UNIVERSIDAD DE HUELVA

Social networks as a tool for managing tourist destinations

Las redes sociales como instrumento de gestión de destinos turísticos

Memoria para optar al grado de doctor presentada por:
Adolfo Hernán Elizondo Saltos

Bajo la dirección de:
Dra. María de la O Barroso González
Dr. David Flores Ruíz

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Adolfo Hernán Elizondo Saltos
Universidad de Huelva

Supervisores: María de la O Barroso / David Flores Ruiz

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A mi familia.
En especial a mis Padres, a mi Madre querida, que aunque no estés físicamente vives eternamente en mis recuerdos y en mi corazón.

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CAPÍTULO I:
JUSTIFICACIÓN, OBJETIVOS, HIPÓTESIS Y METODOLOGÍA

1.1. Justificación

Durante las seis últimas décadas, el turismo ha experimentado una continua expansión y diversificación, convirtiéndose en uno de los sectores económicos de mayor envergadura y crecimiento mundial (Saura et. al 2017; He et al. 2017). A los destinos favoritos tradicionales de Europa y América del Norte se han ido sumando muchos destinos de todo el mundo que se han abierto al turismo y han invertido en él, lo que explica que esta industria se haya distinguido por un crecimiento prácticamente ininterrumpido a lo largo del tiempo, a pesar de crisis ocasionales, demostrando siempre su fortaleza y su resiliencia a las mismas (Encalada et al, 2017; Ditoiu and Platón, 2012).

Según datos de la Encuesta de Movimientos Turísticos en Frontera (FRONTUR) del Instituto Nacional de Estadística (INE [www.ine.es]), en el año 2019 llegaron a España un total de 83,7 millones de turistas internacionales que efectuaron un gasto de 92.259 millones de euros, medido por la Encuesta de Gasto del Turismo receptor (EGATUR) del INE, en 2020 las llegadas internacionales a España ascenderían a sólo 28,8 millones, siendo de alrededor de 18,2 millones en la etapa de julio a final de año. La caída interanual estimada es del 65,6%, como consecuencia de la COVID-19, (Organizacion Mundial del Turismo, 2020), la cual ha hecho retroceder al turismo internacional a niveles de finales del siglo anterior y principios del presente.

Por otro lado, cabe destacar cómo Internet y las tecnologías de la información y la comunicación (TIC) representan los principales elementos impulsores del actual desarrollo de la sociedad de la información y del conocimiento a nivel global. De forma que, todos los sectores económicos han experimentado cambios en su gestión y funcionamiento, derivados de las mejoras en el tratamiento de la información y del mayor conocimiento disponible sobre el que se toman sus decisiones estratégicas y operativas (Sánchez and Amat, 2014).

En este contexto, las TICs han permitido a las organizaciones y destinos turísticos desarrollar e innovar en sus procesos, y adaptar sus prácticas de gestión con los siguientes objetivos (De Pablo, 2004):

❖ Aumentar su eficiencia interna y gestionar mejor su rentabilidad.
❖ Apoyar una cooperación eficiente entre las partes que forman la cadena de valor de socios dentro del sistema de valores.
❖ Ampliar los ámbitos operativos y geográficos ofreciendo herramientas estratégicas para la expansión global.
❖ Interactuar de forma efectiva con los consumidores para adaptar y personalizar el producto.
❖ Diversificar y ampliar el número de canales de comercialización.
❖ Capacitar a los clientes para la interacción entre ellos, con las empresas y con los destinos turísticos.

Los objetivos anteriores hacen innegable que el crecimiento turístico se haya enmarcado en las tendencias o pautas de consumo en que las personas se encuentran inmersas, a causa de las nuevas tecnologías de la comunicación y de la creciente necesidad de salir de la rutina que le producen sus actividades cotidianas (Figueredo et. al 2018; David-Negre et al. 2018).

Todo este proceso constituye una oportunidad de crecimiento y desarrollo para territorios que fomentan nuevos destinos o actividades turísticas, atrayendo, de esta manera, nuevas dinámicas a su territorio, que le permitan una mayor diversificación de la economía, así como una mejor calidad de vida para la población residente (Gambarota and Lorda, 2017; Cook et al, 2015).

Entre todas estas tendencias, las investigaciones en turismo inteligente (Smart Tourism) y redes sociales han sido una de las principales líneas de investigación científicas, aplicadas al análisis del sector turístico, tanto empírico como teórico (Kontogianni et al 2018; Villena, 2018). De forma que, el Smart Tourism ha ido ganando espacios a nivel mundial, siendo ésta una actividad que involucra y se vincula con otras actividades productivas que los gobiernos han determinado como importantes para el desarrollo y consolidación económica de un país (Mata, 2013; Serrano Estrada et al. 2014).

En canales de información, como son las redes sociales, los viajeros encuentran destinos, consejos, ofertas y la posibilidad de planificar de forma integral sus vacaciones (Muñoz A, and Argüelles I, 2010; Aguilar-Gallegos, et al, 2020). Así, entre los principales motivos por los que el consumidor acude al canal virtual (online) para reservar sus vacaciones son el precio y la facilidad en la reserva (Daries-Ramón, et al., 2014; Feldman T, and Gibson G, 2013). De hecho, las redes sociales son la fuente de información más recurrente para inspirarse o buscar opiniones de otros usuarios (Abascal-Mena, et al., 2018; AENOR, 2018).

Estas fuentes de información se están convirtiendo, cada vez, más en recursos fundamentales para los departamentos de marketing en las empresas del sector (Big Data. Retos y oportunidades para el tursimo, s.f) (Martín R., et al, 2018; Chung et. al, 2017). Destaca su explotación mediante técnicas de procesamiento de lenguaje natural y aprendizaje automático, orientadas a la segmentación de campañas, la fidelización de clientes, la identificación de tendencias, etc. Este campo ha experimentado un gran auge gracias a la facilidad de acceso a las tecnologías Big Data, presentes en la mayor parte de análisis inteligente de datos en la actualidad (Rodríguez-González and Molina-Molina, 2007).

La importancia que han adquirido las redes sociales en el ámbito del turismo se debe a sus herramientas para personalizar y acortar la relación entre los turistas y los destinos turísticos, permitiendo la individualización del mensaje, facilitando servicios de atención al turista y potenciando todo ello para poder ofrecer al visitante una imagen representativa y atrayente del destino. Es más, si algo caracteriza actualmente la comunicación en el turismo es que los arreglos de viaje se discuten en línea en forma de blogs, gustos y a versiones que se manifiestan en las redes sociales.

Por tanto, bajo este contexto, de profundos desarrollos de las TICs, en general, y de las redes sociales, en particular; así como de la importancia que, cada vez más, adquieren éstos en la actividad turística, intensiva en información, la presente tesis doctoral tiene como tema de estudio el análisis y aplicación de las redes sociales a la gestión de los destinos turísticos.

1.2. Objetivos e hipótesis de la Investigación

El objetivo principal de esta investigación se centra en determinar las funciones y aplicación de las redes sociales en la gestión de los destinos turísticos, con objeto de poner de manifiesto el estado de la cuestión y grado de aplicabilidad.

No obstante, el objetivo genérico anterior, se concreta en los siguientes objetivos más específicos:

- Realizar una revisión bibliográfica de las publicaciones de alto impacto que han abordado el análisis de las redes sociales en la gestión de destinos turísticos, prestando especial atención a los destinos turísticos inteligentes, con objeto de poner de manifiesto las diferentes funciones que pueden desempeñar, así como sus potencialidades. Y destacar los principales trabajos, autores, revistas e instituciones que han publicado sobre esta temática.

- Examinar el grado de presencia y tipo de funciones que vienen desempeñando las redes sociales en la gestión de los destinos turísticos españoles, prestando especial atención a los destinos turísticos inteligentes con objeto de detectar posibles diferencias respecto a los destinos turísticos que no lo son.

- Como una de las posibles funciones que pueden ejercer las redes sociales en la gestión de los destinos turísticos, se analiza la aplicabilidad que pueden tener en lo que respecta al análisis de sentimientos del turista, y su posible compatibilidad con las estadísticas oficiales de turismo; sobre todo, a la hora de conocer y adaptarse, de una forma continuada, al comportamiento de la demanda turística.

Las hipótesis a contrastar en la presente investigación para dar cumplimiento a los diferentes objetivos específicos, tanto teóricos como empíricos, son las siguientes:

1.1. En los últimos años se ha incrementado el número de estudios e investigaciones relacionada con los destinos turísticos inteligentes y las redes sociales.
1.2. El número de funciones que desempeñan las nuevas tecnologías, en general, y las redes sociales, en particular, en la gestión de los destinos turísticos, se ha incrementado sustancialmente en los últimos años.
2.1. La presencia de los destinos turísticos en las redes sociales se ha incrementado en los últimos años, y está relacionada con el mayor número de turistas que reciben cada uno de ellos.
2.2. La mayor presencia de los destinos turísticos en las redes sociales no implica que su gestión sea eficaz y eficiente, y, por tanto, no va a depender del número de turistas recibidos.
2.3. Los destinos turísticos inteligentes españoles no realizan una gestión más eficaz y eficiente que los restantes.
3.1. Es posible identificar y clasificar las percepciones y opiniones de los turistas mediante el análisis de sentimientos, a escala masiva, con la ayuda de las redes sociales y de software estadísticos.

3.2. Las redes sociales desempeñan un papel complementario a las estadísticas oficiales de turismo a la hora de analizar el comportamiento y opiniones de la demanda turística.

Para dar respuesta a las hipótesis anteriores, en el siguiente apartado de desarrolla la metodología general que se sigue en esta tesis doctoral.

1.3. Metodología

Una vez identificados los objetivos, así como las hipótesis que le dan respuestas, en el presente apartado recogemos una visión global e integrada de la metodología seguida para contrastar cada una de esas hipótesis, así como la estructura de la tesis que la desarrolla.

En este apartado nos aproximamos a la metodología general seguida en esta tesis doctoral, si bien las diferentes técnicas aplicadas se irán tratando con mayor profundidad a medida que se vayan desarrollando sus capítulos, poniéndose en relación, de esta forma, los contenidos de éstos con la metodología específica utilizada para su elaboración. Por lo que, en el presente apartado, nos limitaremos a justificar y explicar cada uno de los pasos y técnicas que se aplican a lo largo de la misma, las cuales conforman, de una forma integrada, la estrategia metodológica de toda la investigación.

Cuadro 1.1. Estructura Metodológica de la Investigación

OBJETIVO GENERAL
Determinar la aplicación de las redes sociales en la gestión de los destinos turísticos, con objeto de poner de manifiesto el estado de la cuestión y grado de aplicabilidad real en determinados destinos turísticos.

Realizar un análisis bibliográfico de las publicaciones que han abordado el análisis de las redes sociales en la gestión de destinos turísticos, prestando especial atención a los destinos turísticos inteligentes, con objeto de poner de manifiesto las diferentes funciones que pueden desempeñar, así como sus potencialidades. Y destacar los principales trabajos, autores, revistas e instituciones que han publicado sobre esta temática. Inteligentes y su integración con las redes sociales.

Examinar el grado de presencia y tipo de funciones que vienen desempeñando las redes sociales en la gestión de los destinos turísticos españoles, prestando especial atención a los destinos turísticos inteligentes con objeto de detectar posible diferencias.

Estudiar la aplicabilidad del análisis de sentimientos de la demanda turística mediante las redes sociales y su compatibilidad con las estadísticas oficiales de turismo, con objeto de poner de manifiesto el rol que puede desempeñar las redes sociales en el conocimiento de la demanda turística por parte de los destinos turísticos.

HIPÓTESIS

1.1. En los últimos años se ha incrementado el número de estudios e investigaciones relacionada con los destinos turísticos inteligentes y las redes sociales.

1.2. El número de funciones que desempeñan las nuevas tecnologías, en general, y las redes sociales, en particular, en la gestión de los destinos turísticos, se ha incrementado sustancialmente en los últimos años.

2.1. La presencia de los destinos turísticos en las redes sociales se ha incrementado en los últimos años, y está relacionada con el mayor número de turistas que reciben cada uno de ellos.

2.2. La mayor presencia de los destinos turísticos en las redes sociales no implica que su gestión sea eficaz y eficiente de las mismas, y, por tanto, no va a depender del número de turistas recibidos.

2.3. Los destinos turísticos inteligentes españoles no realizan una gestión más eficaz y eficiente que los restantes.

3.1. Es posible identificar y clasificar las percepciones y opiniones de los turistas mediante el análisis de sentimientos a escala masiva con la ayuda de las redes sociales y de software estadísticos.

3.2. Las redes sociales desempeñan un papel complementario a las estadísticas oficiales de turismo a la hora de analizar el comportamiento y opiniones de la demanda turística.
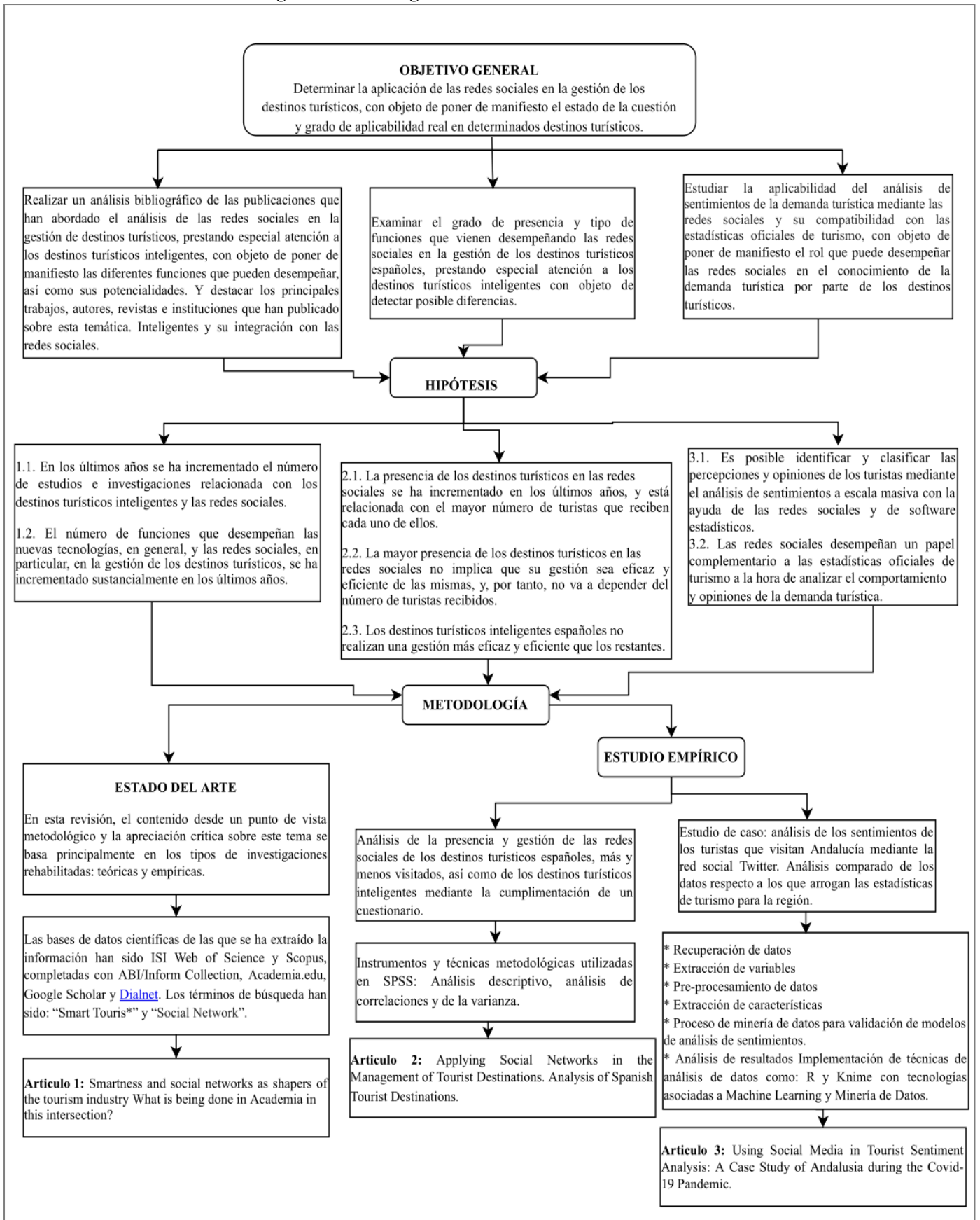
METODOLOGÍA

ESTUDIO EMPÍRICO

ESTADO DEL ARTE

En esta revisión, el contenido desde un punto de vista metodológico y la apreciación crítica sobre este tema se basa principalmente en los tipos de investigaciones rehabilitadas: teóricas y empíricas.

Las bases de datos científicas de las que se ha extraído la información han sido ISI Web of Science y Scopus, completadas con ABI/Inform Collection, Academia.edu, Google Scholar y Dialnet. Los términos de búsqueda han sido: "Smart Touris*" y "Social Network".

Articulo 1: Smartness and social networks as shapers of the tourism industry What is being done in Academia in this intersection?

Análisis de la presencia y gestión de las redes sociales de los destinos turísticos españoles, más y menos visitados, así como de los destinos turísticos inteligentes mediante la cumplimentación de un cuestionario.

Instrumentos y técnicas metodológicas utilizadas en SPSS: Análisis descriptivo, análisis de correlaciones y de la varianza.

Articulo 2: Applying Social Networks in the Management of Tourist Destinations. Analysis of Spanish Tourist Destinations.

Estudio de caso: análisis de los sentimientos de los turistas que visitan Andalucía mediante la red social Twitter. Análisis comparado de los datos respecto a los que arrogan las estadísticas de turismo para la región.

* Recuperación de datos
* Extracción de variables
* Pre-procesamiento de datos
* Extracción de características
* Proceso de minería de datos para validación de modelos de análisis de sentimientos.
* Análisis de resultados Implementación de técnicas de análisis de datos como: R y Knime con tecnologías asociadas a Machine Learning y Minería de Datos.

Articulo 3: Using Social Media in Tourist Sentiment Analysis: A Case Study of Andalusia during the Covid-19 Pandemic.

