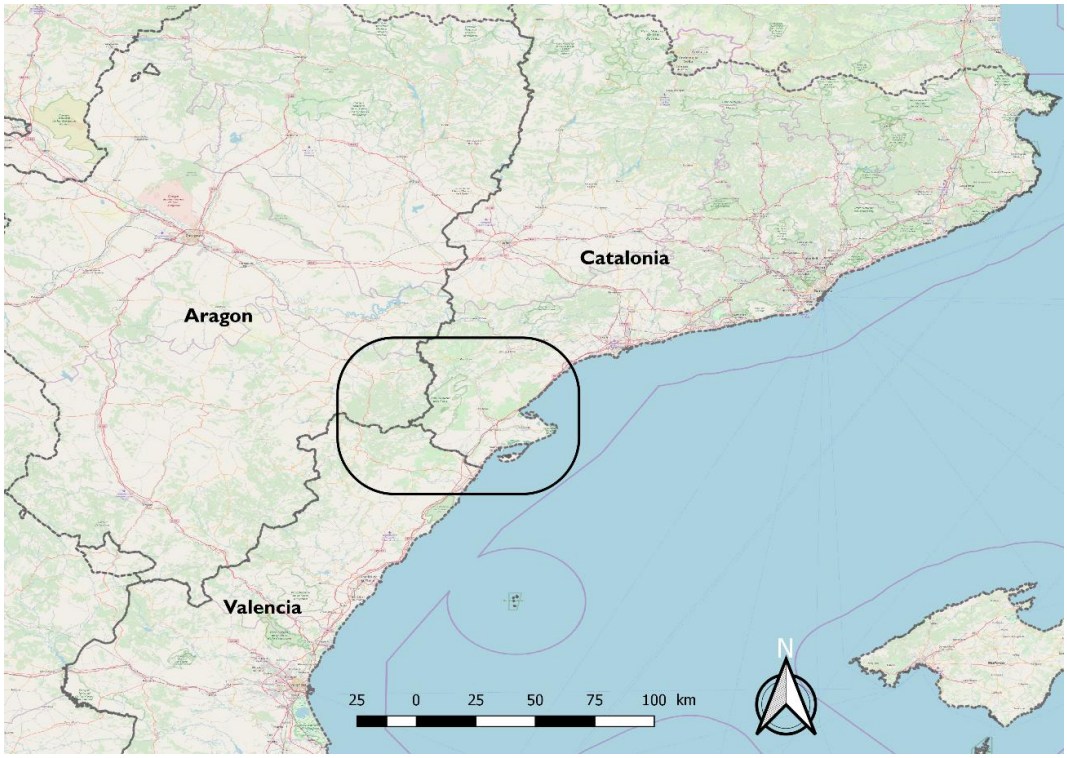

FIGURE 2: LOCATION OF THE SPANISH CASE STUDY: TERRES DE L'EBRE-MATARRANYA-MAESTRAT

The second case of study (Figure 2) is the trans-boundary region falling between Catalonia (Terres de l'Ebre area), Aragon (Matarranya area) and Valencia regions (Maestrat area) in the Western Mediterranean, Spain. The surveyed area covers 17,931 km2 and includes a Biosphere Reserve (Terres de l'Ebre), a costal Natural Park (The Ebro Delta), characterized by lagoons, marshes and natural beaches, and a neighbouring mountain range (Els Ports) characterised by mountain rivers, trails and cultural heritage. The Ports mountain range includes two Natural Parks (Ports and Tinença de Benifassà) and a hunting reserve (Ports de Beseit), each managed by a different public administration. In fact, regarding tourism management, the multiple regional and local boundaries of this case study implies that planning and management of the area is the responsibility of multiple public administrations and DMOs. This case study is an example of an uncrowded area as there are no large cities in the immediate surrounding area and has low tourism intensity. This is also an example of an area combining rurality with sun-and-beach, as part of the area is by the Mediterranean Sea. It also borders two mature coastal destinations, where tourism flows were expected to pass on the study area and vice versa. Furthermore, this

combination of rural and coastal destination involves the elongated development of accommodation supply characteristic of costal destinations (Smith, 1992).

METHODOLOGY

Data collection

Innovative methods for collecting data such as GIS, geotagged pictures on social media, passive mobile positioning were discarded due to the existence of connection dead spots in our areas of study. Traditional 'in-situ' surveys were selected for their reliability, and to simplify the geographical data, compared to the excessive micro-scale of tracking techniques.

To avoid data deviation produced when selecting survey places, optimum survey locations were identified at attractions and accommodation hubs in each study area by means of two sources. Firstly, attraction survey locations were selected and classified following a content analysis of tourism guide books (Blasco, et al., 2014; Paulino & Prats, 2013). The attractions were classified according to their level of popularity considering a number of criteria, such as format of text using bold fonts, length of text written in the guides, use of images and ranking given by the editors to each attraction. Secondly, accommodation hubs were identified and classified according to official capacity. As a result, the number of survey-days at each location reflected the number of beds, and the number and popularity of attractions. Furthermore, halfway through the survey period, other significant attractions, which had not been identified during the content analysis, were established due to the high number of responses. In order to obtain a representative sample of tourist travel patterns, these locations were added to the survey schedule.

The sample consisted of leisure tourists who had spent at least one night in the study area or nearby. Therefore, day trippers and long-stay tourists (over 60 nights) were excluded from the survey; the former for not staying overnight, and

the latter as they tend to experience life in a similar way to residents (Esichaikul, 2012; Ono, 2008). Visits by tourists staying at accommodation outside the surveyed area were not discarded. This meant that transboundary patterns could also be analysed, thus expanding the study area. A total of 3,163 completed questionnaires were obtained from the following case studies: 1,722 at Terres de l'Ebre-Matarranya-Maestrat, Spain; and 1,441 at the Peak District, UK. Participants were asked to answer a complete survey consisting in the range of attractions visited during their stay at their accommodation point.

Network construction and main analysis

Some tourism researchers have used network analysis (NA) as a data-analysis technique to study tourist travel patterns, by considering a tourist attraction as a node, and tourists' spatial movement as a link (Baggio & Sacaglione, 2017; Stienmetz & Fesenmaier, 2013, 2015; Shih, 2006; Kang, et al., 2018). These studies analyse the network characteristics of directed tourism flows to uncover mobility patterns among attractions. The approach adopted in this research is different, as the focus of the study is to identify overlapping clusters of attractions (as defined by the tourist experience) by analysing the network formed by attractions visited together during the same stay. More specifically, networks analysed here are constructed from information about the range of attractions visited by tourists during their stay in an area, without considering the exact sequence of visited attractions. Consequently, the connections form undirected networks which do not contain orientation information, but the existence of relationship between the two connected attractions.

Firstly, individual matrices have been created, representing visits of single tourists during their stay in the destination area. Following Stienmetz & Fesenmaier (2015), Figure 3 illustrates an example of the matrix construction for Respondent X, who visited attractions A, C, and D. Subsequently, individual data from surveys of each case study have been aggregated into two single weighted symmetric matrix containing all tourist visits and analysed using Gephi network

analysis tool (Bastian et al, 2009). Relational information arranged in this way is called adjacency matrix in network analysis terminology.

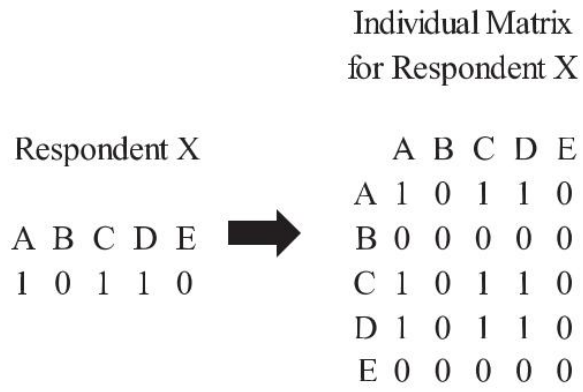

FIGURE 3: EXAMPLE OF AN INDIVIDUAL RESPONSE MATRIX (SOURCE: STIENMETZ & FESENMAIER, 2015)

Generally speaking, networks are formed by nodes connected through links. In this work, nodes correspond to visited attractions, and links between two of them means that at least one tourist visited them both during the stay at the destination. The intensity of the relationship between two attractions, measured as the number of tourists visiting both of them during the same trip, was incorporated to the network as the weight of the link.

