

Programa de Doctorado en Turismo, Economía y Gestión

TESIS DOCTORAL

WHALE-WATCHING TOURISM IN THE NAUTICAL SECTOR Consumer behaviour and firm prospects towards sustainability



"A mi abuelo"



UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA **ESCUELA DE DOCTORADO**

WHALE-WATCHING TOURISM IN THE NAUTICAL SECTOR:

Consumer behaviour and firm prospects towards sustainability

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Caminante no hay camino, se hace camino al andar ... (Machado, 1973).

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RESUMEN

La humanidad depende en gran medida del medio marino. Los océanos, mares y costas constituyen los principales motores de crecimiento y bienestar, en la medida en que sostienen, proveen, protegen y brindan beneficios no materiales a la sociedad (Mayén-Cañavate, Bernal-Conesa, Briones-Peñalver & Anunciação, 2019; Tonazzini et al., 2019). Al respecto, uno de los sectores más prósperos en el ámbito marítimo es el turismo náutico (Martínez-Vázquez, Milán-García & de Pablo-Valenciano, 2021; Orams & Lück, 2013).

Desde que se iniciaran los primeros viajes a centros turísticos costeros en Gran Bretaña en la década de 1850, la creciente demanda de ocio náutico y recreación marítima ha llevado al turismo náutico a convertirse en un sector marítimoeconómico fundamental (Higham & Lück, 2007). Sin embargo, el turismo náutico sigue siendo una de las industrias menos estudiadas (Mayén-Cañavate et al., 2019). Es más fácil evaluar su contribución a la economía global y contabilizar los empleos que genera, que identificar sus implicaciones sociales y medir la relación entre las necesidades y bienestar de sus usuarios (Hoyt, 2001; Leposa, 2020; Stiglitz, Sen & Fitoussi, 2009).

Objetivo y estructura de la tesis

La presente tesis doctoral profundiza en el comportamiento turístico y empresarial en el ámbito del turismo náutico. Esta tesis aplica la investigación empírica para formular recomendaciones a la industria para conciliar su desarrollo con la sostenibilidad desde la perspectiva de la oferta y la demanda. Además, esta investigación dirige especial atención a la actividad turística de avistamiento de cetáceos, toda vez que representa un caso crítico en materia de sostenibilidad social, empresarial y de bienestar animal.

La tesis está estructurada en siete capítulos, incluyendo la introducción y un capítulo final de conclusiones. Cada capítulo responde a un desafío de investigación específico en torno al comportamiento social del sector del turismo náutico. De esta forma, los resultados generados contribuyen al avance del conocimiento científico, al tiempo que brindan algunas recomendaciones de gestión adaptativa para el sector del turismo náutico en general, y la actividad de avistamiento de cetáceos en particular.

Al respecto, los dos primeros capítulos exploran algunas fortalezas poco estudiadas del turismo náutico para establecerse como una industria competitiva y sostenible. En primer lugar, se analiza el interés de los consumidores por participar en actividades de turismo náutico, de acuerdo con sus actitudes hacia el cuidado del medio ambiente, el bienestar y los derechos de los animales, y la búsqueda de sensaciones emocionantes y de aventura. En segundo lugar, se evalúa el desempeño de las empresas y sus perspectivas de expansión hacia otros mercados internacionales.

Los siguientes capítulos se centran de forma específica en el avistamiento de cetáceos. El reciente interés académico por este segmento turístico tiene su epicentro en el debate sobre la sostenibilidad y los desafíos para enfrentar los impactos que la actividad genera sobre el ecosistema marino y las especies objetivo. Asimismo, los resultados del primer capítulo sobre las intenciones de comportamiento de los consumidores sugirieron la necesidad de profundizar en esta actividad turística. Por lo tanto, el tercer capítulo revisa sistemáticamente cincuenta años de investigación en el contexto del turismo de avistamiento de cetáceos y propone un nuevo marco de sostenibilidad para su investigación. Los resultados de este capítulo resaltan la necesidad de profundizar en la demanda del consumidor. En respuesta, los capítulos cuarto y quinto abordan esta brecha. El capítulo 4 proporciona información sobre cómo gestionar de forma adaptativa y sostenible la actividad, atendiendo a los diferentes segmentos de turistas que observan cetáceos. Por su parte, el capítulo cinco pone de relieve el potencial del mercado para incrementar las prácticas responsables y sostenibles en dicho sector.

Cabe destacar que esta tesis también enfrenta un desafío metodológico. Por un lado, la revisión de la literatura sobre el avistamiento de cetáceos (capítulo 3) se llevó a cabo mediante el empleo de la "métrica científica" para mapear la literatura a diferentes escalas de análisis y así poder identificar las principales tendencias de investigación, las brechas actuales y los frentes de investigación futuros. Por otro lado, en el capítulo 4 se implementó una metodología original y sencilla que combina el análisis de conglomerados con el análisis de importancia-desempeño (IPA). Los resultados derivados se consideran útiles para que la industria traduzca las prácticas de gestión actuales, basadas en el cliente promedio, en experiencias personalizadas. Finalmente, y con el objetivo de avanzar en la valoración económica del turismo de avistamiento de cetáceos, en el capítulo 5 se diseñó un experimento de elección discreta, el cual se analizó empleando un modelo de regresión de clases latentes. Este enfoque econométrico brinda resultados útiles sobre las preferencias de los turistas con

respecto a diferentes medidas de sostenibilidad responsable que deben adoptar las empresas.