Fuente: Elaboración propia

Tal y como se refleja en el esquema anterior, para dar cumplimiento a los objetivos e hipótesis teóricas, se realiza un análisis bibliográfico, el cual da lugar a la elaboración del estado del arte respecto al tema sobre el que gira la presente tesis doctoral. En este sentido, el estado del arte de la investigación se elabora a partir de un análisis sistemático de la literatura científica acerca de los destinos turísticos inteligentes (concepto, dimensiones, componentes, sistemas de gestión) y su integración con las redes sociales. Se presta especial atención a aquellas investigaciones en materia de gestión turística soportadas en la obtención de datos procedentes de redes sociales, las herramientas utilizadas para su captación y técnicas (cuantitativas) para su ulterior tratamiento, así como los campos de aplicación a nivel de formulación de estrategias.

En este análisis bibliográfico, se da respuesta a dos preguntas específicas, relevantes para la investigación: en primer lugar, ¿cómo se define al turismo inteligente y su relación con las redes sociales?; y, en segundo lugar, ¿cuáles son las técnicas y herramientas utilizadas en la literatura científica para la obtención y uso de información en turismo inteligente y redes sociales?

Para ello, las bases de datos científicas de las que se ha extraído la información han sido ISI Web of Science y Scopus, completadas con ABI/Inform Collection, Academia.edu, Google Scholar y Dialnet. Las consultas se filtraron para artículos en inglés, español y portugués.

En esta revisión, el contenido desde un punto de vista metodológico y la apreciación crítica sobre este tema se basa principalmente en los tipos de investigaciones: teóricas y empíricas. También se investigó la evolución de las publicaciones desde 2010 hasta 2018, periodo en el que los trabajos identificados fueron publicados. Además, se examinaron las revistas más importantes y otros medios que publicaron artículos sobre turismo inteligente y redes sociales, así como las principales palabras clave utilizadas y los trabajos más citados sobre turismo inteligente y redes sociales.

Para dar respuesta al segundo grupo de objetivos e hipótesis específicas, la metodología aplicada fue de tipo cuantitativa, basada en el análisis de una serie de datos que arrojan los destinos turísticos españoles en cuanto a su presencia y gestión de las redes sociales, medidas estas variables por una serie de indicadores recogidos, previamente, de la revisión de la literatura científica.

La cuantificación de estos indicadores, para cada uno de los 78 destinos turísticos (entre los que se encontraban todos los destinos turísticos inteligentes, acogidos al proyecto de SEGITTUR), nos permitió aplicar diferentes técnicas estadísticas cuantitativas, tales como: a) el análisis de correlación de Pearson, para establecer el tipo de interrelación entre la variable independiente (número de visitantes) y los indicadores, o variables dependientes, referidos a la presencia y gestión de los destinos la web y en las redes sociales; y b) para determinar el grado de utilización de las redes sociales por parte de los destinos turísticos inteligentes respecto a los restantes, se realizó un análisis ANOVA entre las variables de los destinos más visitados respecto a las de los destinos turísticos inteligentes, con objeto de detectar posibles diferencias estadísticamente significativas entre ambos grupos de destinos en lo que respecta a la gestión que hacen de las redes sociales.

Por último, para dar cumplimiento al tercer grupo de objetivos e hipótesis específicas, y demostrar si existe complementariedad entre los datos que arrojan las redes sociales y los que ofrecen las estadísticas oficiales, en lo que respecta a la demanda turística, se sigue una

metodología de corte cualitativa, ya que se fundamenta en un análisis de caso, de carácter exploratorio. En este sentido, se analiza el cambio experimentado por los comportamientos y sentimientos de los turistas que visitan Andalucía como consecuencia de la COVID-19, tanto con los datos de la Encuesta de Coyuntura Turística de Andalucía (ECTA, 2020) como mediante un análisis de sentimientos con datos de Twitter.

Para el análisis exploratorio de sentimientos, mediante Twitter, se utilizó el programa estadístico R y el paquete de biblioteca (rtweet) para la recuperación de mensajes de la red social Twitter (tweets). A continuación, se aplicaron algoritmos de análisis de sentimientos mediante aprendizaje automático a los datos resultantes. Entre otras características, esto nos permitió clasificar los tuits en positivos, negativos y neutros, como se muestra en el proceso de resultados. La red social seleccionada para este estudio fue Twitter, debido a su capacidad de llegar a una amplia audiencia y a su carácter anónimo, lo cual ha provocado un crecimiento exponencial a escala mundial y han transformado la plataforma en una fuente de información alternativa junto a los medios de comunicación más tradicionales.

Tanto el análisis de las estadísticas oficiales, antes de la pandemia y durante ésta, como el análisis de sentimiento, analizando los comentarios de los turistas sobre Andalucía, en Twitter, permiten poner de manifiesto la importancia que pueden adquirir ambas fuentes de información a la hora de conocer, más en profundidad y, de una forma continuada en el tiempo, el comportamiento de los turistas.

En definitiva, el análisis bibliográfico, junto a las técnicas de investigación cuantitativas y cualitativas, permitirán poner de manifiesto la gestión que los destinos turísticos vienen haciendo de las redes sociales, dando cumplimiento a los objetivos e hipótesis planteadas de la presente investigación.

A continuación, se describe, de una forma somera, la estructura y capítulos en los que se divide la tesis doctoral.

1.4. Estructura de la Investigación

Para dar cumplimiento a los objetivos e hipótesis, detalladas en epígrafes anteriores, la presente tesis doctoral está estructurada en 5 capítulos, los cuales se presentan a continuación:

Capítulo 1: Justificación, Objetivos, Hipótesis y Metodología
Capítulo 2: Estado de la cuestión: Intersección de las Redes Sociales y el Turismo
Capítulo 3: Aplicación de las redes sociales en la gestión de destinos turísticos
Capítulo 4: Uso de las redes sociales en el análisis del sentimiento de los turistas
Capítulo 5: Conclusiones, limitaciones y futuras líneas de investigación

Así, la tesis comienza con un primer capítulo, introductorio y metodológico (el presente), en el que se desarrollan los objetivos, hipótesis, estrategia metodológica y estructura de la investigación. De forma que, con la lectura de éste, se intenta trasmitir al lector una primera aproximación al objeto de estudio, así como a la forma de abordarlo.

Posteriormente, en un segundo capítulo, se elabora un marco teórico en el que se analizan las investigaciones sobre las redes sociales en el sector turístico, prestando especial atención a su

aplicación a los destinos turísticos y, más concretamente, a los denominados como destinos turísticos inteligentes.

Por su parte, en el Capítulo 3 se analiza el grado de aplicación y desarrollo de las redes sociales en la gestión de los destinos turísticos españoles, diferenciando los que están adheridos al proyecto de SEGITTUR, sobre destinos turísticos inteligente, respecto a los que no lo están, con objeto de poder detectar y establecer posibles diferencias entre ambos grupos de destinos.

En el Capítulo 4 se aborda el papel que pueden tener las redes sociales en el conocimiento de la demanda turística de los destinos, para lo cual se analiza el caso de Andalucía. En este sentido, se analizan los comentarios vertidos en la red social Twitter sobre el turismo en Andalucía, antes y durante la COVID-19, comparándolo con los resultados que arrojan las estadísticas oficiales de turismo. Ello permite determinar el grado de complementariedad de las dos herramientas de recopilaciòn y análisis de datos.

Por último, en el Capítulo 5, se presentan las principales conclusiones de la tesis doctoral, así como sus principales limitaciones y futuras líneas de investigación.

CAPÍTULO II:

INTERSECCIÓN DE LAS REDES SOCIALES Y EL TURISMO: ESTADO DEL ARTE

Purpose – The purpose of this study is to present the state-of-the-art scientific research in the intersection between smart tourism and social networks to better understand the role of the latter (such as Facebook and Twitter) in the development of the smart paradigm in tourism, e.g. how the relationship between Smart tourism and social networks has been observed by authors, or the techniques and analytical tools that are most broadly used to take advantage of available data in social networks to feed a smart logic in the management of tourism companies and destinations.

Design/methodology/approach – A systematic search in scientific databases (such as Web of Science and Scopus) was performed, with December 2018 as a closing date. Once duplications were eliminated and the adequacy the outputs obtained verified properly, a total of 61 documents were considered for this study, most of which were journal articles.

Findings – The characterization of research in this area with both a bibliometric and bibliographic analysis.

Practical implications – The presentation of a detailed picture on the content of the research carried out in the abovementioned intersections: evolution over time; most prolific authors, institutions and countries; journals, conferences and publishers that have paid more attention to this topic; type of research performed, objects of study, methodologies used and main contributions.

Originality/value – The proposal of a research agenda in the field under study. To the best of the authors' knowledge, there is no a similar work carried out in this field.

Keywords: Social networks, Smart tourism, Smart destinations, Smart social data, Smart tourism destinations

Paper type Literature review

2.1. Introduction

The concept of smart tourism (or smart tourism destination (STD)) has been internationally gaining momentum because of its potential to lead the way toward more sustainable development (among other reasons). Social media has become an essential tool for channeling an interaction between providers and demanders of tourist services and producing an enormous data flow to feed the smart tourism logic, where the two meet becomes a highly interesting subject of study. For destinations, undoubtedly, this is a strategy that sets the scene for the future of this industry.

In this sense, the originality of this work lies in its novel nature because of it being, as far as we know, the first to perform a systematic analysis of academic research done in the field of smart tourism and social media.

In this regard, this paper aims to provide the state-of-the-art research using a review of the scientific production on STDs (such as concepts, dimensions, components and management systems) and their integration into social networks with special attention paid to research on tourism management backed up by data obtained from social networks, the tools used to collect it and the techniques then used to process it, as well as the fields of application when developing strategies.

Accordingly, this paper is organised as follows. Firstly, a conceptual framework is provided on smart tourism (including a reference to the expected requirements to reach this category)

as well as on its interrelation with social networks. Then, to achieve the proposed aim, the methodology used is presented. Finally, the primary results (from both a bibliometric and bibliographic perspectives) are provided and conclusions are drawn from themin terms of what has been done so far and the proposal of future research avenues.

2.2. Smart tourism destinations: concept and requisites

A STD is understood to be an innovative space established on the basis of a territory and an avant-garde technological infrastructure (Gretzel et al., 2015), i.e. a territory engaged with the environmental, cultural and socio-economic factors of its habitat, equipped with a system of intelligence that systematically collects data and generates information to analyze and understand what is happening in the destination (even in real time), thus easing visitors' interactions with the tourist environment and the decision making for the destination managers, as well as increases their efficiency and improves the quality of tourism experience (L_opez de Ávila and García Sánchez, 2013; Zhang et al., 2016).

In brief, smart tourism is supported by the development of an advanced technological infrastructure and the ability to generate information that enables the improvement of stakeholders' management and destinations governance, promotes innovation, enhances the tourist experience and finally improves the competitiveness of companies and destinations (Caro et al., 2015).

Moving from a conceptual level to the requisites for a tourism destination to be considered smart, we have used Spain as a reference case because it is a pioneering country in drafting standards for certifying STDs, specifically the management system's requirements (contained in the UNE 178501 standard, with its original April 2016 version revised in June 2018) and the standard related to indicators and tools for STDs (the UNE 178502 standard of June 2018). Both standards (with the goal of them both being turned into ISO standards) target tourism destinations with the determination to become smart ones based, on the one hand,on knowledge about tourists' expectations and, on the other hand, in responding to these expectations by implementing technological tools required and action plans for the following five areas: innovation, technology, universal accessibility, sustainability and governance. The requirements to be met by the Smart Tourism Destination Management

Entity for each one of the five aforementioned areas are a fundamental part of the UNE 178501 standard, which has already produced, as a result, the conformity assessment in the case of the city of Benidorm, the first certified STD.

2.3. The interrelation between smart tourism and social networks

The development of the internet has revolutionized how information is accessed because it has become the main search tool for the trips (Suja Cherukullapurath et al., 2017; Byun et al., 2017). In this context, social media has become an essential way in which information is disseminated on tourism destinations and how tourists get informed about them (De la Ballina et.al., 2017); thus, it become one of the most important media (Leminen et al., 2018; Cervantes et al., 2016).

Sources of information and communication play a key role in configuring the image of a tourism destination that tourists perceive, even without having gone there (Domínguez and Araújo, 2014). For this purpose, destinations must convey their image using an appropriate and attractive manner on online promotion websites, particularly on social media, because of its reach (Villena, 2018; Trancoso González, 2018).

Social networks are online communities where people connect to each other, gather to socialize and exchange viewpoints, information and images on topics of common interest,

which can be socially or business oriented (Putro et al., 2016; Ramos et al., 2016). Thus, social media is one of the fastest growing phenomena on the internet and a suitable vehicle for doing business, advertising purpose and customer acquisition and retention (Lichtle Fragoso and Sánchez Salinas, 2014). In fact, social media has become a habit, even a necessity, in the daily life of an increasing amount of people (Miranda Zavala and Cruz Estrada, 2016; Becheru et al., 2015), which transforms them into a powerful source of data that, once structured, can become very valuable information for knowing the market and making decisions in accordance with the logic of smart tourism.

Indeed, users have developed a set of new capabilities, skills and habits related to their interaction with the new tools of web 2.0 (such as forums, blogs, social networks, advanced search engines, recommendation systems and online reputation), which generates new demands for information (Hunter et al., 2015; Koo et al., 2013) and gives rise to the generation of content in a decentralized manner (Katsoni, 2014; Ruiz et al., 2017) by going beyond the work done by traditional destination marketing organizations.

The use of social media for tourism is a broadly studied issue in scientific literatura (Trunfio and Della Lucia, 2016; Angelaccio et al., 2013) because it is a meeting place and an opportunity to reach millions of users (Luque Ruiz et al., 2016; Stienmetz, 2016). The existence of friends 2.0 which put up their travel experiences photos, etc. represent a free promotion that can contribute to better positioning the tourism sector at a given destination (Morales Cortijo and Hernández Mogoll_on, 2011).

Social networks are therefore integrated into this paradigm of smart tourism, in which technology is seen as infrastructure (that social media is a part of) to provide data (even in real time) that enables advanced analysis, which helps to make better decisions to optimize business processes and the performance of the tourism activity (Gretzel et al., 2015; He et al., 2017).

2.4. Methodology

To identify the existing literature in our field of study, scientific databases such as Web of Science and Scopus were mainly used, along with Abi/Inform Collection, Academia.edu, Google Scholar and Dialnet. Other than a general search, including the terms "smart tourism" and "social networks," searches were also carried out for specific social networks such as Facebook, Twitter and Instagram. The search methodology is summarised in Table I.

This study provides a review of a total of 61 publications, once repetitions in the output provided by the stated databases were eliminated. Their contents from a methodological perspective, as well as the critical assessment of the subjects studied, have been analyzed based on the types of research carried out: empirical (41) and theoretical (20). In alphabetical order, and organized in these two blocks, the list of the documents included in our analysis are as follows.

Empirical papers: Angelaccio et al. (2013), Babu and Subramoniam (2016); Becheru et al. (2015), Bunja and Vucetic (2017); Byun et al. (2017), Cacho et al. (2016); Campo and Altuna (2010), Cassidy et al. (2015); Cervantes et al. (2016), Chernysheva et al. (2011); Chung and

Search Word	"Smart Tourism" and "Social Networks"
Category	Topic (WoS)
	Article Title, Abstract, Keywords (Scopus)
	Advanced search (any field) (Abi/Inform Collection)
	Topic (Academia.edu)
	Topic in any language (Google Scholar)
	Search documents (Dialnet)
Subject area	All
Document type	Journal articles, Conference Proceedings, Books Chapters and Master and PhD thesis
Period time	All
Language	English and Spanish
Query String	"Smart Touris*" and "Social Network*"; "Smart Touris*" and Facebook; "Smart Touris*" and Twitter; "Smart Touris*" and Instagram; "Smart Touris*" and Google Maps; "Smart Touris*" and Flickr
Search	Date December 2018
Source:	Own elaboration

Table I. Search methodology

Lee (2016), Chung et al. (2017); Chung et al. (2017), Claster et al. (2013); David-Negre et al. (2018), De la Ballina et al. (2017); Ditoiu and Platon (2012), Encalada et al. (2017); Femenia-Serra et al. (2016), Figueredo et al. (2018); Giraldo Cardona and Martínez María-Dolores (2017); He et al. (2017), Ho and See-To (2018); Kim (2016), Kim and Kim (2017); Kontogianni et al. (2018), Koo et al. (2013); Koo et al. (2016), Luque Ruiz et al. (2016); Mata et al. (2013), Mele et al. (2017); Micera and Crispino (2017), Ndou et al. (2016); Oro and Ruffolo (2017), Putro et al. (2016); Serrano Estrada et al. (2014), Stienmetz (2016); Suja Cherukullapurath et al. (2017), Trunfio and Della Lucia (2016); Villena (2018), Zhang et al. (2016).

Theoretical papers: Aarstad et al. (2015), Baggio (2017); Barile et al. (2017), Cook et al. (2015); Gretzel et al. (2015), Hunter et al. (2015); Jucan et al. (2013), Kapoor et al. (2018); Katsoni (2014), Khomsi (2016); Leminen et al. (2018); Morales Cortijo and Hernández Mogoll_on (2011); Pranicevic and Zovko (2016), Ramos et al. (2016); Ruiz et al. (2017), Saura et al. (2017); Soukup (2018), Souza et al. (2017); Trancoso González (2018); Vargas-Sánchez (2016).

2.5. Results

2.5.1. Bibliometric analysis

To characterize the set of documents that support this analysis, the following features are reported.

From the point of view of its evolution over time (2010-2018), it is worth identifying two periods: 2010-2014, which we could call an introduction phase for the topic being studied, where the number of papers is considerably less (around two per year); and 2015-2018, which includes 82 per cent of the total number of studies, with 2016 and 2017 having the highest number of publications with 17 and 18 papers, respectively. Note that 95 per cent of this set of papers was published in scientific journals (64 per cent) or conference proceedings (31 per cent), of which 84 per cent were published in English.

The 19 conferences identified could be grouped together, despite their diversity, into two blocks: one with cross-thematic approach, primarily technological (Big Data, Computation, Information Systems, and Smart Cities), and another with conferences specialising in the tourism industry (only 21 per cent).