In order to aid visualization, attractions with low degree of centrality were filtered out. In particular, in order to focus on main patterns without losing data quality, only nodes with a degree centrality above 19 (in the UK case study) and 24 (in the Spanish one) were showed, following the dendogram based on distribution of degree centrality at each case. Moreover, self-loops (i.e. connections of an attraction with itself) were discarded in order to emphasize the interaction between attractions.

Once constructed, in order to assess their general structure, attraction networks of each area were divided into groups of densely connected attractions. Notice that these groups of attractions can be seen as attraction clusters usually consumed together by tourists. To this end, the Lovaine method (Blondel et al, 2008) was used to obtain the so-called community structure of each network (i.e. the number and composition of such groups of attractions). This method was chosen for being especially suitable to consider the strength (i.e. frequency) of

network connections among attractions (Fortunato, & Hric, 2016). The significance of the resulting division of networks into communities, was validated by positive values (0.398 in the Spanish case, and 0.243 in the British one) of the modularity quality metric (Newman & Girvan, 2004).

Community structure identification was complemented using k-core components analysis (Bollobás, 1984). This technique identifies smaller and even more densely connected clusters of nodes than those provided by the community detection algorithm. Consequently, one can consider k-cores as the centre of network communities, or in other words, the heart of the destination (Lew & McKercher, 2006, p. 405).

After analysing general structural features and the community structure of the two networks, the focus of the study was shifted to the role played by specific nodes as a function of their position within the network (e.g. bridging neighbouring communities). Specifically, three centrality network metrics were used, namely degree, weighted degree and betweenness centralities (Freeman, 1978; Stienmetz & Fesenmaier, 2015). Degree and weighted degree of an attraction measure the number of attractions it is connected to and the intensity of such connections. Therefore, high values of these centralities would correspond to top attractions within the destinations. Betweenness centrality allows exploring the brokerage role of certain attractions. In other words, high betweenness centrality values correspond to attractions connected to more than one attraction cluster, thus involving partial overlapping of such destination clusters.

Visual representation

As usually done in network analysis, the assessment of the above-presented network metrics was complemented with the graphical representation of the two networks on geographical maps. This was done using Gephi's visualisation tool. The thickness of links among nodes was set proportional to their weight (i.e. the frequency of common visits by tourists). Moreover, node size was set to represent the degree centrality of each attraction. In order to visualize

communities of attractions detected at each network, they were marked with different colours in the graphs. This allowed for easily differentiating destination components, as well as identifying partial overlapping among them (marked by mixed-coloured links between nodes of different clusters).

Both the detected destinations clusters (Community structure) and their cores (K-core) were then exported to a geographical basis. Although map visualization loses quality when it comes to displaying the links, it is useful for seeing how the destinations and their cores look like in geographical terms, as well as to reveal the effect that the geography and communication network have on travel patterns. To complement this information, time distance between attractions (quickest driving route with Google maps) was considered to help map interpretation. Furthermore, accommodation hubs linked to the data were included in order to analyse how the specific location of accommodation hubs influences the network.

To avoid possible errors produced by the finite territorial continuity of data, several techniques were used before interpreting the results. Firstly, graph representation enabled several surrounding disconnected attractions to be identified and grouped into a circumforaneous cluster. Secondly, repulsion of nodes in graphs showed single attractions grouped into one destination cluster, but placed far from the cluster gravity centre. Their disconnection was subsequently confirmed by map representation, either through a considerable spatial distance of these attractions, or a deficient road connection.

Results and discussion

The clusters obtained in each case study represent those attractions which tourists commonly visit together during their stay. Each destination detected is unique; however, an in-depth analysis of the results found several common patterns. Firstly, the results demonstrate the lack of influence administrative boundaries and tourism brands have on visiting the destination geographically. Secondly, results identify several factors considered to be the main ‘ingredients’

for building consumer-based destinations in rural areas: geographical barriers, the road network, time distance, availability and distribution of accommodation hubs, the geographical dispersion of attractions and the specific location of single primary or secondary grouped attractions.

Administrative boundaries and tourism destination brands fail to coincide with the consumer-based destination

Results represented in figures 5 & 6 show that none of the detected destinations follow the present administrative or tourism boundaries, and that clusters built from travel patterns respond to other criteria. Thus, in line with previous studies, tourists do not take administrative boundaries into consideration when visiting a destination (Beritelli et al., 2015; Ioannides et al., 2006; Lovelock & Boyd, 2006; Yang, 2018). Substantial differences exist in how these destinations are managed and how they are actually geographically consumed, and failing to take the consumer's perspective into consideration may lead to many missed opportunities.

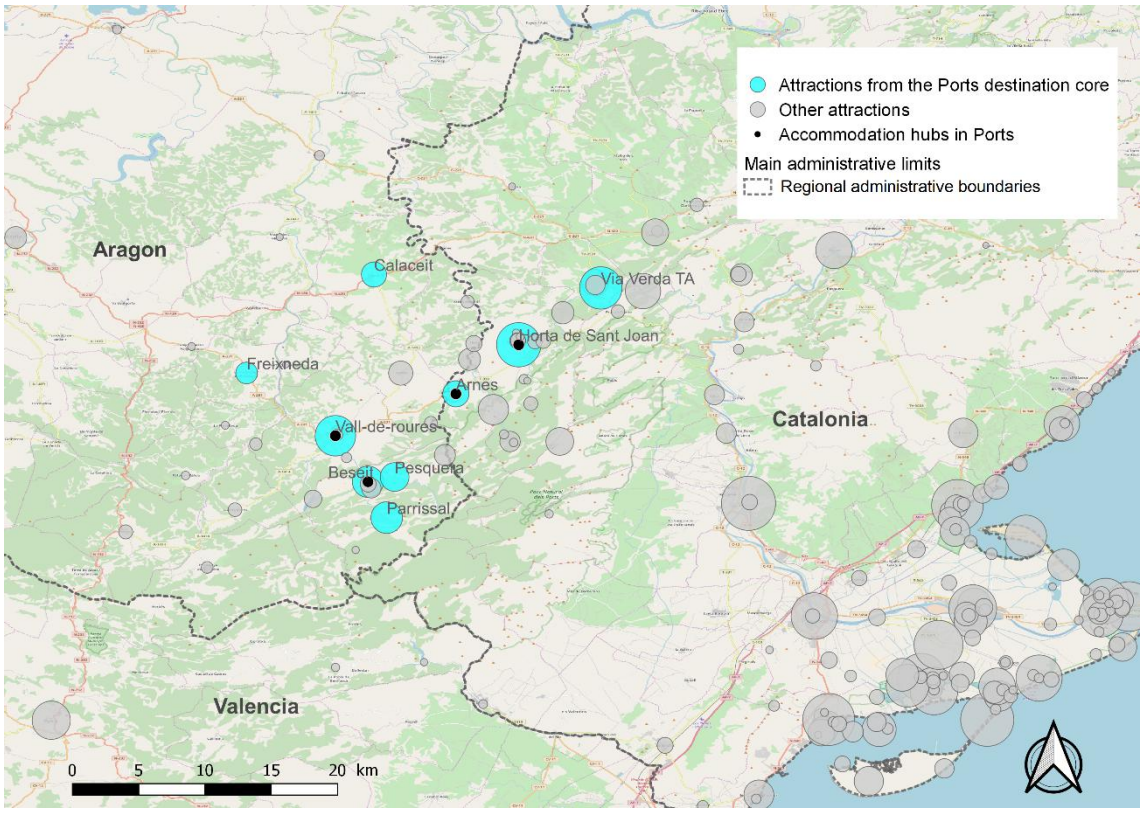

FIGURE 4: OUTPUT MAP FROM THE NETWORK COMPONENTS CALCULATION WITH A FILTER OF 150 LINKS CORRESPONDING TO THE SPANISH CASE STUDY