Resumen de los capítulos

En el presente punto se resumen los estudios desarrollados a lo largo de los diferentes capítulos de la tesis.

El capítulo 1 se centra en la "Demanda del turismo náutico: derechos de los animales, actitudes ambientales y búsqueda de sensaciones". Las actividades de turismo náutico interactúan con el medio ambiente y la vida silvestre con diferente intensidad, e implican diferentes niveles de desafío y riesgo para los turistas. La literatura previa se ha centrado en comprender algunas de las sensaciones e inquietudes que mueven a los turistas a emprender actividades de turismo náutico. Sin embargo, todavía existe un vacío en la investigación en torno a las actitudes de los turistas por el bienestar y los derechos de los animales. En consecuencia, en este capítulo se empleó un modelo logístico ordinal para analizar cómo las diferencias entre las actitudes y preocupaciones de los individuos con respecto a la protección ambiental y animal, la búsqueda de sensaciones, la experiencia previa y otras características sociodemográficas explican su interés por realizar actividades de turismo náutico.

El segundo capítulo se centra en el estudio de las "Empresas de turismo náutico: factores que limitan el crecimiento internacional". La sostenibilidad es una condición fundamental para la gestión estratégica empresarial en términos de competitividad, posicionamiento e imagen, constituyendo la internacionalización un paso estratégico clave para ello. A pesar del entorno altamente competitivo en el que operan las empresas de turismo náutico, la investigación aún es limitada en el estudio de las motivaciones, actitudes y otras condiciones comerciales que las llevarían a expandir sus negocios a otros mercados más allá de las fronteras nacionales. Así, en este capítulo se analizaron los factores determinantes del crecimiento internacional de las empresas de turismo náutico de la Macaronesia. Se eligió la regresión binomial para explicar el crecimiento internacional de acuerdo con las condiciones, motivaciones, rasgos diferenciadores y otras características socioeconómicas, como el número de empleados, la posesión de un plan de internacionalización y la isla donde la empresa desarrolla su actividad.

Por su parte, el tercer capítulo contribuye al estado del arte en la investigación del turismo de avistamiento. Como se mencionó en el anterior apartado, este

estudio revisó sistemáticamente la evidencia empírica de cincuenta años de investigación en torno a esta actividad turística. "Una visión crítica de la sostenibilidad en el turismo de avistamiento de cetáceos" también supone un avance en la investigación científica. En este estudio se propone un enfoque de investigación para la compatibilidad de la actividad con la sostenibilidad, con el objetivo de proporcionar información útil para conciliar los diversos intereses del turismo con la preservación y mejora del bienestar de las especies.

"Un análisis de segmentación de la demanda del turismo de avistamiento de cetáceos: conciliando los intereses de los turistas con la preservación de los cetáceos" define el tema de investigación del capítulo cuatro. La sostenibilidad de la actividad turística de avistamiento de cetáceos depende en gran medida de las prácticas y la gestión responsables de los operadores. Más allá del incremento de los impactos ecológicos y ambientales sobre las especies, las prácticas y la competitividad de los destinos. Es por ello que se necesitan conclusiones más sólidas para implementar políticas sostenibles a nivel de gestión empresarial. Por lo tanto, este capítulo tiene como objetivo proveer de información útil para procurar la compatibilidad entre los intereses de los turistas y la sostenibilidad de la actividad, asumiendo que los observadores de cetáceos son un grupo heterogéneo que exhibe diferentes niveles de interés con respecto a la actividad. Para hacer frente a ésto, se empleó un análisis de importancia-rendimiento segmentado.

Por último, el capítulo 5 profundiza en "El valor económico de la responsabilidad social corporativa sostenible en el turismo de avistamiento de cetáceos", motivado por la necesidad de acciones más responsables y sostenibles para conciliar la protección de las especies con las diversas demandas turísticas, como se remarca en el estudio anterior. Precisamente, lograr un mayor nivel de sostenibilidad en esta actividad turística basada en el contacto directo con fauna marina enfrenta el desafío de conciliar las complejas relaciones entre los ecosistemas y los sistemas socioeconómicos. A pesar de ello, la investigación aún no ha ahondado lo suficiente en el análisis de las preferencias de los consumidores por un enfoque de Responsabilidad Social Corporativa completo que vaya más allá de las cuestiones medioambientales e incluya, entre otras, medidas tecnológicamente innovadoras para mejorar la relación entre el turismo y el medio marino. En consecuencia, este estudio empleó un experimento de elección discreta de clases latentes para mostrar las diferencias en las preferencias

y el valor económico de los turistas por políticas sostenibles en la práctica del avistamiento de cetáceos.

Conclusiones

Los resultados derivados de esta tesis doctoral proveen de una mejor comprensión del sector del turismo náutico, tanto desde el lado de la demanda, como de la oferta. En este punto se resaltan las conclusiones más relevantes derivadas de cada capítulo.