The 39 referenced articles have been published in 31 scientific journals with Sustainability and International Journal of Tourism Cities having featured the highest number of articles on the subject of smart tourism and social media with each of them having three. This was

followed by two articles each by Tourism Review, Information Systems Frontiers, International Journal of Scientific Management and Tourism and Asia Pacific Journal of Information Systems. Similarly, for conferences, most journals where the articles on this subject have been published are clearly technological in nature with only 29 per cent of them being specialized on tourism. Therefore, within the categories in which the Web of Science database classifies the journals, the most frequent ones are the ones related to Computer Science (particularly Computer Science and Information Systems). Note that comparatively few journals were seen in Scopus in the "Tourism, Leisure and Hospitality Management" category (only four).

The most important publisher in this group of publications is clearly Emerald. As far as the authors (150 in total):

The benchmark author in the field is Nambo Chung (College of Hotel and Tourism Management, Kyung Hee University, Seoul, Republic of Korea), with five publications, of which four are articles in journals and one is a paper at a conference. Ulrike Gretzel (University of Southern California, USA), Nélio Cacho and Mickael Figueredo (Universidad Federal de Río Grande del Norte, Natal, Brazil) are the other important authors, with two contributions each.

It is worth mentioning that Ulrike Gretzel and Namho Chung have published an article together (with other authors) on applying the constructivist paradigm and associated research methodologies to explore smart tourism development in more depth based on information and communication technologies. Nélio Cacho and Mickael Figueredo, from the same Brazilian university, are cosignees (as well as other authors) of two papers that cover, in the first paper, platforms to analyze the content generated by users (specifically on Twitter) within the framework of what are called smart social destinations, and, in the second, personalized tourism recommendation systems based on photos shared on social media (such as Facebook, Instagram and Googleþ); both cases are based on deep learning and fuzzy logic.

Only 14 per cent of the work analyzed has a single author. Of the rest of them, the most common is co-authorship by three individuals where the co-authors usually belong to the same university. Typically, the increase in the number of co-authors broadens the range of universities and their countries of origin.

From an institutional perspective, Kyung Hee University of Seoul (Republic of Korea) is the institution with the greatest number of authors (12), followed by the Spanish universities of Málaga (8) and Alicante (7); the University of Piraeus (Greece) and the University of Milano-Bicocca (Italy) with six authors.

By country of origin that the authors belong to, the countries with the most number of authors are Spain (28), Italy (21) and South Korea (17).

Moving on to the keywords for the documents being studied (a total of 206):

The main ones used by the authors to characterize their work were: smart tourism (16 per cent), social networks (15 per cent), big data (5 per cent), smart city (4 per cent), Facebook (4 per cent), geo-tagged photos (4 per cent), sentiment analysis (4 per cent), data mining (3 per cent) and recommendation system (3 per cent).

The block with the most keywords is for the ones concerning the techniques or tools of analysis of data, text and images such as big data, sentiment analysis, geo-tagged photos, data mining and machine learning.

Another significant cluster of keywords is related to social networks, with Facebook at the top, followed by Instagram and Twitter (others are marginally cited).

A last block of keywords worth mentioning is the ones related to the web such as evolutionary web, web extraction and semantic web.

Finally, for the purpose of showing an approach to the most influential authors, the five most referenced papers are discussed below in accordance with the number of citations obtained (in decreasing order).

(1) Chung and Hyunae Lee (2016) studied leads to the use of geo-tags by tourists, as information and a tool to share on social networks.

(2) Cacho et al. (2016) demonstrated a platform that uses social media as a source of data to support decision-making by political actors in the context of STD initiatives.

(3) Figueredo et al. (2018) proposed a solution that is able to detect implicit preferences based on images shared on social networks and recommended a combination of tourist attractions. To classify tourists and make the recommendation, new techniques such as convolutional neural networks and fuzzy logic are used.

(4) Koo et al. (2016) examined the impacts of the travelers' media exposure in the web, both experienced as well as inexperienced travelers, and their perception of that exposure on the influence on their intention to visit a given destination (South Korea in this case).

(5) Gretzel et al. (2015) defined smart tourism by focusing on its current trends and stating its technological and business foundations.

2.5.2. Bibliographic analysis
Analyzed from a methodological point of view, a third of the documents identified (33 per cent) are theoretical, desk research, while two thirds of them (67 per cent) contain empirical contributions applying big data techniques, data mining and geo-tagging of photos.
As for the papers of a theoretical nature, the first publication of this type took place in 2011, with a moderate upward trend until 2017. The predominant methodology is literatura review.

As far as empirical papers, changes in them over time tells us that this type does not pick up until 2016, the year (together with 2017) when it reaches its greatest number, with the first of them from 2010. Note that 80 per cent of these papers use primary data with the most used research techniques or tools being as follows: big data, sentiment analysis, geo-tagged photos, data mining and machine learning. Spain and South Korea are the countries that have most frequently been subject to the research of these types of studies, followed by Italy.
In both types of studies, the most repeated keyword, in addition to smart tourism and social networks, is big data.

2.6. Conclusions, recommendations: future lines of research
With the need to undertake an analysis of the academic research published to date (12/31/2018) on where smart tourism and social networks meet (two developing phenomena that are mutually fed within a data-intensive governance paradigm based on new technologies), 61 documents were identified.
The pattern followed in this area of study has been common in the academic community: the presentation of papers in conferences, followed by publications in journals with the vast majority in English. In its life cycle, we understand that scientific production in this subject of research is still in a growth phase because of current and future lines of research that are worth envisaging.
Geographically, the study that has been undertaken is dispersed, and is a subject that has drawn interest from researchers from different areas of the world: Asia (the author and the university with the greatest amount of production are Korean), the USA, South America (with Brazilians

being the main proponents) followed by Europe (with Spain and Italy being the countries with the greatest number of authors). However, the analysis of co-authorship shows the need to open up inter-university collaborative processes at the national level and between universities from different countries more. We consider that the maturation of this research field will lead to a greater presence of working groups, as well as co-authors who belong to various universities and countries.

Both in the conferences where these works have been presented and in the journals where they have been published, most of them have a technological hallmark with tourismspecific media lagging behind. This fact shows us how much room for growth there should be in specialized tourism forums. This technological aspect is clearly reflected in the keywords used, within which the largest group refers to techniques/tools for data analysis, with Big Data at the top.

What has been done so far?

In an industry as dynamic as tourism, participants on social networks are potential customers to be targeted by companies and destinations as well as an extraordinary source of data for tourism operators. Therefore, the sector, in general, must aim to take advantage of their use as much as possible (Ditoiu and Platon, 2012).

With regard to the question about how authors have addressed this relationship, it has been gradually consolidated (Estrada et al., 2014) and even intensified with the spreading of the smart tourism paradigm, with its data-intensive decision-making logic.

The analysis we have carried out on empirical studies has provided us with a description of their subjects of research by pursuing their application in various areas of the discipline of marketing such as market research (tourist preferences, preferential characteristics for hotels), communication, satisfaction (concerns and demands), types of users and personalization, as well as the creation of web service platforms with the application of social networks.

The theoretical work, as far as it is concerned, has focused on undertaking bibliographic reviews of tourist preferences and the application of information technologies, the Internet of Things, social networks and the use ofmobile applications.

The first research in this field was presented in 2010 at the VIII Conference for "Tourism and Information and Communication Technologies," on the development of a content management system for tourism destinations by implementing a semantic web. However, the first publications in scientific journals (three) do not appear until 2013, concerning, firstly, the most important changes that have occurred in the businesses due to social networks and their impact on the structure and leadership of Destination Marketing

Organisations, introducing the concept of "social destination"; secondly, the addition of indexing systems for managing STDs; and thirdly, analysis of comments on social networks such as microblogs on Twitter, which can be used to reveal the feelings and potential motivations of tourists in the travel industry and hospitality, thus facilitating the relationship with them.

In summary, the issues of greatest importance found in this research, because of their results and approaches used in where social networks and smart tourism meet, have been the creation of platforms for web services, the identification of tourism locations of special interest based on digital printing using social networks, the preferences of tourists engaged through social networks, communication strategies on these media, critical analysis of the roles of technology and institutions to shape a tourism service ecosystem. Nevertheless, other topics dealt with, which are worth mentioning are as follows: the use of geo-tagging, web platforms as a communication channel; tourism recommendation systems; the effects of media exposure on travelers and the definition of smart tourism itself and its current trends.

These findings shed light on the identification of the most broadly used techniques and analytical tools to harness available data in social networks and feed a smart logic in the management of tourism companies and destinations.

Recommendations: future research lines

Because of the exponential growth of data driven by the internet and social media, knowing the tools available for gathering and integrating data, as well as promoting automated learning techniques for analyzing data, has become essential for tourism managers and therefore for researchers. In this field, the most used applications, as unstructured data sources, have been Facebook, Instagram and Twitter, which have dominated the research.

However, there is room for additional research in, for example, machine learning applied to studies analyzing tourists' feelings. More specifically, new lines of research are then posible that could be developed to further promote studies on social networks and smart tourism, organised into two large areas (marketing and management):

(1) Tourism marketing:

_ Optimization of tourism marketing activity (communication, promotion) using big data platforms supplied with data from social networks (among other sources).

_ Sentiment analysis using the data available on a variety of social networks to understand people's feelings.

_ Analysis of the impact of smart technologies in distributing tourism services.

_ The role of social networks and the paradigm of smart tourism on the image of destinations.

(2) Tourism management:

_ Redesign of the governance of tourism destinations.

_ Application of big data tools (data mining, etc.) to tourism destination management systems and to business intelligence.

_ Semantic recommendation systems.

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CAPÍTULO III:

APLICACIÓN DE LAS REDES SOCIALES EN LA GESTIÓN DE DESTINOS TURÍSTICOS SOSTENIBLES. ANÁLISIS DE LOS DESTINOS TURÍSTICOS ESPAÑOLES

In this study, the presence and management of the social networks of 78 tourist destinations were analyzed for the development of sustainable tourism, with particular attention being paid to Spanish smart destinations. The variables for the empirical analysis were determined from a literature review, and it was concluded from a descriptive analysis, correlation analysis and an analysis of variance, that although the presence of tourist destinations on the internet and on social networks was notable, their management was inadequate for the development of sustainable tourist destinations. It was shown that there is a direct relationship between the number of visitors at a tourist destination and its presence on social networks. However, our analyses found that this correlation was not related to social network management; a greater number of visitors were not related to the effective management of social networks. It was concluded that smart destinations, despite having a technological advantage, did not stand out for their presence and management on social networks. The manuscript ends with some recommendations for the future

3.1. Introduction

Social networks (SNs) and the evolution of information communication technology (ICT) have changed the way we interact in almost all aspects of life. In fact, according to [1], by January 2018, 3196 million people (42% of the world population) were active users on SNs; specifically, in America 64% and in Europe 53% of the population were active SN users [2].

With this in mind, it is undeniable that SNs have expanded our horizons, the ways in which we socialize and, of course, the way that we purchase all kinds of products [3]. Moreover, SNs have reimagined the possibilities of tourism; tourism-based businesses have had no option but to evolve towards new methods of promoting their products using digital marketing [4].

The universe of SNs is unlimited; every day, new social networking options are born and others die. Therefore, maintaining validity in this digitally expanding world requires large quantities of dedication and research in an environment ruled by novelty; a social network may be in trend today, but could be replaced tomorrow by another more attractive and innovative edition [5].

New information and communication technologies play a key role in the development of tourist destinations, and have a considerable impact on the communication of their brand and identity [6]. Social media allows tourist destinations to interact directly with their different audiences, at a relatively low cost, at any time [7]. However, managing social media is not an easy task and requires new ways of thinking about communication [8].

According to [9], technology has changed the way in which tourists interact, as well as the activities performed before, during and after a trip. The use of SNs is not limited to sharing photos and following people; users also use SNs to seek information on new tourist destinations to be visited, travel offers and other activities focusing on the tourist experience [10].

There are many studies on the impact of social media on tourism, although not all offer the same information. Some authors highlight social media's important role in the selection of tourist destinations [11,12], whereas others highlight that travelers have adopted collaborative tools such as blogs and microblogs, online communities, platforms to share videos or images and social bookmarking websites to search for information [13]. In short, all of this has created shifts in tourist profiles; through the development of ICTs, tourists are not only more informed, but their experience is broader, and they can design, plan and contract their own trips.

On the other hand, from the point of view of tourist destinations, SNs are viewed as bidirectional collaboration platforms, to develop cocreation processes between the destinations and the tourists themselves [14]. Additionally, according to [15], they allow for market research, monitoring, advertising, publicity and public relations regarding tourism demand.

However, the majority of internet users do not use the comments generated by consumers to organize their trips [16]. In this sense, [17] highlights that although social platforms have become a complementary source of information for tourists, other traditional sources continue to be a priority.

In fact, as stated by [18], although advances in ICTs are producing important Access to tourist information, this information does not always belong to a service producer or a destination, but to a mainly virtual intermediary. Thus, the use of these tools becomes a challenge for the management of tourist destinations [19,20].

Not surprisingly, as authors continue to recognize, tourist destinations face a great challenge in the development of integrated technological systems that help to provide destination information in a dynamic and updated way. In addition to consolidating and distributing tourism products, these platforms could allow users to generate dynamic product packages, organize their own trips, or generate interactive catalogs, among many other utilities.

Taking these considerations into account, this study focuses on analyzing the degree of application of SNs in the management of tourist destinations, applied to Spanish tourist destinations, in general, and smart destinations, in particular.

To fulfill these objectives, the work is structured as follows. First, a theoretical framework is presented in which the relationships between tourism and SNs are collected, paying attention to the functionalities available for the management of destinations. Subsequently, a compilation of the research on tourist destinations and SNs in recent years is presented, to collect the main applications of SNs, and determine the variables to be used in the empirical study. The methodology used for the empirical analysis is explained and the results are presented, where the 26 destinations incorporated into the Smart Destinations Project of the Spanish government by SEGITTUR are analyzed, along with the 26 most visited Spanish destinations, and the 26 least visited. Finally, conclusions and recommendations are provided.

3.2. Theoretical framework

Although there is no formal definition, social media can generally be understood as internet-based applications that carry consumer-generated content [21]. The content generated by social media includes a variety of new and emerging online information resources that are created, initiated and used by consumers with the aim of sharing information about products, brands and services [22].

From the moment it is considered that one of the functions of tourist destinations is promotion, it is impossible to conceive the execution of promotion without SNs [23]. In this sense, ICTs should not only facilitate the implementation of these social networks but also integrate with them [24].

Currently, an effective online communication strategy is considered a key element to achieve the necessary competitive advantages in the market and satisfy the information needs of current and potential tourists and attract new customers [19]. In addition, the content generated on the internet detailing the concerns of the users, can be used to improve the marketing of the destination, educate the consumers of tourist goods and services, and facilitate tourism transactions [25].

The participation and comments made by tourists on SNs involve descriptions of the tourist destination, its identity and its brand [26,27]. In the last ten years, we have witnessed the birth of new, increasingly independent and informed multichannel digital tourists, who require permanent connection to social media at all times as a basis for decision-making [28]. In addition, companies and destination managers must evolve from being "analog destinations" to "digital destinations", to respond to these digital tourists before, during and after their journey [29].

ICTs have changed the rules of the game [27,30]; now, it is the tourists who self-plan, spread communication about, and evaluate the experience. Offers must be adapted to clients who require truthful information, the best value for money, authentic experiences and destinations that offer a unique tourist experience [5,31].

Promoting to tourists who find destinations through SNs has a high value, because SNs transmit the authenticity and freshness that new travelers seek, in addition to uncovering locations and experiences that can go unnoticed by residents, all at a residual cost for destination managers [32].

Due to the potential impact of social media on online tourism, understanding the role of SNs in the search for travel information is essential to improve marketing practices in the tourism sector [33,34].

SNs have revolutionized communication in general and tourist destinations are no exception [14–27]; the success of a destination is related to its incredibility in the SNs. According to [30], studies have shown that due to the uncertainty and risk involved in visiting unknown destinations, the comments and experiences of third parties provide credibility to users and potential tourists and influence their decisions in destination selection [15].

Moreover, [35] has shown that SNs provide important communication potential for locations and their brands, allowing the creation of dialog and relationships with the public [36,37]. Studies have shown that through conversations with users, SNs can help create images of destinations, allowing these destinations to be more easily identifiable. Thus, SNs create positive effects on user–brand relationships, which in turn leads to greater credibility and brand loyalty [38].

In addition, through SNs, tourists can share their travel experiences and emotions, directly influencing the emotions of other individuals on the network, and helping to create an image of the tourist destination in question [39,40].

In summary, studies that have analyzed the applicability of SNs to the management of tourist destinations have revealed the following functions:

(a) SNs are a source of collaboration for the management of destinations throughWeb 2.0 environments, and provide tourists with an important ability to personalize their experience [41];

(b) SNs offer personal and professional benefits related to learning, networking and personal reputation [42];

(c) The possibility of using, enhancing and improving one's creativity with a specific objective [17,43], and providing comprehensive and qualified information about the consumer while appreciating their changes in behavior and preference in real time.

The author of [44] classifies these functionalities into two large groups, pointing out that the integrated technological systems of destination management should be incorporated into SNs in two ways. Firstly, through content-dissemination functions, from the integrated system of the destination to the SNs themselves, and secondly, through content reception functions. The feedback that destination managers can receive from the com ments of tourists on SNs can be extremely useful; the automated analysis of comments can be used as a basis for recommendation by the search engine of the integrated management system to generate highly personalized recommendations.

The author of [45] mentions that the emergence of social media has offered new opportunities and has been a substantial challenge for destination marketing organizations (DMOs) and the communication managers of tourist destinations who, in a short time, have had to adapt, and continue adapting, to this new reality of constant chang [19,32,46]. Moreover, they have had to adapt to new communication styles and have progressed from simply allowing user comments to encouraging their participation [46]. This requires a change in mentality regarding communication, a recycling of human resources and the incorporation of communication professionals who specialize in social media [37–47].

Thus, regarding Spain for example, all the official websites of Spanish autonomous communities were engaged in at least one SN, as evidenced by the work of [12], in 2014. Among the most popular SNs at the time was Facebook, followed by Twitter and Tuenti.

Following these works—with the idea of updating their results—a bibliographic analysis was carried out on the theoretical studies that have analyzed the relationships between the management of tourist destinations and SNs in recent years, to highlight the contributions and functionalities in their management processes [48]. The result is shown in Table 1.