Results not only show the transboundary tendency of detected destinations, but also the existence of transboundary destination cores. The clearest example was found in the Ports destination in Spain (Figure 4). After filtering the network to 150 links with the use of network components (almost half of the of the whole network links), highly connected attractions were exposed, representing the destination core. Here, the core is clearly tranboundary, grouping attractions from both Catalonia and Aragon administrative regions. Attractions in this destination core are more likely to be disconnected from other surrounding attractions in its own administrative area than from attractions in the other administrative areas. Only when a filter larger than half of the network weight was applied, was this destination core no longer transboundary. However, at that filter point, only a very small number of attractions remain grouped, indicating that the filter is too strict.

The profound influence of road networks in the within-a-destination travel patterns

Road networks play an important role in car-based trips (Connel & Page, 2008; Smallwood et al.) as they conveniently connect several attractions and contribute in time-saving depending on their quality. Previous studies have argued that topographical characteristics of a destination and distance travelled affect travel patterns, influencing tourists to travel further away from, or closer to attractions (Lew & McKercher, 2006; McKercher & Lew, 2004;). In rural areas, road networks often simplify the topography, as most roads follow the natural terrain (e.g. along valleys or coastlines) avoiding natural barriers (e.g. steep slopes). The results of this study not only clearly support previous literature, but also shed light to show that communication networks in rural areas combine topography and time distance, rather than geographical distance. Resulting destinations show two main tendencies: firstly, they are elongated in shape along main roads; secondly, most of the attractions visited are located alongside the road network or nearby.

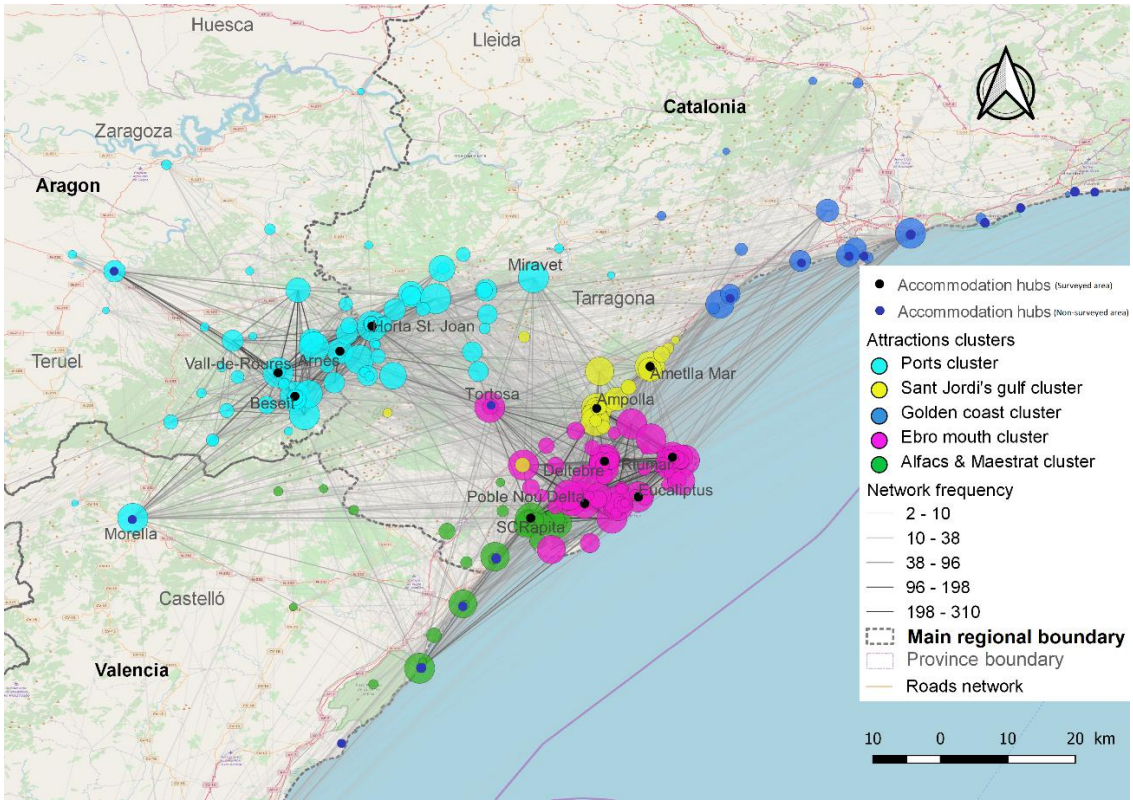

FIGURE 5: OUTPUT MAP FROM THE MODULARITY STATISTIC OF THE SPANISH CASE STUDY AND ITS MAIN ACCOMMODATION HUBS

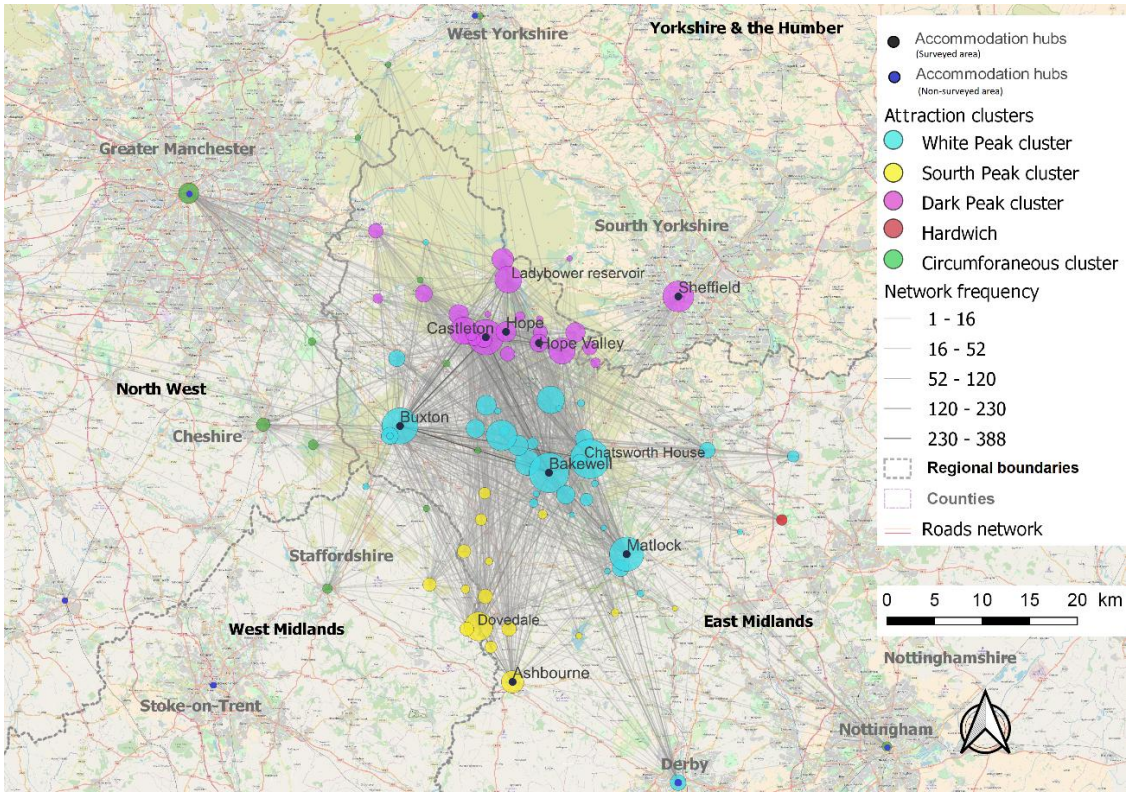

FIGURE 6: OUTPUT MAP FROM THE MODULARITY STATISTIC OF THE UK CASE STUDY AND ITS MAIN ACCOMMODATION HUBS

Resulting destinations on the Spanish coast represent an example of the enlongated shape influenced by roads. Here, the main highways running along the coastline, promote travel patterns following them (Figure 5). The Ports destination, located in the countryside of the same case study, also shows an elongated shape following the main road and its immediate intersections, which pass along the north-western slope of the Ports mountain range. This effect can be further observed in the White Peak and Dark Peak destinations in the British case study (Figure 6).

Contrastingly, a lack of main roads, or a more complex network of secondary roads in an area, results in less elongated clusters. This is exemplified in the Ebro mouth and the South Peak destinations (yellow clusters in both case studies). In such cases, attractions which are geodetically close, but poorly connected by road networks due to natural borders (i.e. steep slopes), are not normally visited as part of the same destination, and thus grouped in different clusters.

Time distance as a constraining factor in travel patterns within a destination

Stiemetz & Fesenmaier (2015) suggested that clusters between attractions can be formed by geographic proximity. Indeed, the limited dispersion of visits demonstrates that tourists' visits are constrained due to distance, but the impact of road networks demonstrates that this distance should be time distance rather than geodesic or geographical distance. Although previous literature generally defines tourism in terms of the use of time (Dietvorst & Ashworth, 1995), and some studies focus on spatio-temporal dispersal of tourists within a destination (Wu & Carson, 2008), the majority of the literature on travel patterns register distance travelled as being geodesic or road distance, which hinders comparison of results. However, after undergoing the required transformations, the results seem compatible with findings in previous literature. The maximum time distance between further attractions at the same destination is of 1 hour and 35 minutes, which does not exceed the maximum of 193km found by Smallwood et al. (2012).

Results of the study show that most attractions in the same destination, including the most distant ones, are constrained within 60 minutes of travel distance. There are only a few visits to peripheral attractions, in which time distance from other attractions located at the other peripheral side of the same destination is more than 60 minutes' travel distance. This shows that the resulting clusters are local-like destinations, which can be consumed doing convenient side trips from the heart of the destination (Lew & McKercher, 2006; (McKercher & Lew, 2004).

The centrality of accommodation hubs as the main service component

In accordance with previous studies indicating that tourism depends on a symbiotic relationship with services offered at base-camp (Lew & McKercher, 2006; Lue et al., 1993; Paulino, et al., 2019, Shoval et al., 2011), results indicate that accommodation hubs are a relevant actor within the attractions cluster.

Firstly, attractions with a higher degree centrality tend to have nearby accommodation hubs. Although this pattern can be observed over all the results, the clearest examples can be found in Alfacs & Maestrat (Figure 5) and White Peak (Figure 6). Both destinations confirm the tendency for accommodation hubs to be located close to the top attractions with higher degree centrality. These are Buxton, Bakewell, Chatsworth House and Matlock in the British case study; and Horta de Sant Joan, Arnes, Beseit and Vall-de-Roures in the Spanish case study. Similarly, the coastal destinations in Spain (Figure 5) are a good example of linear attraction (Wall, 1997), and its effect is shown in the typical elongated accommodation development in coastal destinations (Smith, 1992).

Secondly, the location of accommodation hubs substantially affects the territoriality of flows (Lew & McKercher, 2006; Shoval, et al., 2011; Paulino, et al., 2019), and consequently, attraction clusters. Results show that in some of the destinations detected, accommodation hubs are centrally located, whereas in other destinations they are located at the periphery. In destinations where accommodation hubs are not located at the periphery (e.g. White Peak and Dark

Peak in the British area; and Alfacs & Maestrat, Ebro mouth, Golden coast, Sant Jordi's gulf and Ports in the Spanish area), a hub-and-spoke travel pattern is likely to occur within the destination (Lue et al., 1993). The Ports destination (Figure 5) is the clearest example to propitiate the classical hub-and-spoke travel pattern. The availability of central accommodation hubs in the destination enables the whole area to be visited by way of side trips. Furthermore, the Ports destination has a lack of accommodation hubs in the surrounding area, which make tourists highly dependent on the central accommodation hubs and increase the optimal hub-and-spoke travel pattern.

At the other extreme, a destination may be suboptimal if it has peripheral accommodation hubs. In these cases, attractions within the destination, but far from the accommodation hub, tend to be less visited. For example, in the South Peak destination, the fact that there is only one accommodation hub (Ashbourne) located in the far corner of the destination, explains the low degree centrality of attractions and the low cohesion of the cluster. As shown below, peripheral accommodation hubs may also produce overlapping areas.

The role of key-attractions, accommodation hubs, and their geographical continuity in overlapping areas

The cluster analysis classifies each attraction into excluding clusters considering predominant travel patterns, but leaving aside secondary or residual travel patterns. The colour-mix of links between nodes of different attraction clusters, complemented by the gravity and repulsion of nodes, demonstrates that secondary and residual travel patterns exist, producing overlapping areas (Dredge, 1999). However, with this technique we can only clearly distinguish South Peak (Figure 7) and Ports destinations (Figure 8) scarcely overlapping with neighbouring destinations, and it is rather difficult to distinguish the level of overlap between other destinations. The maps representation allows to further demonstrate that attractions attractiveness and their location exerts an impact on overlapping areas. Maps also shows how the spatial distribution of accommodation hubs and the road network affect in overlapping areas confirming the two dimensions of a destination argued by Framke (2002): the

static (or place); and the dynamic, (or mix of products and services). However, neither graphs and maps cannot provide certainty on whether travel patterns among attractions of different clusters are relevant enough to consider their inclusion in several destinations.