Table 1. Studies on tourism and SNs

Authors	Object of study	Description/Contributions	Functions of the SNs
[1]	Examine the volume of information from SNs that influences the choice of smart tourism destination.	Influence of SNs on the choice of a tourist destination.	Recommendation
[2]	Analyze the different components of brand equity through the valuations of hotels in a community of travelers.	Valuations of brands through SNs used by travelers.	Knowledge of tourists
[4]	Analyze the intelligent experience and the intelligent destination.	Use of ICTs for the promotion of palaces as a smart tourism destination in cultural heritage management.	Promotion
[5]	To measure the influence of management responses to online consumer comments on subsequent comments.	Knowledge of digital leisure among international tourists from the perspective of a region of the world little researched.	Knowledge of tourists
[10]	To discover the places that most interest tourists and the routes they use most when visiting a tourist destination.	Analyze the routes tourists use most when visiting a tourist destination.	Knowledge of tourists
[24]	Discover the representative labels of a place through travelers' logs and select the relevant and representative photos to visualize those labels.	Use of smart phones for functional and communication purposes for visitors.	Knowledge of tourists
[25]	To determine if the social distance between consumers and authors of comments influences a consumer's response to what the author says.	Extract social vocations from the area, which are generally not easily quantifiable.	Recommendation
[39]	Analyze the need and effectiveness of smart tourism that offers information on travel in real time.	The application of Smart phones and the satisfaction of users with respect to tourist information.	Promotion
[44]	Identify the influence of destination tweets on hotel reservations at the destination.	Improvement strategies for Smart tourism estinations.	Promotion
[46]	Analysis of the online networks of tourist sites and offline groups of information seekers.	SNs as search engines for tourist information.	Information, offers
[49]	Identify the impact generated by users on business results.	Comments generated by users in SNs.	Recommendation
[50]	Detect implicit tourism preferences based on potos from SNs.	Tourism recommendation system that matches the attractions of the city with the profile of tourists.	Knowledge of tourists
[51]	Analyze the textual representations of the perceived image of a tourist destination found in travel blogs.	Images of a tourist destination through travel blogs.	Knowledge of tourists

[52]	Provide a method of significant growth and new stimulus to destinations.	Highlight the "potential" and "novelty" of tourist destinations.	Promotion

Source: own elaboration based on a review of the Web of Science and Scopus

From the previous table, it can be concluded that of the 14 studies consulted on the application of SNs by tourist destinations, most focus on analyzing the knowledge and profile of tourists (42.9%), followed by the promotion of destinations (28.6%) and their recommendation (21.4%). Finally, there is only one study that focuses on analyzing tourism offers presented on SNs (7.1%).

None of the studies consulted analyze the role that SNs can play in interacting with tourists and developing dynamic, cocreated tour packages. In effect, as [14] shows, tourist destinations do not configure cocreation spaces with key agents, especially tourists and companies in the sector who have a differential advantage, using the potential reference of SNs as an instrument of consumer inclusion in the development of new experiences. In this same sense, [12] concludes that there are interactions between the managers of the SNs of the communities and the private actors in very few cases of Spanish tourist destinations.

According to the latter authors, among the main weaknesses of the management of SNs by Spanish tourist destinations, the following are notable:

According to the latter authors, among the main weaknesses of the management of SNs by Spanish tourist destinations, the following are notable:

a)   there is no person trained and dedicated exclusively to the management of SNs;
b)   no dialog is created, and the interventions are very impersonal;
c)   there is much more activity before the holidays, Christmas, Easter;
d)   there is not much interaction with the home websites or SNs of the provinces;
e)   no segmented interventions are performed;
f)   they do not respond to the contributions and comments of the followers; therefore, there is no interactivity and dialog;
g)   there is a great ignorance of the potential on the part of professionals.

In short, from the analysis of the work on the management of SNs by tourist destinations, it can be concluded that although most destinations are present in SNs, seeking both their promotion and the knowledge of tourists, they do not use the full potential of this digital marketing instrument because proactivity, interrelation and daily dynamism and dialog with tourists through the SNs themselves are still practically nonexistent strategies for a good part of the analyzed tourist destinations.

The concepts of smart tourism and smart tourism destinations (STDs), have been gaining momentum internationally because of their potential to lead the way towards more sustainable developments (among other reasons). Social media has become an essential tool for channeling the interactions between providers and demanders of tourist services, producing an enormous data flow to feed the logic of smart tourism; where the two meet becomes a highly interesting subject of study. For tourist destinations, undoubtedly, this is a strategy that sets the scene for the future of this industry [9].

In this sense, it is interesting to focus on the application of smart destinations in Spain for several reasons [20]. Firstly, in arrivals as well as income from international tourism, Spain is situated in the top three tourist destination countries in the world. Secondly, Spain was one of the first countries to contemplate the project of smart destinations in its tourism policy; specifically, it was one of the measures included in the National and Integral Tourism Plan (NITP) 2012–2015, promoted by the Ministry of Tourism of the Spanish Government and managed by the State-Owned Company for the Management of Innovation and Tourism Technology (SEGITTUR) [53].

The smart destinations initiative was designed so that tourist destinations could successfully face the challenges and transformations posed by the new economic, social and technological environment worldwide, and the new connected tourist. Spain's 'Smart Destinations' project, led by SEGITTUR, examined the effective use of digital technologies to develop the industry, at the same time as focusing on the sustainable development of a location by improving both the visitor experience and the quality of life for the local residents.

For these reasons, it is important to analyze the application of the ICTs in Spain's 'Smart Destinations' and compare it with other Spanish tourist destinations.

3.3. Materials and Methods

To determine to what extent Spanish smart tourism destinations (STDs) use social media and networks, the official websites of the 26 tourist destinations that participate in the SEGITTUR project have been analyzed [53], as well as the 26 most visited Spanish tourist destinations, and the 26 least visited. Thus, we analyzed the internet presence and SN presence, as well as the type of management under which they operate, for each of these destinations, according to the variables defined below (Table 2). The data collection process was completed in May 2020.

Table 2. Variables used by type of indicator.

PRESENCE INDICATOR	MANAGEMENT INDICATOR
Ranking in the Google search engine	Updating the website
Number of social networks in which it is present	Dynamism
Number of followers in social networks	Proactivity
Number of publications on social networks	Interrelation

Source: elaborated by authors from bibliographic analysis.

According to the data from [53], the STD project sought a more efficient and sustainable management of the locations where tourism activity is based. STDs must guarantee the sustainable development of a tourist location, guarantee accessibility for all, facilitate the interaction and integration of visitors with the environment, and increase the quality of the experience at the destination, while improving the quality of life for the residents.

The concept of an intelligent tourist destination is defined as "an innovative tourist destination, consolidated on a state-of-the-art technological infrastructure that guarantees the sustainable development of the touristic territory, accessible to all, facilitates the interaction and integration of the visitor with the environment and increases the quality of an experience at a destination" [53]. Therefore, as this definition suggests, the presence of ICTs in the management of tourist destinations should be considered intelligent.

Indeed, the main axes on which to base all STDs are technology, sustainability (environmental, cultural and socioeconomic), information processing, knowledge generation and efficiency. However, as numerous studies conclude, the technological axis is experiencing the greatest degree of development [20]; hence, we considered in this study the degree of development in this axis, by the 26 Spanish tourist destinations that participated in the project. In this case, it was applied to the presence and management of SNs.

Thus, to determine this presence and type of management, the results for the 26 Spanish tourist destinations participating in the project are compared with those for the 26 most visited Spanish tourist destinations as well as with those for the 26 least visited, to determine if there are significant differences between groups. For this, according to the bibliography consulted, the following hypotheses are proposed:

H1: In general, the management of tourist destinations through SNs does not obey a proactive and planned strategy integrated into a more global destination strategy.

H2: The degree of development of a tourist destination, measured by the number of visitors, helps explain the presence and management of SNs. Thus, the greater is the number of visitors, the greater the degree of presence and management of social media.

H3: The relevance to the SEGITTUR project of STDs also contributes to explaining significant differences in the presence and management of SNs. Thus, the conversion of a tourist destination to a STD should lead to a greater degree of use of SNs in its management processes because the technological dimension is 1 of the 4 dimensions on which the management of independent tourist destinations in the SEGITTUR project should be based.

Below, in the Table 3, are the destinations that follow the STD methodology in Spain [54], as well as the 26 most visited and 26 least visited destinations, according to [54], on which the empirical analysis of this research was carried out.

Table 3. Tourist destinations

Most Visited	Least Visited	STD
Calvià	Palafrugell	Almería
Palma de Mallorca	Santillana del Mar	Arona
Barcelona	Trujillo	Avilés
Granada	Benasque	Badajoz
Madrid	Cadaqués	Benidorm
Málaga	Barbate	Canal de Castilla
San Bartolomé de Tirajana	Ceuta	Castelldefels
Adeje	Sallent de Gállego	Donostia/San Sebastián
Seville	Ubeda	The Ejido
Valencia	Sanlucar de Barrameda	El Hierro
Zaragoza	Chipiona	Jack
Bilbao	Suances	The Val d'Aran
Torremolinos	Zafra	The Vila de Joiosa
Pajara	Lepe	Las Palmas de Gran Canaria
Cordoba	Arnuero	Leon
Santiago de Compostela	Vall de Boí (La)	Lloret de Mar
Alicante/Alacant	Arcos de la Frontera	Marbella
Salamanca	Ribadeo	Monfrague
Yaiza	Viveiro	Murcia
Mogan	Ribadesella	Noja
Toledo	Albarracín	Palma
Benalmadena	Cazorla	Puerto de la Cruz
Roqueta de Mar	Begur	Salou
Alcudia	Sigüenza	Santander
Fuengirola	Mazarron	Torrox
Sant Llorenç de Cardassar	Carboneras	Jerte Valley

Source: elaborated by authors from www.ine.es (accessed on 2 January 2021).

The analysis of the presence and management of these destinations on the internet and SNs was carried out according to the following process: the name of the tourist destination was inserted in the Google search engine; then, after visiting its website, the following variables,

which have been used by the literature consulted for the analysis of the management of SNs in tourist destinations, were recorded [12,14,17]:

- **Rank in the Google search engine:** This variable represents the position in which the tourist destination appears in the search engine. The values are designated as 1 (first place), 2 (second place), 3 (third place) and so on.
- **Year of Integration as an STD in the SEGITTUR project:** This variable defines the year of incorporation into the project of STDs promoted by the Spanish government. The values that can be taken refer to the number of years that the destination has been in the SEGITTUR project (1, 2, 3, 4, etc.).
- **STD website updates:** This variable indicates the last time the website of the destination in question was updated, quantified as the number of days since its last update. The values that this variable can take are 1 (daily), 2 (weekly), 3 (monthly) and 4 (several times a year).
- **Tourist activities most practiced at the STD (positioning):** This variable allows knowing the type of tourist promotions offered by tourist destinations.
- **SNs most used by the STD:** This variable indicates the number and type of SNs that are most used by a tourist destination for promotion. The values that these variables can take are 1 (presence in 1 social network), 2 (presence in 2 SNs), 3 (presence in 3 SNs), etc.
- **Number of followers on SNs:** This variable indicates the number of followers currently in each social network for each of the destinations analyzed. The value is related to the number of followers.
- **Number of STD publications on SNs:** This variable quantifies the presence and activity of destinations in each of the SNs in which they are present.
- **Dynamism:** This variable allows analyzing the type of contributions that the destination makes (daily, every week, before the holidays, etc.), whether dialog is created, and whether or not they invite participation and dialog. The values that can be taken are 1 (daily), 2 (every 2 days), 3 (weekly), 4 (very variable) and 5 (before vacation).
- **Proactivity:** This variable indicates whether the destination encourages participation in dialog or not. The values can be 1 (there is proactivity) and 2 (there is no proactivity).
- **Interrelation with other websites of the destination (public administrations or private companies):** This variable indicates whether interrelation among websites occurs. The values can be 1 (very much), 2 (some) and 3 (not at all).

In the following table, these variables are ordered according to the indicator they intend to measure: presence on the web and SNs or related management of the web and SNs.

The quantification of these variables for each of the 78 tourist destinations allowed us to detect the main characteristics of their presence on the Internet and in SNs as well as the degree of use of these SNs in their management processes.

To contrast the first hypothesis, related to the degree of presence and management of destinations in SNs, a descriptive analysis of each of the variables was developed. Subsequently, to fulfill the second hypothesis, Pearson correlation analysis was performed. This allowed us to establish the type of interrelation between the dependent variable (number of visitors) and the dependent variables, which refer to the presence and management of destinations on websites and SNs. Finally, to contrast the third hypothesis and determine the

degree to which STDs make use of SNs, ANOVA was performed between the variables of the most visited destinations and STDs to detect possible statistically significant differences among them.

3.4. Results

3.4.1. Descriptive analysis of destinations

Tables 4-6 show the values for the variables for the 78 tourist destinations analyzed. Table 4 shows the frequencies for position on the web, number of SNs, website updates, dynamism, interrelation and proactivity; Table 5 shows the mean values, with their corresponding standard deviations, for number of followers and number of publications.

When entering the name of the destination in the Google search engine, as shown in Table 4, all occupy rank first, except Canal de Castilla, León, Fuengirola, Ceuta, Suances, which rank second, and Puerto de la Cruz, Lepe and Málaga, which rank third. Therefore, 88.5% of the official websites of the analyzed tourist destinations were well positioned and, therefore, visible in the network, occupying the first place in regard to the outputs generated by the Google search engine. Regarding website updates, 84.6% of the destinations update their websites daily; therefore, the data retrieved are indicative of the current status.

Almost 70% of the destinations analyzed are present on 4 or more SN platforms, and 87.3% are present on 3 or more. Therefore, it can also be concluded that tourist destinations are present and use SNs in similar proportions to their presence on the web.

Regarding the most used social media for this management, as shown in Table 3 below, the SNs Twitter and Facebook stand out with 98.7% and 97.8%, respectively, of tourist destinations using these platforms. These SNs are followed by the presence of destinations on Instagram and YouTube, with 70.5% in both cases. Last, Pinterest (23.1%), Flickr (20.5%), Google+ (12.8%), LinkedIn (9%) and WhatsApp (5.1%) account for a minority presence.

Table 4. Frequencies

Variable	Values	Percentages
Rank in the Google search engine	1	88.5
	2	7.7
	3	3.9
Number of social networks	1	1.3
	2	11.5
	3	17.9
	4	32.1
	5	24.4
	6	9.0
	7	1.3
	8	2.6
Website updates	Daily	84.6
	Weekly	5.1
	Monthly	5.1
	Few times a year	5.1
Dynamism	Daily	56.4
	Every 2 days	23.1
	Weekly	2.6
	Very variable	11.5
Interrelation	Very Much	28.2
	Some	50.0
	None	21.8
Proactivity	There is	44.9
	There is not	55.1

Source: own elaboration.

Table 5. Presence of social media in destination management

Social media	Number of destinations	Frequency
Facebook	76	97.4
Twitter	77	98.7
Instagram	55	70.5
YouTube	55	70.5
Pinterest	18	23.1
LinkedIn	7	9
Flickr	16	20.5
WhatsApp	4	5.1
Google+	10	12.8

Source: created by the authors based on SPSS

Table 6. Means and standard deviations

Variable	Mean value	Standard deviation
Number of followers	65,568.18	119,600.537
Number of publications	1,104,186.53	4,552,791.516

Source: own elaboration.

However, when the management indicators of SNs are analyzed, these proportions decrease substantially. Thus, compared to the daily website updates, only 56.4% of destinations make daily contributions to SNs, thus reducing their dynamism. In addition, only 44.9% exhibit a certain proactivity, encouraging tourists to participate. Finally, only 28.2% show an interaction and interrelation with other websites of the destination, whether from other public administrations, entrepreneurs, etc.

Furthermore, as shown in Table 6, 59 destinations, 75.6%, have less than the mean number of followers (65,568.18), and 67, 85.9%, have less than the mean number of publications (1,104,186.53), which is evident in the high standard deviation for both variables.

In short, if we look at the presence of tourist destinations both on the web and on SNs, it could be said that in general terms, this is acceptable and even important. However, when the variables and indicators related to the management of these SNs are analyzed, it could be concluded that such management is not adequate because the percentage of destinations that rely on dynamism, interrelations with other agents and proactivity in networks decreases substantially, going from 80% to less than 50%; in fact, some variables, such as interrelations with other websites of the destination, barely reach 30%.

This led us to ratify the first hypothesis proposed in this research. The tourist destinations did not manage SNs in a strategic way, because despite being present, the management carried out presented certain deficits, with specific regard to proactivity and interrelations with other agents.

3.4.2. Number of visitors and behavior of the destination on SNs

After describing the type of management that Spanish tourist destinations have been carrying out on SNs, this section analyzes the relationships that can be established between the degree of development of each destination and the dependent variable "number of visits", regarding the independent variables that catalog the type of management on SNs. For this, correlation analysis, which is based on linear associations, is used; that is, when the values of 1 variable increase, the values of the other variable can increase or decrease proportionally.

There are 2 major types of correlations: Pearson and Spearman. Both are based on the same information, although they use different formulas. The Pearson correlation is more appropriate when the variables follow a normal distribution. The Spearman correlation is more convenient to use when the variables do not follow a normal distribution. However, in general, there are usually few differences between the results and only vary when working with small samples.

Table 7 shows a correlation between the dependent variable "number of visits" and the independent variables related to the presence and management of SNs (number of SNs, number of followers, number of publications, dynamism, interrelation and proactivity). In this sense, for the presence on SN platforms, the number of followers and the number of publications are positively related to the number of visitors to tourist destinations, as the significance value is less than 0.05. However, when the variables related to the management of SNs are analyzed, it can be concluded that there is no correlation between these and the number of visitors because the significance value for the 3 variables is greater than 0.05.

Table 7. Variable correlations

		Number of visits	Number of SNs	Number of followers	Number of publications	Dynamism	Interre lation	Proactivity
Number of visits	Pearson correlation	1	.241*	.731**	.732**	-.058	-.127	-.123
	Sig. (Bilateral)		.033	.000	.000	.616	.269	.281
	N	78	78	78	78	78	78	78

* The correlation is significant at the 0.05 level (bilateral). ** The correlation is significant at the 0.01 level (bilateral).
Source: elaborated by authors from SPSS

In short, with a presence on SN platforms, as well as followers of and publications to those networks, the most visited tourist destinations acquire higher values; however, the management of these SNs in which they are present is not the most appropriate because the variables dynamism, interrelation and proactivity have values higher than the bilateral significance of 0.05.

The correlations between the number of visitors and presence on SN platforms, through the number of SNs where it is present, the number of publications and the number of followers, can be seen in Figure 1. The absence of correlations between the number of visitors and the management of SNs, through dynamism, interrelationships and proactivity, is shown in Figure 2.
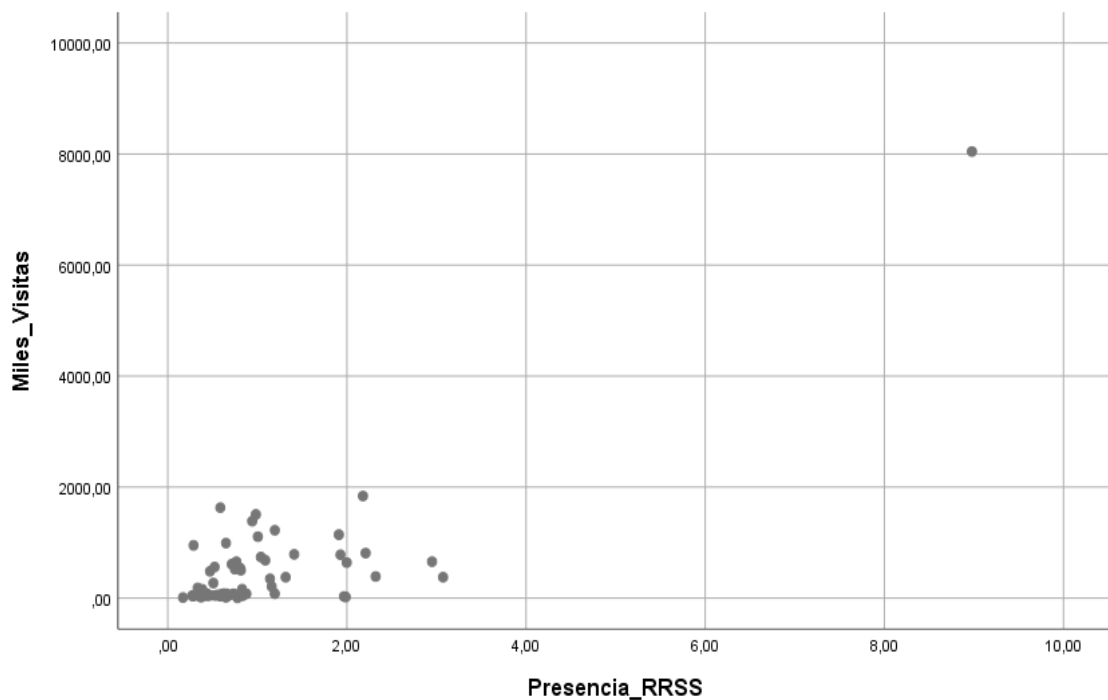

Figure 1. Correlation between number of visitors and presence on SNs. (Source: elaborated by authors from SPSS).
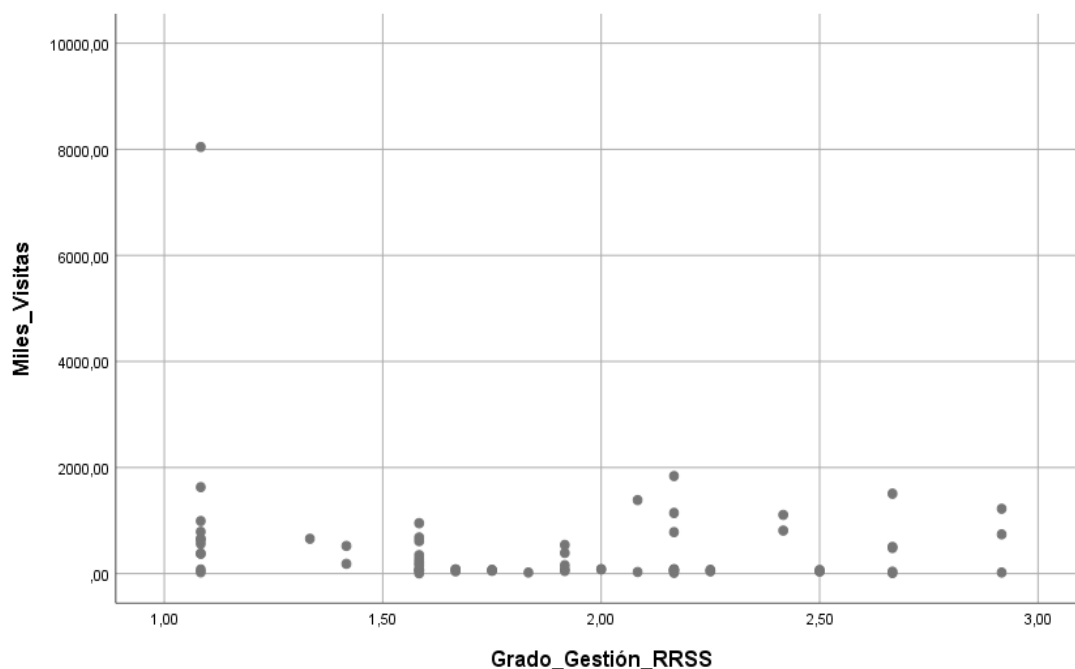
Figure 2. Correlation between the number of visitors and management of SNs. (Source: created by the authors based on SPSS.)

In short, this correlation analysis shows, once again, how Spanish tourist destinations, in general, and the most visited, in particular, despite being present on SNs, do not perform the most suitable management. That is, the degree of daily intervention, the proactive nature and the invitation to tourists to participate, as well as their interrelationships and dialog with other agents at the destination and with the tourists themselves, does not exceed half of the destinations studied. This last indicator was met by only 30% of the 78 destinations analyzed.

This led us to partially refute the second hypothesis; it was stated that there was an important degree of positive correlation between the number of visitors to the destinations and their presence on SNs. However, it was concluded that this correlation was nonexistent when the dependent variable (number of visitors) was related to the independent variables that measured the type of management of SNs for tourist destinations. Thus, it cannot be said that the most visited destinations managed SNs more efficiently.

3.4.3. Behavior of STDs with respect to the most visited destinations
Finally, the behavior of Spanish STDs on SNs compared to the most visited Spanish tourist destinations was analyzed to demonstrate whether the integration of destinations in the SEGITTUR project, i.e., the transformation into smart destinations, could be associated with a greater presence and management of SNs with respect to the most visited destinations. To do this, in order to detect if there were significant differences between the two types of destination regarding the presence on and management of SNs, ANOVA was performed. Table 8 shows the mean values for these variables for each of the groups, whereas Table 9 shows the Welch test results of the ANOVA.

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Table 8. Descriptive statistics of the variables analyzed

		N	Mean	Std. Deviation	95% confidence interval for the mean	
					Lower limit	Upper limit
Internet activity	STD	26	1.42	.945	1.04	1.80
	Most_visited	26	1.08	.272	.97	1.19
	Total	52	1.25	.711	1.05	1.45
Number of SNs	STD	26	4.15	1.690	3.47	4.84
	Most_visited	26	4.58	1.238	4.08	5.08
	Total	52	4.37	1.482	3.95	4.78
Number of followers	STD	26	81796.31	88430.685	46078.38	117514.23
	Most_visited	26	103901.23	176786.236	32495.72	175306.74
	Total	52	92848.77	138845.812	54193.85	131503.69
Number of publications	STD	26	406843.54	816993.905	76852.56	736834.52
	Most_visited	26	2834863.15	7644343.927	-252754.18	5922480.49
	Total	52	1620853.35	5520417.465	83959.31	3157747.38
Dynamism	STD	26	2.08	1.547	1.45	2.70
	Most_visited	26	2.04	1.483	1.44	2.64
	Total	52	2.06	1.501	1.64	2.48
Interrelation	STD	26	2.04	.774	1.73	2.35
	Most_visited	26	2.08	.796	1.76	2.40
	Total	52	2.06	.777	1.84	2.27
Proactivity	STD	26	1.50	.510	1.29	1.71
	Most_visited	26	1.50	.510	1.29	1.71
	Total	52	1.50	.505	1.36	1.64

Source: prepared by the authors from SPSS.

Table 9. Robust tests of equality of means

		Statistical[a]	gl1	gl2	Sig.
Internet activity	Welch	3.219	1	29.103	.083
Number of SNs	Welch	1.060	1	45.844	.309
Number of followers	Welch	.325	1	36.774	.572
Number of publications	Welch	2.593	1	25.571	.120
Dynamism	Welch	.008	1	49.910	.927
Interrelation	Welch	.031	1	49.959	.860
Proactivity	Welch	.000	1	50.000	1.000

a. F asymptotically distributed
a sAymptotically distributed function. Source: created by the authors based on SPSS.

As shown in Table 9, the Welch test yields nonsignificant results ($p > 0.05$) for all the variables considered. This implies the absence of statistically significant differences between

the mean values taken by the variables for the 2 types of destinations considered, both those related to the presence on SNs (number of SNs on which they are present, number of publications and number of followers) and to the management of websites and SNs (updated website, dynamism, interrelation and proactivity).

If we observe in Table 9 the significance values for each of the variables, it is concluded that the variables that most approximate the possibility of statistically significant differences between destinations (Sig. > 0.05) are those related to presence on SNs (number of publications, number of SNs on which destinations are present and number of followers). These possible differences, without being statistically significant, favor a greater presence in the SNs of the most visited Spanish tourist destinations.

Therefore, based on the ANOVA results, we can reject the third hypothesis and consider that STDs, despite being integrated into the SEGUITUR project, do not have a greater presence on SNs and that their management does not differ from that of the 28 most visited tourist destinations in Spain. Therefore, despite being one of the most developed technological dimensions in the transition of tourist destinations to smart tourism destination models, destinations are not taking advantage of the important opportunities that SNs confer for their management, especially at the time of promoting dialog with agents of the sector and enabling tourists to cocreate experiences and segment demand.

3.5. Conclusions

This research aims to highlight the applications that SNs can have as management tools for tourist destinations, as well as those that are currently most used by the destinations themselves, paying special attention to Spanish tourist destinations in general and smart destinations in particular.

Thus, the analysis of the literature highlighted the important potential that SNs have for the management of destinations, as well as the challenges they present, to improve their competitive advantage. This requires a change in mentality regarding communication, a recycling of human resources and the incorporation of communication professionals who specialize in social media [29,37,48].

According to the consulted literature, the main functions that SNs can have for destination management include the following:

(a) a source of collaboration for destination management through Web 2.0 environments, which provides tourists with an important ability to personalize and cocreate their experiences [42];

(b) personal and professional benefits related to learning, networking and personal reputation [43];

(c) the possibility of segmenting and using, enhancing and improving one's creativity with specific management objectives [17,44];

(d) providing exhaustive and qualified information regarding consumers while allowing observation of changes in behavior and preferences in real time [55].

However, the studies carried out in this regard show that the main functions currently performed by SNs in the management of destinations are fundamentally reduced to their presence on these platforms for dissemination and promotion as well as for the knowledge of the opinions and behavior of tourists.

In this study, focused on the analysis, presence, and management of SNs by Spanish tourist destinations, the results coincided with those of authors such as [12,14,17], who affirmed that the main function of SNs for tourist destinations is promotion, and gaining knowledge regarding tourists, and that they lack (a) active management strategies to interact with other agents at the destination and (b) participation and dialog with tourists.

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In this sense, according to the results of this research, we conclude that for the Spanish tourist destinations analyzed, despite being present and visible on SNs, their management of SNs is not the most appropriate, presenting serious deficits regarding proactivity, dynamism and interrelation and dialog with different agents in the sector, both those located at the destinations themselves and with tourists.

Thus, as [12] concludes, practically 100% of the destinations analyzed were present on some form of SN, with Facebook, followed by Twitter, being the most used SNs by tourist destinations.

Although the most visited Spanish tourist destinations have a greater presence on the web and on social media, showing a direct correlation between these variables, this does not imply that they management their use SNs more effectively. Therefore, for the main Spanish tourist destinations, the management of SNs is not ideal, as they are using them, fundamentally, as we pointed out above, to promote the destination and to gain knowledge regarding the opinions of tourists.

Finally, the Spanish tourist destinations that are integrated into the SEGITTUR project and that, therefore, are moving towards STDs have not been managing SNs in an efficient way, even though the technological dimension is the most developed in this project. This demonstrates, once again, how neither the most visited tourist destinations nor STDs exploit the competitive advantage derived from the efficient management of SNs.

Therefore, it is recommended for tourist destinations, mainly STDs integrated in the SEGITTUR project, use new technologies as management tools and implement a decided strategy of professionalization for SN management.

Not surprisingly, tourist destinations must be present and actively participate on these media platforms and SNs because, in addition to the interaction with users, they allow interactivity between supply and demand as well as the creation of innovative marketing strategies. Thus, when the latter are creative, well planned and used together, they can increase the number of users, achieve greater visibility and create a great competitive differential for tourist destinations, at a very low cost.

For all of these reasons, tourist destinations (public organizations), in general, and Spanish tourist destinations, in particular, both the most visited and those in the SEGITTUR project, as intelligent tourist destinations, contrary to some evidence, must decisively take advantage of the important potential that SNs have for their management. This recommendation is important both due to the progressive development of new technologies and the evolution of the behavior and profile of tourists, who expect greater tourism experiences with each visit, are more familiar with the use of new technologies, and demand flexible experiences adapted to their preferences, among other characteristics.

In this sense, it is recommended that tourist destinations have a content manager for social networks, to improve the interaction with tourists and analyze demand, among other functions. This could contribute to improving the quality of the experience offered at tourist destinations.

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CAPÍTULO IV:

USO DE LAS REDES SOCIALES EN EL ANÁLISIS DEL SENTIMIENTO DE LOS TURISTAS: UN ESTUDIO DE CASO DE ANDALUCÍA DURANTE LA PANDEMIA DE COVID-19

This paper explores the role of social media in tourist sentiment analysis. To do this, it describes previous studies that have carried out tourist sentiment analysis using social media data, before analyzing changes in tourists' sentiments and behaviors during the COVID-19 pandemic. In the case study, which focuses on Andalusia, the changes experienced by the tourism sector in the southern Spanish region as a result of the COVID-19 pandemic are assessed using the Andalusian Tourism Situation Survey (ECTA). This information is then compared with data obtained from a sentiment analysis based on the social network Twitter. On the basis of this comparative analysis, the paper concludes that it is possible to identify and classify tourists' perceptions using sentiment analysis on a mass scale with the help of statistical software (RStudio and Knime). The sentiment analysis using Twitter data correlates with and is supplemented by information from the ECTA survey, with both analyses showing that tourists placed greater value on safety and preferred to travel individually to nearby, less crowded destinations since the pandemic began. Of the two analytical tools, sentiment analysis can be carried out on social media on a continuous basis and offers cost savings.

Keywords: tourist behaviour; COVID-19; Twitter; Andalusia; text mining; KNIME; RStudio

4.1. Introduction

The use of information and communications technology (ICT) in tourism destination management has become an essential strategy in ensuring the sustainability of these destinations, making them more competitive and facilitating their long-term survival [1]. Tourism evolves quickly and constantly, throwing up new challenges that must be addressed by implementing sustainable tourism models and new ways of doing business [2].

In today's information society, tourists are more experienced, have greater access to information, and hold greater negotiating power through the use of the latest ICT [3]. As a result, competition is growing in the tourism sector, and effective use and management of ICT are very important for tourist destinations seeking to develop sustainable forms of tourism.

In this context, big data, the internet, and social media have changed the way we travel, influencing both the pre-travel phase, when we begin to think about travelling somewhere; the travel phase itself; and the post-travel phase, when we share our experiences [3].

These factors all help to influence decision-making among tourists as they plan their trips [3].

For those looking for leisure, entertainment, new destinations, and adventures, social media is the most common source of information for obtaining inspiration or opinions from other users [4].

These sources of information are also becoming key marketing resources for companies in the sector [5]. Marketing departments seek to exploit social media using natural language processing and machine learning techniques to segment campaigns, retain customers, and identify trends, among other activities. These techniques have proliferated as a result of easier access to the big data technologies used in most smart data analysis [6].

These changes make it especially important to analyse ICT management in general and social media in particular to facilitate sustainable development in tourist destinations. Against this backdrop, this study seeks to demonstrate the potential contribution of social media in analyses of tourist behaviour and sentiments by tourist destinations. To do this, it uses social media to analyse changes in sentiments and behaviours among tourists in Andalusia (Spain). This overall objective is broken down into the following theoretical and empirical objectives.

The first theoretical objective is to analyse recent research on tourism and sentiment analysis using social media and to classify the main themes investigated. The second theoretical objective is to describe changes in tourist behaviour as a result of the COVID-19 pandemic according to research carried out on the subject.

Meanwhile, the empirical objective is to analyse changes in sentiments and behaviour among tourists visiting Andalusia in summer 2020 compared to summer 2019, using surveys carried out by the Andalusian regional authorities and comments made by tourists on Twitter.

Through these objectives, we aim to test the hypothesis that sentiments and behaviours among tourists visiting Andalusia changed as a result of the COVID-19 pandemic through surveys and sentiment analysis of the social network Twitter.

This analysis will demonstrate the potential for tourist destinations to use social media as a way of detecting tourist behaviours and sentiments and any short-term changes in them.

In order to fulfil these objectives, the study is divided into the following sections: following this introduction, the second section examines other studies which have used social media to perform tourist sentiment analysis and describes changes to tourism and tourists' behaviours and sentiments in the COVID-19 era. The third section presents the case study, which focuses on analysing changes in tourist behaviour in Andalusia before and during the COVID-19 pandemic via statistical analysis and a sentiment analysis using Twitter data. The fourth and final section sets out the study's main conclusions, identifies its limitations, and makes several recommendations for the public authorities.

4.2. Conceptual framework

4.2.1. Use of big data in tourism destination management

The tourism industry relies intensively on large amounts of information, and information and communications technology (ICT) is therefore of great importance to the sector from the perspective of both consumers and providers [7].