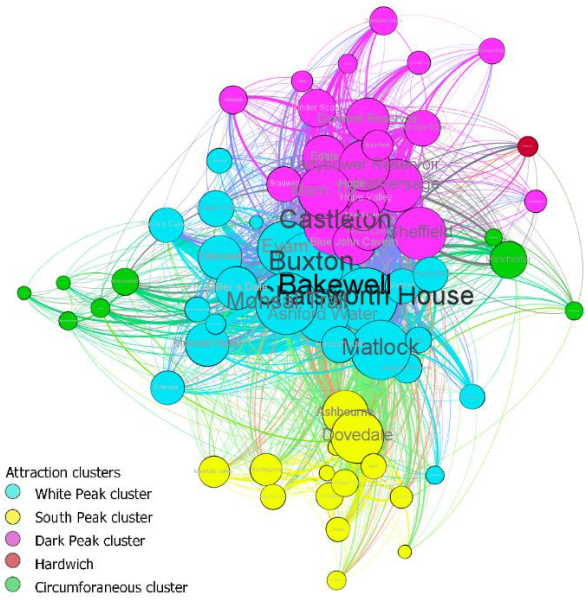

FIGURE 7: OUTPUT GRAPH FROM THE MODULARITY STATISTIC CORRESPONDING TO THE UK CASE STUDY

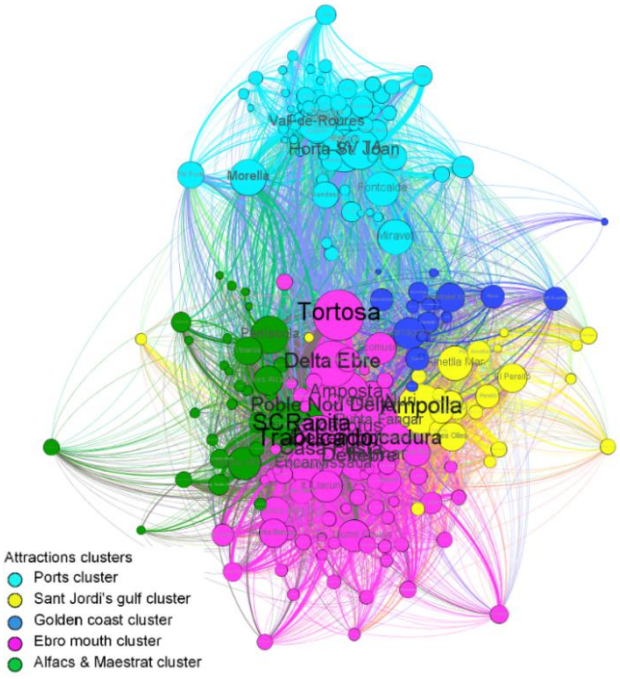

FIGURE 8: OUTPUT GRAPH FROM THE MODULARITY STATISTIC CORRESPONDING TO THE SPANISH CASE STUDY

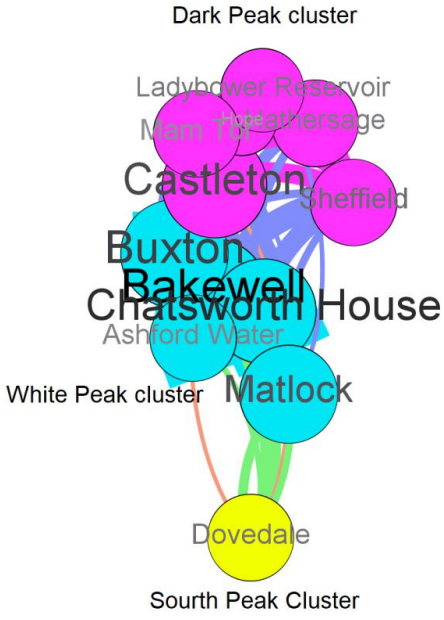

FIGURE 9: THE MODULARITY STATISTIC CORRESPONDING TO THE UK CASE STUDY AFTER FILTERING EDGE WEIGHT TO 14, REPRESENTING DESTINATION CORES

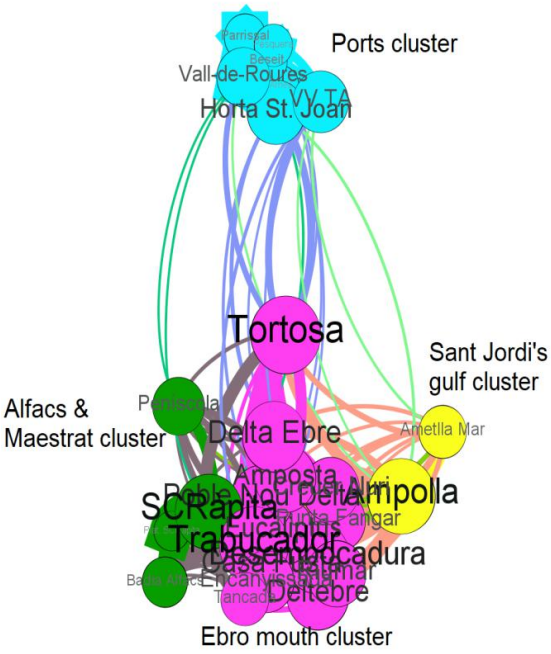

FIGURE 10 : OUTPUT GRAPH FROM THE MODULARITY STATISTIC CORRESPONDING TO THE SPANISH CASE STUDY AFTER FILTERING EDGE WEIGHT TO 14, REPRESENTING DESTINATION CORES.

Firstly, bearing in mind previous literature on factors affecting travel patterns (McKercher & Lew, 2004), we can note that the destination core is key to understanding how tourists geographically consume the destination. As observed in Figures 8 & 9, destination cores are frequently made up of single unique attractions, or several proximal attractions with medium or high attractiveness acting as a nuclear mix (Leiper, 1990) and one or several proximal accommodation hubs (Shoval, et al., 2011). The core analysis simplifies very much the identification of the heart of the destination; however, when there is a geographical continuity between both attractions and accommodation hubs, such as in the Spanish coastal area, the identification of cores is more complicated. In these cases, travel patterns frequently transcend the cluster limits, even if cores represent predominant and very frequent travel patterns. Thus, destination mangers should bear in mind that even destinations cores may overlap with neighbouring ones.

The destination cores are frequently well connected by road to other main or secondary attractions located in the surrounding area (Lew & McKercher, 2006; McKercher & Lew, 2004;). Results prove that, when these surrounding attractions are not further than 60 minutes driving distance from the destination core, they are likely to be part of the consumer-based destination. However, these surrounding attractions show more probabilities of producing overlapping areas with neighbouring destinations.

Secondly, repulsion of nodes within a cluster (Figures 7 & 8) in combination with the maps (Figures 4 & 5) can be used to identify single attractions on the peripherally, which may be better connected to other neighbouring destinations. This is especially the case of those attractions with medium and high degree centrality which represent a large share of the travel patterns located at the extreme area of the case of study. Some of the clearest examples can be found in the Ports destination in Spain. Here, Morella and Miravet with high degree centrality, are repulsed from the core of the destination, and geographically located at the periphery. This indicates that they may be singular attractions of a neighbouring destination and have been included in the present cluster due the

use of finite data. To help managers of the destination to take this decision, other techniques have to complement this information.

Country	Attraction nodes	Degree	Weighted Degree	Betweenness
United Kingdom	Bakewell	106	3360	0.03415599
	Chatsworth House	105	1791	0.03415599
	Buxton	96	2124	0.03415599
	Castleton	94	2719	0.02937275
	Matlock	91	1043	0.02633880
Spain	Tortosa	170	1784	0.10427648
	Trabucador	167	3632	0.01159894
	S.C. Ràpita	163	3906	0.02377938
	L'Ampolla	162	2814	0.02220924
	Desembocadura	154	2642	0.01443961

TABLE 1: NODES WITH HIGHEST DEGREE IN EACH DESTINATION, WEIGHTED DEGREE AND BETWEENNESS

Thirdly, attraction nodes with a significant intermediary role (i.e. when a node acts as a bridge between two destinations), indicate another situation of overlapping areas. The clearest example of this is Tortosa, as the high betweenness centrality reveals (Table 1). Although cluster analysis group Tortosa in the Ebro mouth cluster, the significant amount of connections with the Ports cluster, makes it worthy of consideration for overlap. In fact, Tortosa is an example of a renowned attraction geographically positioned between the two destinations and with a good communication connection with both areas.

Fourthly, outstanding attractions can also lead to overlapping areas, since they exert a bundling power around them, making them able to attract a large number of tourists (Kang et al., 2018; Leiper, 1990; Lew & McKercher, 2006). High degree centrality denotes that an attraction is visited a great deal by tourists within a nuclear mix, and may play an important role in creating overlapping areas. The most relevant cases are Bakewell in the White Peak cluster, Trabucador in the Ebro mouth cluster and S.C.Ràpita in the Alfacs & Maestrat cluster; therefore, they should be understood as overlapping, and as well included in the neighbouring destination. Furthermore, taking the weighted degree centrality into account, Bakewell and S.C.Ràpita draw attention within

the other attractions (Table 1). Their large mixed-colour of links (Figures 7, 8, 9 &10), shows how travel patterns to these attractions frequently far exceed the limits of the detected destinations.

Finally, the lack or peripheral accommodation hubs is another indicator of overlapping areas. Following previous studies, results denote that the availability and distribution of accommodation hubs significantly impacts the areas tourists explore, drawing flows around them mostly following the hub-and-spoke travel pattern (Lue et al., 1993; Shoval, et al., 2011, Paulino et al., 2019). Thus, in cases where the location of an accommodation hub is not optimal for visiting the attractions in a cluster, destinations are likely to overlap. In fact, most accommodation hubs of the case of studies are not ideally placed in the centre of the detected destinations; thus, overlapping areas may occur to some degree. The clearest example is the South Peak destination, where the only accommodation hub is at the periphery and together with the influence of neighbouring accommodation in the White Peak, implies the partial overlapping of destinations.

Conclusions

This new approach to tourism destinations, based on how tourists geographically consume a destination, has achieved the two objectives set: Firstly, it has applied a method to delineate the destination following the consumer geographical functionality. Secondly, the study has identified the main factors conditioning the territoriality of travel patterns and which determines the shape and the overlapping areas of consumer-based destinations. Both achievement imply an opportunity for destination managers to rethink destinations on the basis of tourists needs, with the aim of improving destination planning and management and detecting new business opportunities.

Results from the clustering method denote that tourists tend to consume attractions which are close to each other in time distance while staying in a destination area, regardless of administrative boundaries. Thus, using

administrative boundaries are not only ineffective when managing tourism destinations, but they can also contribute to confusing tourists. Previous research had already identified influential factors on travel patterns in both, territorial models from central accommodation (Lew & McKercher, 2006; Paulino, et al., 2019) and linear models (Shih, 2006). However, this is the first study to merge these concepts and to focus on the territoriality travel pattern with the focus on destinations.

Results show that patterns are affected by the specific location of accommodation hubs and road networks (Lew & McKercher, 2006; Shih, 2006). Both factors are very much related to the time distance that tourists have to travel within the destination, and most flows are within a 60-minute driving distance. This demonstrates that consumer-based destinations are local-like and can be visited on a day-trip (Lew & McKercher, 2006). Furthermore, the analogous results obtained in two different natural areas indicates that other similar natural destinations should obtain comparable results.

Nevertheless, results show that the consumer patterns are not unique and secondary travel patterns transcend the detected consumer-based destinations, influenced by the geographical distribution of both attractions and accommodation hubs and the connection network. The method used shed light to those secondary travel patterns which may be frequent enough to be considered by the destination managers The bundling power of single outstanding attractions (Leiper, 1990), the peripheral main or secondary attractions and the peripheral accommodation hubs acting as a base-camp (Lue et al., 1993), are clear examples of elements generating travel patterns outside of the detected destinations, which lead to overlapping areas. This proves that detecting consumer-based tourism destinations is not an easy task for the multiple actors affecting travel patterns. To detect them, destinations should collect data related to travel patterns, apply the clustering method, and explore how certain attractions and accommodation hubs affect areas of overlap.

From a general perspective, this paper contributes with an understanding of how tourists geographically consume destinations, using this as a tool to rethink the way destinations are being delimited and managed. As managerial implications, this provides valuable information on within-a-destination travel patterns which can help destination managers improve management and planning, as well as detect new business and network opportunities between tourism actors. Furthermore, as pointed out in previous studies, forming networks among attractions can be seen as a strategy to increasing a destination's competitive advantage, while at the same time reducing market competition (Hong, et al., 2015).

From a methodological perspective, this paper contributes to the literature by combining several complementary perspectives which reflect the network characteristics of aggregate travel patterns and their geographical attachment. The method is able to reveal systems of tourist attractions through attraction networks drawn up by travel patterns within a destination, and propose this as the ideal consumer-based destination. The key difference between this study and previous research is the focus on networks of tourist attractions built from tourist visits throughout their whole stay at a destination, and not simply 'touch points' of particular tourist flows linked together. Secondly, this manuscript relates to territoriality travel patterns, and the factors determining the specific size and shape of each consumer-based destination. Furthermore, this paper contributes with a method to identify individual actors who play a critical role in enabling destinations to overlap. These contributions are essential to be able to extrapolate results to other similar destinations, in order to improve destination planning and management, thus benefiting both tourists and tourism actors.

Finally, from a theoretical approach, this manuscript contributes with combining literature about travel patterns and destination management, by venturing into the topic of tourism destinations after questioning the current model, and by placing the consumer in the centre of the tourism phenomenon. This contribution offers the opportunity to rethink the concept of tourism

destinations understood as non-static overlapping areas which comprises attractions and services connected among them due to tourists' travel patterns.

Future research should combine this analysis with statistical methodology, to further explore whether secondary travel patterns are relevant enough to be considered as overlapping areas when managing the destinations. Results from this study can also be combined with results obtained by other researchers on direct flows between attractions in order to detect main routes, according to travel patterns, within the detected destination. For example, it could allow for a categorisation of individual attractions as 'Main arrival points to a destination' (i.e. those with a much higher out- than in-degree) or 'Complementary attractions of a destination' (i.e. those with a much higher in- than out-degree). This would provide destination and attraction managers with more relevant information. Further research is also required to explore the extent to which each of the factors affect travel patterns within a destination, and thus contribute to the gravity equation. Finally, this paper represents only a first step in the process of rethinking tourism destinations. Collaboration between actors in the detected destinations with a view to better governance has not been addressed in this article. Governance should be explored in order to establish a platform which can involve actors from both the detected destinations and the overlapping areas.

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GENERAL CONCLUSIONS

This section provides the general conclusions of this doctoral thesis, and outlines the specific results and conclusions of each of the publications contained in this compendium by addressing all the above mentioned objectives. It is followed by a summary of the theoretical and methodological contributions of this study, and the managerial implications. Limitations of the study and future research opportunities are shown at the end of the section.

Conclusions and main results

This dissertation offers a new functional alternative to administrative-based destinations, questioning their effectiveness and efficiency in planning and management. By acknowledging the essential role tourists play in the process of defining a destination, it thus centres on the demand-side.

The debate among scholars regarding the concept of a tourism destination and its boundaries is ongoing. To date, the majority of research has taken the existing boundaries of destinations for granted, and failed to question its efficiency. However, an increasing number of studies reject the current planning and management of traditional administrative-based tourism destinations, for precisely this reason: they fail to take tourists' preferences or tourism industry functions into consideration.

Destination managers need to recognize how tourists geographically consume their destination in order to adapt the destination to consumer needs, and improve its planning and management. However, previous studies have failed to identify local destinations for the use of tourists. This thesis focuses on travel patterns within a destination, with the main aim of redefining tourism destination boundaries from the perspective of consumers. Thus, understanding how tourists geographically consume a destination is vital in order to define functional destinations for the use of tourists.

This thesis has been conceived as a compendium of articles. As such, each of the three journal publications has focused on a specific approach to the destination by accomplishing specific objectives. Taken together, all three articles accomplish the general objectives and contribute to answering the general research question as follows below.

The first article addressed the territoriality of tourist visitation patterns between accommodation hubs and attractions. In line with the specific objectives, the main outcomes of this publication are as follows: firstly, tourism destinations as defined by visitation patterns were detected focusing on single accommodation hubs and, subsequently, they were contrasted with current administrative-based tourism destinations. The partial overlapping of hub-consumption systems was also detected in order to be able to explore latent opportunities between subsystems. Secondly, key influencing factors affecting the territoriality of visitation pattern were identified.

The second publication also focused on territoriality patterns between accommodation and attractions but centering on single attractions. The specific objectives of this article have been accomplished; firstly, by identifying the area of influence of single attractions regarding visitation patterns deriving from neighbouring accommodation. Secondly, by identifying the key factors which affect the travel patterns and determine similarities and differences between attraction influence areas. Finally, this publication achieved the objective of exploring several attraction influence areas in order to reveal potential opportunities.