According to [8], there are three phases in the development of internet use in the tourism sector. The first phase took place in the 1990s, when the internet was used as a communication tool, and destination management organisations (DMOs) became information brokers. In the second phase, spanning the period from 2000–2010, the internet came to be used more for marketing than for communication. At this time, e-commerce was beginning to take off, and there was a demand for more personalised, aggregated experiences, giving rise to a new type of consumer [9]. Meanwhile, the third phase since 2010 has seen progress in areas such as search engines, social media, the internet of things, data analysis, and mobile technology. During this period, the concept of 'smart tourism' emerged to describe "the increasing reliance of tourism destinations, their industries, and their tourists on emerging forms of ICT that allow for massive amounts of data to be transformed into value propositions" [10].

Reference [11] reports the three levels of application for the concept of 'smart tourism' that correspond to tourist experience, business, and destination: smart experience, smart business ecosystem, and smart destination. At each level, big data is captured, exchanged, and processed.

The concept of the 'smart tourism ecosystem' is part of a systemic approach and refers to "tourist systems that take advantage of smart technology to create, manage, and deliver smart tourist services/experiences, which are characterised by an intense exchange of information and co-creation of value" [4,12].

The spread of information technologies throughout the travel cycle and the digital records derived from them offer a new and highly valuable source of data. This represents an opportunity in view of the sparse information available locally due to shortcomings in statistical systems for assessing movements without overnight stays [13].

Big data is the cornerstone of smart tourism destinations. Destination intelligence is powered by a smart information system allowing data to be collected, processed, and analysed to supply

the necessary information at the appropriate time to the people who need the data to make informed decisions [14].

An innovative use of data offers added value by revealing connections that were previously undetectable, giving rise to a new debate around the nature of decision-making [11]. Data enable efficient management, greater transparency, and enhanced knowledge [4]. Smart data thus represent an extremely useful tool for boosting tourism competitiveness and sustainability [15]. Indeed, big data offers a more holistic, insightful overview of tourist activity, giving actors in the tourism industry the opportunity to streamline procedures, drive innovation, and deliver improved experiences [16].

4.2.2. Tourist sentiment analysis

The term 'social media' covers a variety of online platforms allowing users to create and share content and interact socially [17]. Several different categories of social media may be identified: social networks (Facebook and LinkedIn), blogs (Blogger and Wordpress), microblogs (Twitter and Tumblr), social news sites (Digg and Reddit), bookmarking sites (Delicious and StumbleUpon), shared media (Instagram and YouTube), question and answer sites (Yahoo! Answers and Ask.com (accessed on24 February 2021)), review sites (Yelp and TripAdvisor), and sites with mobile apps such as 'Find My Friend' [18].

Social media is currently one of the fastest growing marketing channels [10]. Usergenerated content (opinions, images, videos, etc.) and interactions between users (people, organisations and products) are the two types of information available on social media, offering large volumes of unstructured, dynamic content. This content can be analysed to generate knowledge.

According to data from TripAdvisor (2016), 77% of travellers check the comments left by former guests at the hotels they are thinking of staying at before booking [19]. Travellers have become the greatest influencers, as social media allows consumers to obtain first-hand information on the quality and prices of hotels at a click.

Sentiment analysis or opinion mining analyses people's utterances, including opinions, feelings, evaluations, attitudes, emotions, and appraisals of products, services, organisations, individuals, subjects, events, and their attributes. The emergence and rapid growth of this field of study coincided with the boom in online social media; for the first time in history, a large volume of digitally recorded data and opinions is available [20].

With a summary of opinions, consumers can share their perceptions of certain products or experiences with potential tourists planning to purchase them. On the other hand, companies can identify the most popular and unpopular features of their products among consumers [19]. In short, consumers are no longer obliged to ask their relatives or neighbours if they are thinking about purchasing a product as they can obtain evaluations and reviews online and on social media [21]. At the same time, organisations and tourist destinations no longer need to conduct surveys or questionnaires, which take longer and require more resources [22].

However, the large number of websites and volumes of content generated demand the use of automated systems to collect and analyse the information available online [23]. Technorati estimates that 75,000 new blogs with 1.2 million posts are created each day, many of which share opinions on products and services; 60% of consumers in the USA have researched products online [24].

Digital media represents a kind of infostructure for the tourism industry, within which social media acts as a producer and distributor of active tourist information [25,26].

Most studies using mass data from social networks have focused on Twitter [27] due to the global nature of the platform and the fact that the data generated in the form of tweets are available for free in real time. Each geolocalised tweet leaves a digital footprint of the time and place when it was sent [28]. If the data are processed by user name, it is possible to draw

up a space–time profile for each user showing the places they have visited at different times. Social media activity can thus be used to analyse changing population densities in a city throughout the day [29], as well as mobility patterns among the population [30].

It is also possible to use geolocalised tweets to analyse the degree of social mixing in the use of space, tracking the movements of social groups in highly segregated cities such as Rio de Janeiro [31,32].

Unlike the information supplied by official sources offering data by place of residence, the indicators of multiculturalism and mixing analysed in these studies using big data refer to the use of space throughout the day. For example, studies have examined linguistic diversity in cities and regions based on the languages used in tweets as an indicator of cultural diversity [33]. In the field of tourism studies, very few studies have used geolocalised tweets; those that have focus on comparing tourists' spatial behaviour at the national or global scale [34–36], but not at the intraurban scale.

Other studies such as [37] analyse the way in which potential tourists used social media to make travel decisions during the Zika pandemic in the context of widespread disinformation where the authorities failed to provide sufficient information regarding tourism.

The work of [38] uses an automated process to analyse the cognitive, affective, and conative components of perceptions of the Basque Country as a tourist destination based on posts in the travel community www.minube.com, accessed on 24 February 2021. It concludes that the region's natural and cultural resources have the greatest influence on its image as a tourist destination [39].

Reference [40] adopted a methodology in which information was automatically downloaded and processed, and the content of 85,000 reviews by tourists who visited Catalonia between 2004 and 2013 from four different travel websites (TripAdvisor, TravelBlog, VirtualTourist and TravelPod) was analysed [41]. The authors used a combination of online resources and open access software, concluding that this methodology can be used for different locations, languages, and topics. The study provides relevant information for destination management offices, allowing them to identify their brands' positioning through sentiments and opinions posted by tourists on travel blogs [42].

Reference [43] tested the Destination Management Information System (DMIS) in Åre, Sweden, applying a business intelligence approach to organisational learning in tourist destinations. The system provides real-time information about indicators in three different areas: economic performance, with data on occupancy, price, stays, bookings, and sales; consumer behaviour, with data on consumer profiles, web browsing, and the purchase process; and brand management, analysing loyalty, value, satisfaction, and brand awareness [44].

A gradual evolution may be observed in the studies of tourist destinations based on content analysis and social media carried out by [45–49], which, although they fulfil their objective of analysing perceptions of the different components of a tourist destination's image, remain rather "homespun" [50] in terms of the methods used to capture, clean, and process data.

The work of [51–53] is qualitatively different, using automated processes to extract, clean, process, and analyse data.

In order to expand upon and update this body of literature, a bibliographic analysis was carried out on conceptual and empirical studies analysing tourist behaviour via social media published in the last two years (2019–2020) on the Web of Science, with a view to identify their contributions and analytical procedures [54]. The studies covered by this bibliographic analysis are summarised in Table 1.

Table 1. Studies using sentiment analysis in tourism research (2019-2020)

Authors	Title	Objective	Methodology
[42]	Exploring best practices for online engagement via Facebook with local destination management organisations (DMOs) in Europe: a longitudinal analysis	To supply evidence of a positive trend in online engagement among tourists. (Tourists)	The study is based on the use of Facebook pages by the DMOs in question.
[9]	City characteristics that attract AirBnB travellers: evidence from Europe	To determine the characteristics prioritised by customers and draw up a typology of cities from the traveller's perspective. (Tourists)	Data collection and most of the analysis were carried out using R, a very flexible method and trend programme offering specific packages for data capture and mining.
[39]	What do people think about this monument? Understanding negative reviews via deep learning, clustering and descriptive rules	To collate negative opinions about three cultural monuments to detect the characteristics in need of improvement. (Tourists)	A deep learning method based on a CNN and SD method for aggregating information was used.
[44]	Business information architecture for successful project implementation based on sentiment analysis in the tourist sector	To provide an architecture of principles, a strategy to meet the needs of tourism companies in the Peruvian market, so that when problems arise in tourism management processes, there are good practices available to improve these processes and develop technological solutions. (Methodological)	Due to the current situation of tourism companies and the use of cloud services, Google and services such as Cloud Data Store API and Machine Learning are used as a case study due to the need for a platform for developing the solution.
[18]	A machine learning approach for the identification of deceptive reviews in the hospitality sector using unique attributes and sentiment orientation	To identify differences and characteristics allowing deceptive and truthful reviews to be successfully classified using a text-based machine learning approach. (Methodological)	A text-based machine learning approach provides an automatic tool capable of processing a large volume of reviews.

[28]	Design and validation of annotation schemas for aspect-based sentiment analysis in the tourism sector	To compile a bilingual corpus (Spanish-English) of user opinions in the Andalusian tourism sector, provisionally entitled SentiTur. (Methodological)	Tourist destinations were downloaded from the TripAdvisor website using a custom scraper built from the infrastructure provided by the Scrapy tool.
[12]	Inconsistencies on TripAdvisor reviews: a unified index between users and sentiment analysis methods	The study analyses opinions in six reviews of Italian and Spanish monuments and detects inconsistencies between sentiment analysis methods and user polarity methods that automatically extract polarities. (Methodological)	TripAdvisor is used as a data source. Results showing inconsistencies between polarities are presented, before the Polarity Aggregation Model is proposed to address this issue and its outcomes are assessed using an aspect extraction approach.
[21]	Semantic analysis in social media for digital tourism communication	To establish a methodology for ascertaining whether consumer opinion has a positive or negative effect on recommending tourism services and attracting customers. (Methodological)	The quantitative part of the study consists of quantifying and comparing data from tourism companies in terms of numbers of followers, likes, comments and shares on the social network Facebook.
[41]	A proposal for sentiment analysis on Twitter for tourism-based applications	To create a structure based on independent, interchangeable components to allow research to be conducted in a more uniform, open and transparent manner. (Methodological)	The study focuses on comments about hotels, proposing a platform that classifies tweets as positive, negative or neutral based on the author's opinion.
[23]	Using deep learning to predict sentiments: case study in tourism	To use different deep learning techniques and architectures to address the issue of classifying comments posted by tourists online, which are used by other tourists to inform their decision-making. (Methodological)	To extract the information, scripts were developed in Python based on the Scrapy framework and information from reviews of hotels on the island of Tenerife in English was extracted from the websites http://booking.com and http://tripadvisor.com.

Table 1 shows that most recent studies performing sentiment analysis using social media in the field of tourism studies have focused on the social networks Facebook, TripAdvisor and Twitter.

The most relevant themes identified in these studies were: sentiment analysis, identification of tourist sites based on digital impressions using social media, tourist preferences harvested from social media, social media communication strategies, use of geographical labels, web platforms as a communication tool, tourism recommendation systems, cultural exposure to a foreign city through the media in particular, definition of smart tourism and current trends.

Another theme emerging from the studies analysed was the need to detect messages with the greatest influence on purchase behaviours and contradictory messages, as well as to conduct comparative analysis of different methodologies to observe the existence of contradictory messages when different analytical methods are applied.

On the other hand, as Table 1 shows, many studies on sentiment analysis in the tourism sector are primarily methodological and their objectives focus on data processing using different techniques, frameworks, methods, etc. for the following purposes: to detect contradictory messages, to classify different types of messages, to conduct research in a uniform, open manner, and to create a methodology for classifying the positive or negative impact of tourists' opinions on other tourists' decision-making.

Analysis of tourists' sentiments and opinions to identify the characteristics of destinations, resources, services, etc. that are most important to them and enable improvements to tourism management is another, less studied theme.

This study will therefore focus on the latter, aiming to analyse the behaviours and sentiments of tourists travelling in Andalusia using the social network Twitter and identify differences between 2019 and 2020 due to the COVID-19 pandemic. To measure these emotions, machine learning algorithms will be used to automatically extract the sentiments expressed by tourists.

However, before moving on to the sentiment analysis, the changes in the performance of the tourism sector in general and in tourist demand during the COVID-19 pandemic in particular will be described, as well as the impact of the pandemic on tourism in Andalusia.

4.2.3. Tourist behaviour during the COVID-19 era

According to the World Tourism Organisation (UNWTO), the COVID-19 pandemic has had a huge impact on the global economy, with tourism among the worst-affected sectors. The travel statistics survey showed a reduction of 49.6% in March 2020 compared to the same month the previous year. The total number of foreign visitors declined particularly dramatically, with an 85.9% drop in inbound tourism [2].
It is hoped that the tourism sector can recover and overcome these challenges, adopting tourism development strategies that encompass economic, social, and environmental aspects and encourage more sustainable tourism in the future. It is also important to understand the positive environmental impact caused by the pandemic in a relatively short space of time [2]. As previous studies have shown, tourist demand is highly sensitive to any type of risk [43]. Faced with even a minor risk, potential tourists change destination or modify their travel plans [55]. The SARS virus that emerged in China in 2002–2003 and quickly spread around the world [56] led to warnings not to travel to certain Asian countries on health grounds. This led to the loss of thousands of jobs in the Asian tourism sector [57]. A number of studies have analysed the impact of the epidemic on the sector [58].
The H1N1 bird flu that broke out in 2009 had a significant impact on international tourism in 2010. Tourist demand decreased across all continents, with the exception of Africa and South America. Lee, Y. et al. Showed that tourism declined the most in the five countries whose governments adopted the most restrictive measures to stop the virus from spreading, including

quarantining patients, closing schools, cancelling public events, and controlling international borders.

Niewiadomski, P. analysed the role of the tourism industry in response to the SARS (2003) and H1N1 (2009) health crises. The MERS-CoV virus that emerged in Saudi Arabia in 2012 also had an impact on the tourism sector. The disease was particularly widespread in South Korea, which experienced a dramatic drop in tourist demand [59], especially from China, the main country of origin of tourists to South Korea [60].

The studies cited here all analysed the impact of pandemics on the tourism industry. However, studies on crisis communication management are few and far between [61]. Some studies have analysed crisis communication by public institutions and governmental bodies during health crises, highlighting the best practices adopted in these cases, although they focus on communication relating to pandemics and public health rather than the tourism sector. Ritchie, Brent W. studied the British tourist board's crisis communication management following the 2001 health crisis.

With regard to the tourism crisis caused by the COVID-19 pandemic, there appears to be no doubt that tourists will return, as holidays are an essential expenditure for many families. The tourists travelling after the pandemic will no longer be the same, however. According to a survey carried out by Ernesto C., et al. 80% of people surveyed in April last year expressed a desire to travel. The main criteria in the choice of destination were low numbers of people, the characteristics of the destination, and the public health measures in place. Price was the fourth most important consideration. Despite this, none of the respondents said that they would travel with organised groups, and 77% said that they would travel within Spain [62].

The July 2020 report 'Tourism After COVID-19: Reflections, Challenges and Opportunities' suggests a change in tourists' behaviour following the COVID-19 pandemic: demand for less crowded destinations will grow, people will travel individually rather than in groups, demand for tourist products allowing flexible cancellation will rise, demand for hygiene and social distancing measures will grow, demand for better travel insurance covering pandemics will increase, people will eat in their accommodation instead of going to restaurants, and demand for outdoor activities will rise.

In short, an analysis of studies and reports on tourism during the COVID-19 pandemic reveals that tourists' habits, behaviours, and sentiments have changed substantially, and many of these changes will persist into the future. This may have a significant impact on the restructuring of the sector.

4.3. Case study: tourist sentiment analysis in Andalusia
Tourist behaviour in Andalusia before and during the COVID-19 pandemic according to survey data

According to data from the Andalusian Tourism Situation Survey [63], tourism declined by 47.5% in the third quarter of 2020 compared to the same period in 2019, falling from 11,425,437 tourists to 6,000,293.

With regard to the origin of these tourists, 45.3% were from Andalusia and 42.0% were from elsewhere in Spain. Domestic tourism thus accounted for 86% of tourism in the region whereas this figure was only 64% prior to the COVID-19 pandemic, confirming the observation that tourists prefer to visit nearby destinations described in the previous section. The Andalusian provinces that suffered the lowest decline in tourism during the same quarter, below the average for the region, depend to a greater extent on domestic tourism and are less crowded: Jaén (-16.2%), Cádiz (-30.5%), Huelva (-34.0%) and Almería (44.8%). The cities of Granada and Córdoba maintained their market share from previous years, falling to around the average for Andalusia.

With regard to the tourists' ages, the pattern was as expected, with the greatest decline in travel this quarter observed among people aged over 65. This was followed by 30-44 year olds and under 18s, pointing to a substantial, above-average decline in trips taken by couples with underage children.

According to [64,65], the main reason for travelling remained holidays and leisure, which was cited by around 90% of tourists, while the prevalence of visits to family and friends rose to surpass other reasons.

In terms of accommodation, stays in hotels and apartment hotels fell below the average in comparison with the third quarter of 2019, followed by stays at friends' and relatives' homes, hostels, guest houses and bed and breakfasts. To a lesser extent, stays in rented apartments, second homes and campsites also declined.

The average stay in Andalusia dropped from 10.1 days to 9.4 days (-7%). The average daily expenditure also decreased by 7%, with expenditure rising among domestic tourists and falling among international tourists.

Finally, the qualitative scores from 0 to 10 assigned by tourists to different aspects of their experience (accommodation, food, leisure, transport, safety, service, cleanliness, etc.) stayed around the same as in the third quarter of 2019. Only the following aspects received a lower score: public transport by bus (2%), public safety (2%) and public transport by train (1%). The remaining aspects received a higher score, including transport by taxi (7%), quality of beaches (6%) and natural parks (4%), car hire services (4%), cleanliness (4%), golfing facilities (4%) and ports and nautical activities (4%).

The impact of the COVID-19 pandemic is clear in these scores. While services perceived as more unsafe (public transport) scored the lowest, individual transport, cleaning services and certain facilities that make tourists feel safer (beaches and protected natural areas) increased their scores.