The third publication aimed to redefine tourism destinations, considering the visitation patterns to attractions during the tourists stay at the destination, with no fixed element. In line with the specific objectives, the main focus of this article was to implement a method for defining coherent functional areas for tourist use, based on the network between attractions frequently visited by tourists during their stay at the destination.

In general, the three articles comprising this thesis address the gaps found in the literature on tourism destinations and travel patterns, and adopt a critical viewpoint of administrative-based destinations Both the specific and general objectives of this doctoral thesis are met by linking theoretical approaches and empirical analyses of travel patterns and consumer behaviour to destination planning and management. The main results of the research emerging from the three articles are presented below.

This thesis has fulfilled the general objective of proposing a method to define tourism destinations from the demand side, being aware that administrative-based destinations may represent an obstacle for the natural collaboration between businesses seeking market opportunities. Travel patterns within a destination were analysed to capture major and secondary flows once the tourist is at the destination. This, enabled destinations to be identified according to tourists' consumption patterns.

The first main result was to offer a method capable of detecting how tourists geographically consume a destination and use it as a tool to reframe tourism destination boundaries. Travel patterns were represented in maps and graphs, thus consumption-based destinations could be identified by focusing on both the network of attractions and specific tourism actors. Specifically, the first and second articles proposed a method to show the destination from the perspective of single tourism destination actors (attractions or accommodation hubs). The third article reveals the network of attractions tourists visit within destination area they are staying.

The different approach to the same phenomenon taken by each of the articles, gives an overall picture of the destination from a general perspective, as well as from the specific focus of the main tourism destination actors (accommodation and attractions). This gives insights into how tourists geographically consume a destination, and this knowledge can be transferred to specific tourism actors such as destination, attraction and hospitality managers. The resulting

consumption-based destinations in the three articles are local-like and can be visited on a day-trip (Lew & McKercher, 2006).

The method has provided empirical evidence in three different rural areas, which can be exported to other similar destinations that want to adapt to consumer needs.

This thesis has also achieved the general objective of comparing the resulting consumption-based destinations with present destination boundaries. Results in all three research publications reveal significant differences between how tourists actually visit a destination and how destinations are being managed. Information in the graphs and maps enable of a number of missing opportunities to be detected, caused by an inability to plan, manage and market the destination effectively.

Indeed, the consumption-based destinations reveal that tourism actors are interconnected by travel patterns. Results show the potential opportunities of single tourism actors within the system according to travel patterns. For instance, attractions which partially share influence areas have the opportunity to explore the undervalued potential of the cumulative effect of 'multiple-attractions' (Lue et al., 1993), as well as the potential to increase flows to individual attractions by collaborating with accommodation. The results suggest that administrative-based destinations are foregoing the opportunity to effectively plan, market and manage tourism as they are failing to take into account how tourists consume the destinations.

The methods used in each of the publications of this thesis are complementary, as are the different viewpoints of a destination (hub consumption-based, attractions catchment area, and network of attractions), demonstrating that each tourism actor belongs to multiple subsystems. A destination can be understood, therefore, as having overlapping subsystems that are part of a larger system. Moreover, each of the the subsystems also geographically overlap with neighboring ones. In practice, this means that there is continuous geographical overlapping, which fosters tourism destinations with no clear boundaries. These

results reinforce the need to abandon the concept that a tourism destination is a rigid unit in a delimited geographical area (Beritelli et al., 2014, 2015; Dredge, 1999). In order to plan and manage a destination effectively, managers should be aware that a consumption-based destination brings together a complex network of tourism actors who are interconnected through frequent travel patterns, and that these patterns form overlapping subsystems.

Given the complexity of destinations, this dissertation focuses on gaining in-depth knowledge of the factors which hinder or foster tourists' travel patterns, and determine the way tourists consume destinations. Results point to several elements which play an important role in creating these overlapping areas such as single outstanding attractions (Leiper, 1990), peripheral relevant attractions or peripheral accommodation hubs acting as a base-camp (Lue et al., 1993). Thus, another main result of this thesis was being able to decipher the role of individual actors and other factors influencing travel patterns within a destination. The analysis provides a deeper understanding of how tourists visit destinations in rural areas, and represents a breakthrough in improving destination planning and management.

Firstly, the results demonstrate the significant spatial relationship between the accommodation offer and attractions. Indeed, as previous research have pointed, findings prove that attractions with accommodation nearby are more likely to receive tourist flows than those without (Chhetri & Arrowsmith, 2008).

Secondly, in all three publications, time distance has proved to be a constricting factor of travel patterns within a destination. This is in line with previous research (Lew & McKercher, 2006). The territoriality patterns in the first and second publications have proved to be exponentially influenced by time distance between the accommodation hub and attractions. This is explained by the predominance of the convenient flows from accommodation points to attractions within a 30-minute-drive. Despite this 'tendency for closeness', it should be noted that significant differences were found between distance decay

regarding attractions with a sufficient accommodation offer nearby, and those without.

Thirdly, the results also prove the effect of topography and road networks in rural destinations, showing elongated travel patterns which follow topography and roads. Other significant factors include the attractiveness and uniqueness of places, the agglomeration of attractions and the market access.

Finally, despite the important findings of this thesis through case studies, the results are not static. Destinations will have to constantly re-adapt at the rate of evolving travel patterns. Tourists will have to be monitored over time to detect the activation or deactivation of places in response to the market changes, ensuring that the destination continues to reflect the dynamics of tourism travel patterns.

Contributions and implications

In general, this thesis contributes to the understanding of how tourists consume destinations, and can be used as a tool to rethink the way destinations are delimited and managed. This thesis makes several theoretical, methodological and practical contributions underpinned by an extensive literature review, the focus, the development of methods and the analytical results.

Regarding theoretical contributions, this doctoral thesis contributes to the existing body of literature by combining literature on travel patterns and destination management, and by venturing into the topic of redefining tourism destinations by considering how tourists consume them geographically. Thus, it contributes to questioning the concept of a destination being defined and managed by administrative limits. In contrast, this thesis contributes to the literature by placing the consumer in the centre of the tourism phenomenon. If tourists are the final consumers of a destination, then destinations should adapt to tourists and the way they consume it. It deeply questions the concept of destinations understood as rigid geographical units only distinguished by their border-lines. Instead, the contribution falls into the need to consider destinations to be geographically overlapping systems and subsystems with no

clear boundaries. This thesis also contributes to the understanding that a tourism destination is not static; but rather a dynamic network of attractions and services which evolve parallel to tourism consumption patterns. Thus, the contributions of this thesis need to be considered when rethinking the concept of tourism destinations.

The methodological contributions of this thesis are twofold: firstly, it provides a tested data collection method which outlines which data should be collected, where and when. The method enables data regarding travel patterns to be gathered which allow attractions to be connected with accommodation and other attractions. Secondly, by combining network analysis technology with GIS, this thesis contributes a new method capable of defining destination boundaries from a consumption-based perspective, from the viewpoint of both the main stakeholders and the attraction network.

By taking a practical approach, this dissertation offers a number of implications, for tourism planning and management, particularly for specific tourism actors and for destination managers.

Regarding hospitality and attraction managers, the contribution is threefold: a) it describes the attractions visited from each of the accommodation hubs and the frequency of visits; b) it depicts the accommodation hubs used when visiting particular attractions and the frequency of use; and c) presents the network of attractions visited by tourists during their stay at the destination and the frequency of visits. This information is of great value for the tourism market, as it may enable better planning of products and packages so that they include what tourists actually consume. Furthermore, the tourism market can also find collaboration opportunities enabling them to increase their market share by developing latent initiatives detected from the overlapping areas of the systems and subsystems. Finally, new accommodation offers or attractions can be developed in areas where an opportunity is detected: near places with a high frequency of visits (accommodation hubs, high attraction and 'multiple-

attractions') and/or in undervalued areas between places with a high frequency of visits.

Regarding destination managers, this thesis presents a significant volume of information regarding the demand side, and this can be of great value to destinations seeking to become demand-oriented. Firstly, services such as the promotion, information, facilities and access to tourism offers, can be potentially better adapted to tourists' needs, and can improve the general tourism experience at the destination. Secondly, the information on travel patterns presented in this thesis is valuable in order to better adapt the public transport network to tourist needs, and to plan the maintenance and improvement of connection networks. Thirdly, knowing the frequencies of visits enables destination managers to predict possible overcrowded areas and underdeveloped areas. Therefore, they can better plan and manage tourism flows, introducing measures such as signposting, car parks, or advertising and promoting latent areas. Moreover, as the focus of this thesis are rural, nature-based destinations, the management of flows can also be useful in protecting natural or sensitive areas. Finally, this thesis contributes by providing insights into the underlying factors motivating tourism flows within-a-destination. This knowledge enables managers to forecast the effect of changes in the tourism offer such as new attractions, or investment in services on tourist travel patterns.

Limitations and future research

Overall, this research provides innovative insights into how a destination is geographically consumed, and opens promising avenues for future research. However, as with any study, the findings and methods are subject to certain limitations, and these could serve as the basis for improving future research.

Regarding conceptual limitations, this thesis focuses only on the consumer side, omitting the viewpoints of other actors such as residents, destination managers or the tourism industry. Although the tourist is considered to be at the center of the tourism phenomenon, this can be seen as a weakness, as it fails to offer an integrated perspective of the destination. Another conceptual limitation

concerns the fact that only the travel patterns within a destination are analysed. The travel experience frequently enchains several accommodation points; however, in order to simplify the analysis, we consider that 'when a new accommodation point appears, a new destination is invoked' (Dredge, 1999, p. 781). Moreover, the consumer perspective only focuses on exploring travel patterns once the tourist is at the destination, without exploring motivational factors or decision processes. Finally, collaboration between actors and governance of the destination systems aimed at better management has not been addressed in this thesis.

Regarding data limitations, it was not possible to use innovative methods for collecting data in the selected rural destinations due to the existence of connection dead spots. This forced the researcher to collect data 'in situ' using direct surveys. This led to a number of associated limitations, including interviewer and respondent errors, sample selection, temporal constriction and additional costs. One of the most important limitations regarding data was the geographical limitation, which may produce certain deviation or misrepresentation at the suburbs of the areas analysed. On the other hand, using a survey method ensures high quality data, and that appropriate filters are introduced to select the correct sample.

Methodological limitations include the nature of methods used, which were only able to show networks with a limited number of variables; therefore, accommodation and attractions were chosen as they are essential elements of the tourism experience. Other tourism services were left aside. Furthermore, the methodology employed was not useful to enrich the precision of gravity models, as it did not provide the degree of significance of each of the influencing factors affecting travel patterns. Finally, the methodology used was unable to completely convey the complexity of overlapping areas. It is imprecise when secondary travel patterns are relevant enough to be taken into consideration in the management of overlapping areas.

Future research should address the methodological limitations listed above in order to minimize errors and enable destination managers to take more accurate decisions; especially regarding methodological improvements which help determine whether secondary travel patterns are relevant enough to consider the areas as overlapping.

The natural progression of this work would be to continue the discussion on consumer-based tourism destinations by focusing on the complex process of governance and management of the various subsystems and their overlapping areas. Future research can also branch out in many other directions. Firstly, consumers of the detected destinations need to be widely explored in order to better adapt the destination to tourists' desired use, for example by focusing on differences between travel patterns according to tourist profile, or even analysing direct flows. Secondly, future research could focus on the connection between the main destination and neighbouring destinations in order to address the concept of multi-destination itineraries, and to enable collaboration between local destinations in response to tourism travel patterns. Lastly, the extent to which each of the factors affect travel patterns within a destination needs further examination for the results to contribute to the gravity equation.

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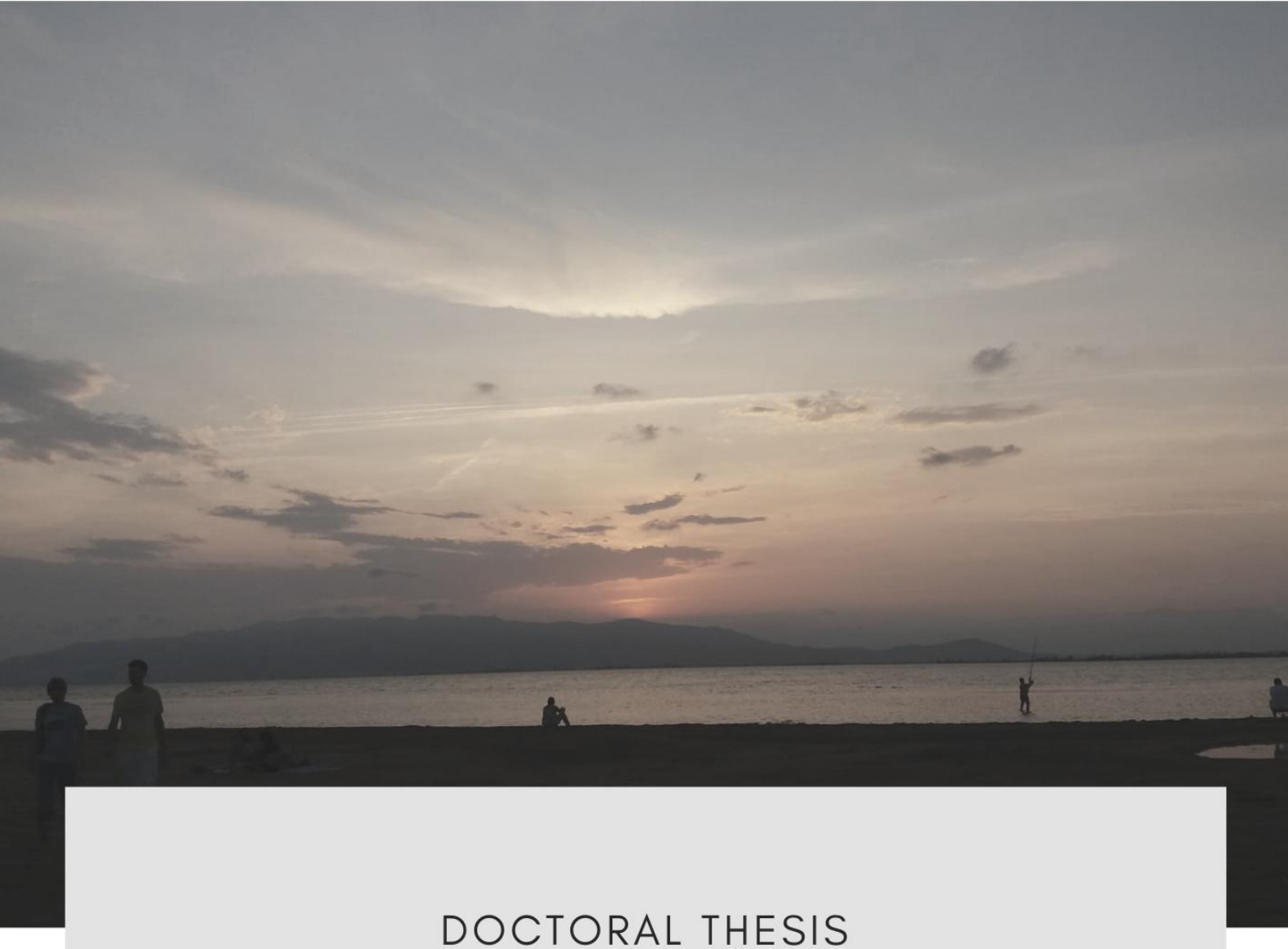

DOCTORAL THESIS

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