The tourist behaviour identified in this analysis of the data from the Andalusian Tourism Situation Survey is perfectly aligned with the characteristics and changes in tourist demand during the COVID-19 pandemic identified in the bibliographic analysis. These characteristics include a steep decline in tourist activity, with trips to nearby, less crowded, safer destinations using private transport and accommodation preferred over shared accommodation. In addition, tourists give a higher score to aspects relating to safety, such as cleanliness, the natural environment and certain facilities, than to riskier, less safe aspects of the tourist experience such as public transport.

4.4. Tourist behaviour and opinions in Andalusia according to a Twitter sentiment analysis
Methodological approach

This study is based on an exploratory analysis using the statistical programming language Rstudio and the *library* (rtweet) package for extracting tweets. Machine learning sentiment analysis algorithms were then applied to the resulting data. This is a type of artificial intelligence that trains a virtual machine via data mining to automate data analysis procedures. Among other features, it allows tweets to be classified into positive, negative and neutral, as shown in the results process.

The social network selected for this study was Twitter, due to its capacity to reach a wide audience and its anonymous nature, which have led to exponential growth on a global scale

and transformed the platform into an alternative source of information alongside more traditional media.

The user accounts used for the sentiment analysis were geolocated in Málaga, which is the main hub for tourists in Andalusia. Accounts within a 500km radius of Málaga were included in an attempt to cover the whole region.

To extract the data, we connected to Twitter's open API (Application Programming Interface), allowing us to develop applications to take advantage of the information available online. In this way, it was possible to perform a search on Twitter and compile all the messages linked to certain terms, which acted as filters. These terms were 'my trip', 'my experience', 'my holidays', 'as a tourist', 'as a visitor' and 'as a traveller', using the R programming language to extract the data. Table 2 details the process:

Table 2. Data extraction strategies

Search word	**"my trip", "my experience", "my holidays", "as a tourist", "as a visitor", "as a traveller"**
Number of tweets 2020	14,000
Number of tweets 2019	11,532
Total no. of tweets analysed	25,532
Subject area	ALL
Text cleaning	("(RT|via)((?:\\b\\W*@\\w+)+"@\\w+""http\\w+""[í½,~€Ä|ÃÃ¡Ã³¾]")
Period	August, September, October and November 2019 August, September, October and November 2020
Language	English, Spanish
Query string	busqueda<-searchTwitter("Andalucia",geocode="36.72016,-4.42034,500km",n=100000, lang="es")
Search date	October 2020

The tweets that were extracted contained comments and interactions by users from Andalusia about tourism in Andalusia. The data collection process was divided into two phases: a) phase 1, in August, September, October and November 2019 and b) phase 2 in August, September, October and November 2020.

A descriptive analysis of the tweets collected in 2019 and 2020 was then carried out. Once the data had been cleaned and filtered, they were processed using the statistical software Knime. This data mining platform facilitates the tasks of data analysis, modelling, processing and visualisation.

On the Knime platform, modelling is carried out in process blocks which can be executed separately to reduce processing time. The model is presented in Figure 1 and contains the following phases: a) the xls file is read; b) in the Document Creation block, the file is converted to text; c) the column with which it will be evaluated is selected; d) the Text Preprocessing block cleans the data before they are divided by relevant words and classified. Once the data have been processed, they are assigned a colour for the Analyse Network phase in which the data matrix is divided into training data and testing data. In Knime, the algorithm consists of the learner and the predictor; once the data have been processed, a block to plot the data and another to display the results must be added.

The database obtained allows for quick classification using filters for the following variables: user name, message (tweet), date and time, latitude, longitude, favourite, retweeted and retweeted from.
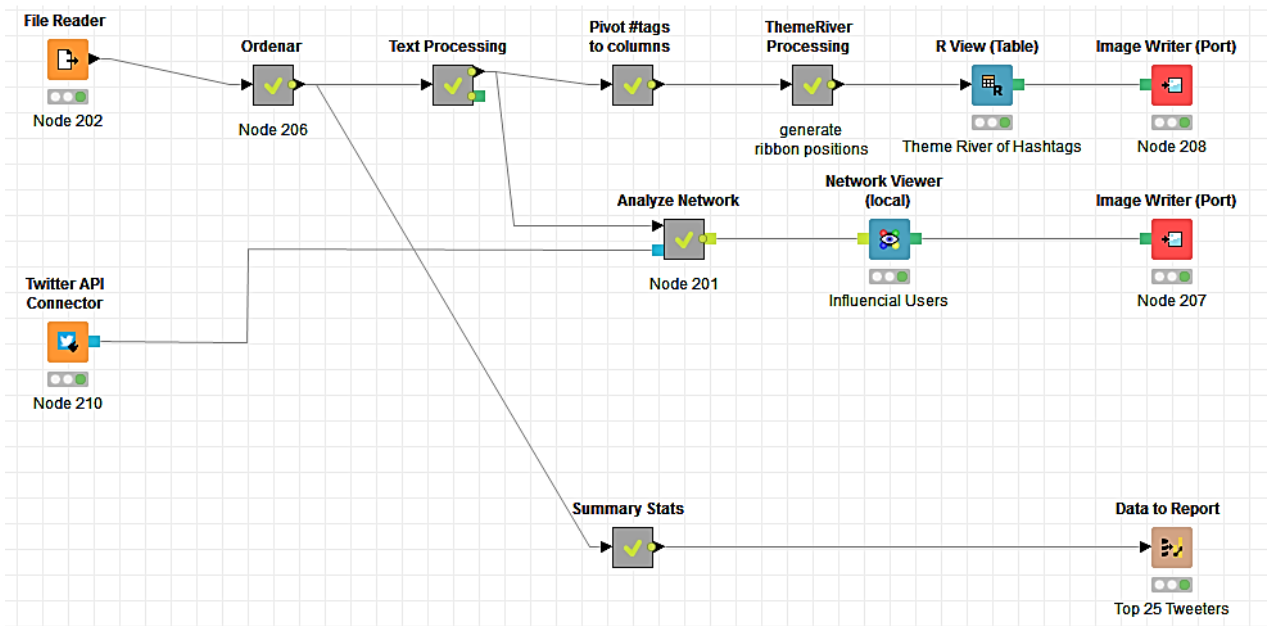
Figure 1, Knime modelling

Figure 2 shows data preprocessing on the platform, when punctuation marks and numbers are removed and all letters are made lowercase. The connector words, uploaded in a list in advance, are then removed. Finally, the tokeniser process is carried out. It is important to note that the tool occupies several process blocks to complete this action.
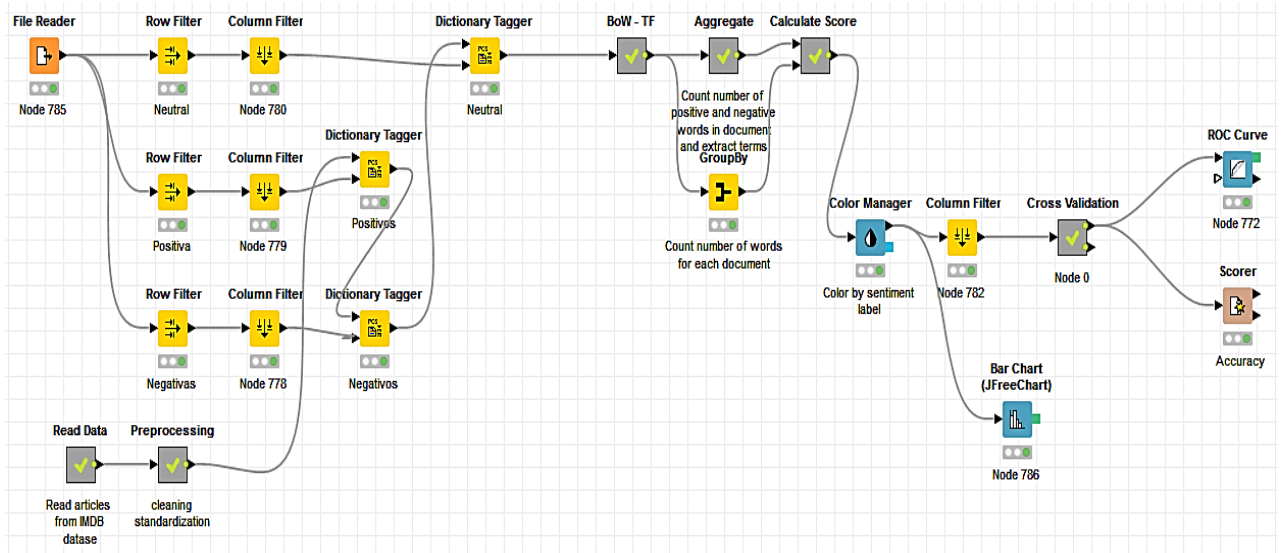

Figure 2. Data processing model

4.5. Results of analysis

Once the methodological process of data collection, extraction, filtering and cleaning was complete, a sentiment analysis was performed and the average veracity was obtained using Knime. This task consisted of assigning an overall polarity to the tweets on a scale of three levels of intensity: negative, neutral and positive (Neg, Neu, and Pos). The first set of data analysed contains 11,532 tweets from 2019, among which 21% were classified as neutral,

73% as positive and 6% as negative. This binary classification of tourists' opinions is shown in Table 3.

Table 3. Classification of sentiments 2019

Class	Sentiments
Neu	21%
Pos	73%
Neg	6%
Total	100%

The table above shows the analysis of the first set of data. From a positive starting point, the sentiment varies on the basis of the tourist's experiences, emerging news stories and other factors, predicting future sentiment among tourists. The scores indicate the polarity of the sentiment. These classifications allow us to observe that high and low sentiment leads to a sentiment of 4 or 5, whereas moderate low sentiment but very negative high sentiment leads to a final sentiment of -4 or -5. Cases in which the final sentiment is 5 (positive) tend to be characterised by moderate high and low sentiment over time and a volume of positive news.

Figure 3: Word cloud showing words used by tourists in 2019

The words most commonly used by tourists on Twitter include 'Málaga' and 'Benidorm' as destinations, followed by 'Spain'. 'Beach' and 'holidays' are mentioned as activities, with comments revolving around 'sun', 'people', 'sea' and 'sand'.

Table 4 shows the results of the analysis of tourist sentiment expressed from July to October 2020 based on the second set of data. This set contains 14,000 tweets, among which 12% were classified as neutral, 30% as positive and 58% as negative.

Table 4. Classification of sentiments 2020

Class	Sentiments
Neu	12%
Pos	30%
Neg	58%
Total	**100%**

As the table shows, a greater number of negative sentiments were identified during the COVID-19 era. A word cloud indicating the words most commonly used during the third quarter of 2020 is shown in Figure 4 below.

Figure 4: Word cloud showing words used by tourists on Twitter in the third quarter of 2020

The words most commonly used by tourists on Twitter during the pandemic were identified, with 'Granada' appearing as a new destination alongside new words relating to different types of activities such as 'culture', 'city' and 'mountain'. Other words appearing in the tourists' tweets included 'travel', 'experiences' and 'tourism', as well as indications of change. These are the most common themes across all sentiments expressed by tourists on the social network.

Table 5. Tourists' opinions via Twitter (2019)

01	#My experience, if you want beautiful beaches, Cádiz and Huelva, personally I prefer Cádiz.
02	@As a tourist I recommend the area of Conil and Zahara de los Atunes (Cala de los Alemanes) if you want to sunbathe peacefully in the nude.
03	#As a tourist I recommend exploring Almería. There are amazing beaches without many people, not only at Cabo de Gata but also in the El Toyo area, a kind of Olympic village.
04	@As a visitor I recommend visiting Almuñécar, a paradise for enjoying untouched nature. It has crystal-clear waters and marine life.

05	**#**Spectacular place. Crystal-clear waters. There are two beach bars. I really recommend Bola Marina. The service is wonderful, very polite and friendly waiters.
06	@My experience great option for a beach day between Nerja and Almuñécar.
07	**#**As a tourist the nudist beach where you can wear clothes, a very peaceful atmosphere and an ideal place for snorkelling (it's in the Maro-Cerro Gordo nature area).
08	@As a traveller I recommend you visit Playa Virgen in La Herradura. Beautiful beach with crystal-clear waters. Careful, there are jellyfish. It's got pebbles like all the beaches in the area. There are sun loungers.
09	**#**As a traveller No doubt about it, La Malagueta, one of the best beaches on Málaga's tropical coast. It's classified as a nudist beach by the Andalusian government.
10	@*My experience.* The best known beach in Málaga city, La Malagueta. It's a very clean beach, both the sand and the water.

Tourists comment on 'sun', 'beach' and, to a lesser extent, 'cultural tourism'. These results were as expected for a beach destination in summer. The destinations with the most classified comments were 'Cádiz', 'Huelva', 'Málaga', 'Almería' and 'Almuñécar'.

Meanwhile, during the pandemic, the most commonly used expressions revolve around culture and the adaptation of tourism and leisure to the new conditions imposed by COVID-19. These expressions are shown in Table 6.

Table 6. Tourists' opinions via Twitter (2020)

01	*# As a tourist I recommend visiting a* stunning landscape from the top of the Alpujarra. It was an incredible experience. I loved it and I'm sure you won't be disappointed if you visit.
02	@*As a visitor I recommend visiting the* Sierra de Aracena and Picos de Aroche natural park. I'd never visited at this time of year. We stayed at 'Finca la Media Legua' and it was an unforgettable experience for all the family. Places to visit, charming villages, local gastronomy, it was all great.
03	@It was all so beautiful, the biggest cathedral in the world after the Vatican. It's one of the most visited monuments in Seville. It's the biggest religious building in Seville.
04	*#* The Alhambra is... I don't know, I can't describe it. It's magical! Every spot, every corner, the garden, even the souvenir shop... Incredible! Sadly I can't say which bit I liked the most because I loved it all, the Nasrid Palaces are breathtaking.
05	@Next to the Roman theatre is the entrance to the Alcazaba, which is in a very good state of repair. You can walk around it and enjoy stunning views over this wonderful fishing city.
06	*#* I love this market, Altarazanas market in Malaga. You can buy everything, from land and sea. Amazing vegetables! The fish, oh my God, it's so fresh and the fruit is wonderful. You can eat at the bars inside too, where everything's super fresh and delicious.
07	@ Málaga Automobile and Fashion Museum Highly recommended for a fun outing either with or without children. Good collection, well-spaced exhibits and no crowds.
08	*#* I loved my trip. The weekend in Córdoba was wonderful, we were really lucky to have chosen a guided tour of the Mezquita with Konexion Tour and it was brilliant..
09	@ My experience. Last week I did a tour from Seville to Córdoba and Carmona. Highly recommended.
10	*#* Gibralfaro Castle The castle has a wall rising up over the city, it's worth climbing it for the stunning views of the city and the surrounding area.

The following matrix shows the most popular words in 2019 and the relationship between them. The words listed appear at least ten times in the tweets.

Table 7. Matrix of words appearing at least 10 times. 2019.

## [1] "beach"	"August"	"night"	"comment"	"all"
## [6] "Sand"	"hi"	"message"	"felt"	"Sunday"
## [11] "available"	"discover"	"colours"	"summer"	"Almería"
## [16] "buy"	"Huelva"	"thanks"	"account"	"days"
## [21] "order"	"beach"	"Cádiz"	"new"	"tones"
## [26] "Alicante"	"client"	"new"	"direct"	"summer"
## [31] "shop"	"pool"	"Almuñécar"	"water"	"people"
## [36] "any"	"Málaga"	"art"	"summer"	"photos"

Figure 5 shows the words most used by the tourists in their tweets: 'beach', 'sand', 'summer', 'holiday', 'people', 'Cádiz', 'Málaga', 'Huelva' and 'Almería'.

Figure 5. Most popular words in tweets 2019

The most popular words appearing at least ten times in the tweets and the relationship between them were also identified for 2020. They included: 'culture', 'Seville', 'city', 'Mezquita', 'Málaga', 'Córdoba' and 'Granada'. This is shown in Figure 6.

Table 8. Matrix of words appearing at least 10 times. 2020.

## [1] "culture"	"Málaga"	"night"	"comment"	"all"
## [6] "Seville"	"Mezquita"	"message"	"felt"	"Sunday"
## [11] "available"	"discover"	"colours"	"summer"	"Córdoba"
## [16] "buy"	"Cathedral"	"thanks"	"account"	"Alhambra"
## [21] "order"	"culture"	"Granada"	"new"	"tones"
## [26] "city"	"client"	"new"	"direct"	"heritage"
## [31] "shop"	"second"	"autumn"	"water"	"people"
## [36] "any"	"museums"	"art"	"summer"	"photos"

Figure 6. Most popular words in tweets 2020

The comparative analysis of the sentiments displayed by travellers in Andalusia based on tweets from the two periods under study shows that negative sentiments became more prevalent during the COVID-19 pandemic, as did references to inland and city destinations (Córdoba, Granada, Málaga and Seville). During the previous period, there were a larger number of references to coastal destinations (Cádiz, Almería, Málaga and Huelva), especially long-standing, mass tourism destinations such as Málaga.

Other words that were more common prior to COVID-19 were 'beach' and 'sand', confirming that beach holidays were predominant during that quarter in 2019. Meanwhile, the words appearing most often during the COVID-19 period were 'cultural' and 'city', demonstrating the need for the tourism sector to adapt to the health crisis and to the rise in travel to less crowded, inland and city destinations on both the demand and supply side.

On balance, the analysis of tourists' behaviours and sentiments using social media data provides similar, complementary information to the survey data.

Both analytical tools highlight the increased importance of cultural tourism and visits to less crowded destinations, including cities (Granada, Málaga and Córdoba) and inland destinations (mountains, natural parks), during the COVID-19 period in comparison with the previous summer. In summer 2020, there were far fewer references to 'sand', 'sun' and 'beach'. Words such as 'Benidorm', 'Spain', 'pool', 'beach', 'sun', 'sand', etc., which are associated with mass beach tourism, were largely absent in 2020.

On the other hand, the sentiment analysis indicates that tourists travelling in Andalusia experienced more negative sentiment in summer 2020 than the previous year. This is apparent from the survey, with lower scores for certain aspects of the tourist experience (public transport and tourist accommodation especially), and from some of the ten most widely cited comments, which highlight the experience of visiting less crowded destinations.

4.6. Conclusions

In terms of the first theoretical objective, this paper describes the recent rise in studies performing sentiment analysis using social media data in relation to the tourism sector. The majority of the articles published on the topic in the Web of Science in the last two years have

focused on methodology, although studies classifying tourists' opinions of certain resources, destinations or experiences are also common. This study falls into the second category.

With regard to the second theoretical objective, this study has shown that COVID19 has seriously affected international tourism in terms of numbers of trips and tourist behaviour and sentiments, with a greater impact than other health crises. Tourists have begun to demand safer, healthier destinations, and it is likely that these changes will persist in the future.

As for the empirical objectives, a case study has been used to show how sentiment analysis can be used to supplement or even replace surveys as a tool for analysing tourists' behaviour and opinions. This type of analysis offers cost savings and reveals tourists' behaviour and opinions on a continuous basis in real time, as shown by authors such as [22].

In the Andalusian case study, both the surveys and the sentiment analysis using Twitter data show how COVID-19 has changed the behaviour and sentiments of tourists travelling in the region. By combining the data from both sources, it is apparent that tourism declined in Andalusia in summer 2020, especially in crowded beach destinations.

This analysis demonstrates the need for public and private stakeholders in the Andalusian tourism sector to promote the region as a safe destination and to implement strategies and measures to enhance safety, such as monitoring visitor flows to certain locations, maintaining social distancing, and cleaning facilities and infrastructures, etc. These measures should be more visible in mass tourism destinations, as they are considered less safe by visitors and are at greater risk of declining numbers of arrivals during the pandemic.

An analysis of the data from the two tools offers complementary information. Whereas the survey provides information on behavioural changes in relation to quantitative variables (visitor numbers, average stays, average expenditure, most visited provinces and destinations, etc.), the sentiment analysis reveals subjective utterances and emotions and classifies them as positive, negative or neutral. It also allows us to analyse changes in these opinions on a continuous basis over time at a low cost.

Indeed, this study demonstrates the value of a simple exploratory data analysis in obtaining important information on potential causes of problems, changes in demand, etc. Data visualisation using algorithms, tables, word clouds, and simple graphs is a key element of this exploratory analysis, allowing us to detect possible changes in tourists' behaviour, opinions, and sentiments. Moreover, this type of analysis is inexpensive and affordable for small-scale tourist destinations due to the availability of free software, such as RStudio and Knime, which makes data analysis and graphic representation accessible to any individual or organisation.

 This article aims to contribute to the gap in the literature on the use of social media by tourist destinations to analyse tourist behaviours and sentiments. This area of study has huge potential for growth in the coming years, given the significant progress made in the use of big data and social media [66, 67].

The study also contributes to a greater understanding of changes in behaviours and sentiments among tourists visiting Andalusia as a result of the COVID-19 pandemic, using a combination of survey data and analysis of comments by tourists on the social network Twitter.

With regard to the limitations of the study, opinions were only analysed using one social network: Twitter. Although this is one of the most widely used social networks, it would be interesting to compare the data with other social networks such as Facebook or Instagram. This is a potential area for further research, which could be extended by comparing

information and content on social media with news from traditional media outlets to observe differences in the handling of themes, coverage, and other aspects.

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CAPÍTULO V:

CONCLUSIONES, LIMITACIONES Y FUTURAS LÍNEAS DE INVESTIGACIÓN

5.1. Conclusiónes

En el presente capítulo, se describirán las principales conclusiones a las que podemos llegar a partir de los resultados obtenidos en los diferentes capítulos de esta tesis doctoral, comparándolas con la literatura científica y analizando sus implicaciones. Para ello, se dará respuesta a los objetivos e hipótesis formulados, discutiendo los resultados con estudios que han abordado temáticas similares.

Se da respuesta al objetivo principal de la investigación que es: determinar las funciones y aplicación de las redes sociales en la gestión de los destinos turísticos, con objeto de poner de manifiesto el estado de la cuestión y grado de aplicabilidad en determinados contextos y estudios de caso.

Algunos autores, como: (Sustacha Melijosa, et al., 2022), consideran que el turismo inteligente y las redes sociales vienen siendo uno de los instrumentos más relevantes que brindan apoyo científico al análisis del sector turístico, tanto empírico como teórico, y, por tanto, a la gestión de destinos turísticos. Esto se debe, entre otros aspectos, a que proporcionan visiones claras de las necesidades detectadas para la mejora de servicios, empresas y destinos turísticos.

A su vez, el smart tourism ha ido ganando espacio a nivel mundial, como consecuencia de las características específica que reúne esta actividad económica, la cual involucra y demanda la vinculación con otras actividades productivas que los gobiernos han determinado como importantes para el desarrollo y consolidación económica de un país (Redko et al., 2022).

En relación con el primer objetivo específico de esta tesis doctoral, centrado en la realización de un recorrido bibliográfico por las publicaciones, de alto impacto, que han abordado las redes sociales en la gestión de destinos turísticos, se presenta el estado del arte de la investigación científica en la intersección entre el turismo inteligente y las redes sociales para comprender mejor el papel de estas últimas (como Facebook y Twitter) en el desarrollo del paradigma inteligente en el turismo.

Según (Li, et al., 2022), y en línea con los resultados que arroja la revisión bibliográfica realizada, la importancia que han adquirido las redes sociales en el ámbito del turismo se debe al importante potencial que tienen para personalizar la relación del turista con los destinos turísticos, permitiendo la individualización del mensaje, facilitando servicios de atención al turista, así como la posibilidad de ofrecer al visitante una imagen representativa y atrayente del destino. Es más, si algo caracteriza actualmente la comunicación en el turismo es que los arreglos de viaje se discuten en línea en forma de blogs, gustos y aversiones que se manifiestan en las redes sociales.

Por tanto, corroboramos nuestras primeras hipótesis planteadas, 1.1. Se puede concluir cómo en los últimos años se ha incrementado el número de estudios e investigaciones relacionadas con los destinos turísticos inteligentes y las redes sociales. Y, de la misma forma, la 1.2. El número y funciones que pueden cumplir las redes sociales en la gestión de los destinos, según se recoge ne la literatura consultada, también se han venido incrementando.

Sin embargo, aunque la literatura consultada pone de manifiesto la importancia que, cada vez más, adquieren las redes sociales en el turismo, en general, y en la gestión de los destinos turísticos, en particular, concretándose, todo ello, en el concepto de turismo inteligente; en la

presente tesis doctoral, se ha querido contrastar en qué medida, y de qué modo, estas tendencias se ponen de manifiesto en determinados destinos turísticos, como los españoles.

En este sentido, en el segundo objetivo específico de la tesis se plantea examinar el grado de presencia y tipo de funciones que vienen desempeñando las redes sociales en la gestión de los destinos turísticos españoles, prestando especial atención a los destinos turísticos inteligentes con objeto de detectar posibles diferencias respecto a los destinos turísticos que no lo son.

Para dar respuesta al objetivo planteado en el segundo artículo se presenta un análisis descriptivo, otro de correlación y un análisis de la varianza para conocer en qué medida los destinos turísticos inteligentes españoles están haciendo uso de los medios y redes sociales, se han analizado las páginas web oficiales de los 26 destinos turísticos que participan en el proyecto de SEGITUR, (Segittur, 2018), así como la de los 26 destinos turísticos españoles más visitados y las de los 26 menos visitados.

Los resultados y conclusiones de nuestro estudio, ponen de manifiesto, en relación con otros autores como como (Florido-Benítez, 2021; Elorrieta, et al., 2022), que las principales funciones de las redes sociales para la gestión de los destinos turísticos son la promoción y el conocimiento del turista. Sin embargo, una gran cantidad de destinos turísticos aún no disponen de estrategias eficaces y eficientes de gestión activa de sus redes sociales, de forma que interactúen con el resto de agentes del destino y con los turistas, haciéndoles participar y dialogando con ellos.

Sin embargo, se corrobora la hipótesis 2.1, que afirma que la presencia de los destinos turísticos en las redes sociales se ha incrementado en los últimos años, estando relacionada con el mayor número de turistas que reciben cada uno de ellos. Ello puede deberse a que, como afirman Mior, et al (2022), cuando un turista asiste a un destino concreto, y queda satisfecho, suele crear lazos en las redes sociales con otros turistas con los que compartió tiempo durante su estancia. De forma que, a mayor número de turistas satisfechos, mayor es la presencia de esos destinos en las redes sociales.

No obstante, también se corroboran las hipótesis 2.2, ya que una mayor presencia de los destinos turísticos en las redes sociales no implica que su gestión sea eficaz y eficiente; y, por tanto, no va a depender del número de turistas recibidos.

También se corrabora la hipótesis 2.3. En la medida en que los destinos turísticos inteligentes españoles no realizan una gestión más eficaz y eficiente que los restantes. Así, según los resultados de esta investigación, concluimos que los destinos turísticos españoles analizados, a pesar de estar presentes y visibles en las redes sociales, la gestión que hacen de las mismas no es la más adecuada, presentando serios déficits respecto a la proactividad, dinamismo e interrelación y diálogo con los diferentes agentes del sector, tanto los localizados en los propios destinos como con los turistas. Estos resultados, tal y como se ha apuntado anteriormente, se ponen en relación con los de autores como (Florido-Benítez, 2021; Elorrieta, et al., 2022), entre otros; pudiéndose ratificar la hipótesis planteada respecto a que los destinos turísticos inteligentes españoles no realizan una gestión más eficaz y eficiente que los restantes.

Una vez analizada la presencia y tipo de gestión que realizan los destinos turísticos en las redes sociales, el último gran objetivo profundiza en una de esas funciones que pueden

desempeñar las redes sociales, la cual hace referencia a su configuración de herramienta a la hora de analizar, de una forma continuada en el tiempo, las motivaciones y opiniones de los turistas.

Por tanto, como una de las posibles funciones que pueden ejercer las redes sociales en la gestión de los destinos turísticos, se analiza la aplicabilidad que pueden tener en lo que respecta al análisis de sentimientos del turista, y su posible compatibilidad con las estadísticas oficiales de turismo; sobre todo, a la hora de conocer y adaptarse, de una forma continuada, al comportamiento de la demanda turística.

Para dar respuesta a este objetivo se realiza un tercer artículo que explora el papel de las redes sociales en el análisis del sentimiento turístico, la red social que se utilizó para este estudio fue Twitter, debido a su capacidad de llegar a una amplia audiencia y a su carácter anónimo, que han provocado un crecimiento exponencial a escala mundial y han transformado la plataforma en una fuente de información alternativa junto a los medios de comunicación más tradicionales.

Así, en línea con nuestros resultados, autores como (Ngo, et al, (2022); Mehraliyev, et al., 2022), destacan cómo la aparición de Internet y de las redes sociales permiten a los usuarios expresar su opinión de forma libre y espontánea, lo cual debe ser aprovecha, tanto por empresas como por destinos turísticos. No en vano, como afirman diferentes autores, esta fuente de información es un activo muy valioso, que debemos aprovechar para recopilar los sentimientos que producen en los visitantes los servicios que ofrecemos en nuestro destino turístico (Viñan-Ludeña and de Campos, 2022). Por lo tanto, la inteligencia de datos puede aportar instrumentos de gran utilidad para la competitividad turística y la sostenibilidad (Luo, et al, 2021). De hecho, el big data permite una visión más integrada y reveladora de la actividad turística, ofreciendo a los agentes del sistema turístico la oportunidad de mejorar los procesos, impulsar la innovación y brindar mejores experiencias (Diaz Martín, 2022).

En el tercer artículo, y para el caso de Andalucía como destino turístico, se llega a demostrar que el uso de las redes sociales para el análisis de su demanda puede ser complementario a la utilización de las estadísticas oficiales. En este sentido, permiten identificar y clasificar las percepciones y opiniones de los turistas, de una forma continuada en el tiempo, mediante el análisis de sentimientos a escala masiva, con la ayuda de determinados softwares estadísticos.

Por tanto, a partir del análisis de caso aplicado en Andalucía, se pueden ratificar las hipótesis 3.1, la cual afirmaba, que es posible identificar y clasificar las percepciones y opiniones de los turistas mediante el análisis de sentimientos a escala masiva, con la ayuda de las redes sociales y de software estadísticos. En esta línea, también se ratifica la hipótesis 3.2. En la medida en que las redes sociales desempeñan un papel complementario a las estadísticas oficiales de turismo a la hora de analizar el comportamiento y opiniones de la demanda turística, permitiendo el análisis de los sentimientos de una forma continuada en el tiempo. Es más, las estadísticas oficiales de turismo, que analizan el comportamiento de la demanda turística, generalmente de forma anual, se configuran como complementarias respecto al análisis de sentimientos, ya que su objeto de análisis es ditinto, haciendo referencias a aspectos tales como: procedencia de los turistas, gasto realizado, días de estancias, etc.

Por otro lado, este estudio del caso andaluz, también ha permitido adquirir una mayor comprensión de los cambios experimentados en los comportamientos y sentimientos de los turistas que visitan Andalucía como consecuencia de la pandemia del COVID-19, para lo cual

se utilizó una combinación de datos, tanto procedentes de las encuestas oficiales de turismo como del análisis de los comentarios, vertidos en la red social Twitter, de Andalucía como destino turístico. Este estudio arrojó resultados muy parecidos a los que se derivan de otras investigaciones, tales como Araya-Pizarro (2021) y Zhu, et al (2020), entre otras. Entre estos resultados, cabe destacar: las importantes tasas de decrecimiento de la demanda turística en todo tipo de destino (alrededor del 65%-85%), el aumento de los viajes nacionales y de cercanía respecto a los viajes internacionales, la valoración de la seguridad por parte de los turistas, etc...

Como consecuencia de todo ello, tal y como recoge Gulati (2021), los destinos turísticos van adaptándose cada vez más a estas nuevas herramientas, no solo a la hora de poseer una página web propia y de estar presentes en redes sociales, sino también a la hora de utilizar estas redes (Facebook, Instagram, Twitter o LinkedIn) para una mayor difusión y análisis de su demanda. Sin embargo, aún queda mucho camino por recorrer, entre otros aspectos, en lo que respecta a la aplicación de aprendizaje automático, por ejemplo, a los estudios de análisis de sentimiento de los turistas, así como a la hora de interactuar, casi en tiempo real, con el turista, a fin de confeccionar y co-producir sus experiencias, replicando sus opiniones y comentarios sobre el destino turístico.

Por todo ello, a partir de los resultados que se optienen de esta tesis doctoral, consideramos que se hace necesario que los destinos turísticos cuenten con un profesional, especializado en la gestión de redes sociales (social media manager), pues ello permitirá al destino sacar el máximo provecho a su presencia en las redes sociales. No en vano, esta actuación posibilitará el máximo desempeño de las múltiples funciones que, a lo largo de la investigación, se han puesto de manifiesto, que puede desempeñar esta herramienta, dentro de los procesos de gestión de los destinos turísticos.

En definitiva, los destinos turísticos en general, y los destinos turísticos españoles en particular, tanto los más visitados como los participantes en el proyecto SEGITTUR, de destinos turísticos inteligentes, deberían aprovechar de forma decidida el importante potencial que tienen las redes sociales para su gestión. Esta recomendación es importante tanto a la hora de adaptarse al progresivo desarrollo de las nuevas tecnologías, como por la evolución que viene experimentando el comportamiento y perfil de los turistas, los cuales, cada vez, están más familiarizados con el uso de nuevas tecnologías, y demandan experiencias flexibles y adaptadas a sus preferencias, entre otras características.

5.2. Limitaciones y futuras líneas de investigación

Los resultados alcanzados han sido satisfactorios y resultan de gran utilidad para proponer algunas recomendaciones, tal y como se han apuntado en el apartado anterior, así como para proponer futuras líneas de investigación en lo que respecta a la aplicabilidad de las redes sociales a los procesos de gestión de los destinos turísticos.

Sin embargo, el presente estudio también ha contado con una serie de limitaciones teóricas y metodológicas, que cabe mencionar con la idea de considerarlas y tomar con precaución los resultados y conclusiones a las que se ha llegado:

En primer lugar, cabe señalar que esta investigación sólo se ha centrado en el análisis de la aplicabilidad de las redes sociales a los destinos turísticos españoles, de forma que, los resultados y conclusiones a las que se llegan sólo pueden ser interpretados en este contexto.

En este sentido, sería interesante comparar estos resultados con otros destinos turísticos, localizamos en otros países y regiones del mundo, para lo cual se podría utilizar la misma metodología que hemos seguido para ello.

Por otro lado, para profundizar en la aplicación que puede tener las redes sociales en el análisis de la demanda turística, se ha considerado el análisis del caso andaluz, analizándose, solamente, las opiniones que vertieron los turistas a través de una red social: Twitter. De forma que, aunque se trata de una de las redes sociales más utilizadas, sería interesante comparar los datos con otras redes sociales como Facebook o Instagram. No en vano, se trata de un área con un importante potencial de investigación, que podría ampliarse mediante la comparación de la información y el contenido que pueden arrojar los análisis de las opiniones y comportamientos de la demanda, a través de las redes sociales, con los que arrojan los informes y estadísticas turísticas oficiales, con objeto de observar las diferencias en el tratamiento de los temas, la cobertura, la complementariedad de información, etc. Todo ello, podría enriquecer sustancialmente la información y el conocimiento de los destinos turísticos encaminados a la mejorar de sus procesos de gestión y toma de decisiones.

En este sentido, también se sugiere ampliar la investigación a través de estudios adicionales en machine learning, aplicado a estudios de análisis de sentimiento de los turistas que permitan comparar la percepción de turistas de diferentes países. También se aconseja mejorar la metodología que se ha aplicado en esta investigación mediante la incorporación de variables de dinamismo, interrelación y proactividad.

Por último, también podría ser interesante, desarrollar un estudio que analice el contenido multimedia de las redes sociales (texto, video, imagen y audio), aprovechando la incursión de programas potentes para el tratamiento de datos masivos (Big Data); al igual que el análisis de mapeo de redes con objeto de encontrar las cuentas de Twitter más influyentes; el análisis de regresión también podría revelar los factores antecedentes que facilitan la difusión de la información (compartir o retuitear un mensaje).

En definitiva, se considera que la investigación centrada en la aplicabilidad de las redes sociales a los procesos de gestión de los destinos turísticos está aún en sus primeras etapas de desarrollo, sobre todo si analizamos la aplicabilidad real que está teniendo en destinos turísticos concretos. De ahí, que los procesos de investigación-acción, en los que participen diferentes agentes del destino, junto a la demanda turística, sean realmente necesarios en este campo, de investigación y desarrollo, que comienza a emerger con fuerza.

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