Así, con respecto al análisis de la demanda del turismo náutico (capítulo 1), se proporciona un primer enfoque sobre las intenciones de comportamiento de los consumidores a participar en actividades náuticas. El interés por las diferentes experiencias turísticas náuticas se explicó a partir de sus preocupaciones por los derechos de los animales, sus actitudes hacia el medio ambiente y la búsqueda de sensaciones.

Desde una perspectiva teórica, los resultados confirman lo siguiente:

- (1) Los individuos interesados en participar en los deportes acuáticos "más duros" (moto de agua y el kayak) son los que buscan un mayor riesgo, desafío y emoción y quienes tienen mayores actitudes antropocéntricas, o no muestran preocupaciones ambientales significativas.
- (2) Aquéllos con actitudes más favorables hacia el cuidado del medio ambiente y los animales son más propensos a participar en actividades náuticas basadas en la fauna marina.

No obstante, dos excepciones se identificaron al respecto:

- (3) El esnórquel atrae a turistas que persiguen sensaciones emocionantes y aventureras, pero que también presentan unas elevadas actitudes biocéntricas.
- (4) La observación submarina no atrae a turistas muy preocupados por cuestiones ambientales o animales.

Estos hallazgos son valiosos desde una perspectiva práctica, en la medida en que contribuyen a la gestión sostenible y al posicionamiento competitivo de las empresas y destinos de turismo náutico. En consecuencia, se alienta a las empresas a:

- (1) Ofrecer actividades turísticas más personalizadas basadas en experiencias emocionantes o incluso arriesgadas.
- (2) Garantizar un comportamiento corporativo responsable y ético para favorecer la protección del medio ambiente y los derechos y el bienestar de la fauna marina.
- (3) Promover acciones de protección del medio ambiente y la biodiversidad marina como una oportunidad para mejorar el perfil de su mercado.

Por otro lado, y puesto que el éxito del turismo náutico también depende del desempeño empresarial, el capítulo 2 abordó el potencial de las empresas de turismo náutico para la internacionalización como una medida para la competitividad y resiliencia de la industria.

Desde una perspectiva teórica, los resultados muestran que las empresas de turismo náutico de destinos insulares competidores comparten un interés común: mejorar su posicionamiento dentro del mercado mundial. En este sentido, se constató el potencial de crecimiento internacional de las empresas de turismo náutico de la región de la Macaronesia, explicado por los siguientes factores:

- (1) Poseer un plan de internacionalización.
- (2) Las motivaciones de los directivos por el prestigio y competitividad y su sentido de distinción.
- (3) El número reducido de empleados, lo que supuso un hallazgo novedoso en este contexto.

En lo que respecta a las implicaciones prácticas, se anima a las empresas de turismo náutico a lo siguiente, para lograr un posicionamiento internacional exitoso:

- (1) Diseñar un plan de internacionalización adecuado.
- (2) Promover el carácter distintivo.
- (3) Fomentar la coopetición y la co-creación de valor y experiencias turísticas internacionales.

Por ejemplo, las diferencias existentes en la estructura del mercado y la estacionalidad de la demanda se presentan como una oportunidad para crear conjuntamente nuevos productos, servicios o experiencias turísticas

internacionales, pudiendo ampliar en consecuencia la oferta turística a nuevos mercados potenciales.

A partir de aquí, las siguientes conclusiones se centran en el turismo de avistamiento de cetáceos. En primer lugar, se realizó una revisión crítica para afrontar la sostenibilidad en este sector. Las conclusiones generales derivadas del capítulo 3 confirman que:

- (1) La evaluación de los impactos ecológicos sobre los cetáceos, como consecuencia de la perturbación humana, ha liderado ampliamente la literatura en este contexto. En otras palabras, la preocupación por el bienestar y la conservación de la fauna marina ha definido la evolución de las corrientes de investigación más relevantes.
- (2) Todavía se necesita más investigación centrada en comprender el comportamiento del consumidor.

En consecuencia, este estudio subraya la necesidad de profundizar en los diferentes intereses turísticos para reconciliar la actividad con la preservación y mejora del bienestar de las especies. Es por ello que este capítulo provee de algunas recomendaciones para la investigación futura con el objetivo de lograr un compromiso científico integral y personalizado con las prácticas de gestión de la actividad. El marco propuesto coloca el eje central en cuatro puntos críticos principales de investigación y cómo se relacionan entre sí, a saber:

- (1) Los impactos ecológicos (por ejemplo, impactos no visibles y efectos a largo plazo).
- (2) La demanda de los consumidores (cambio de actitudes y comportamiento del turista).
- (3) La innovación (tecnología y responsabilidad social).
- (4) Los impulsores externos (cambio climático).

Los dos capítulos posteriores contribuyen a una mejor comprensión de la demanda de los consumidores de turismo de avistamiento de cetáceos. De este modo, el capítulo 4 se centró en el análisis de segmentación para conciliar los intereses de los turistas con la preservación de los cetáceos. Los resultados empíricos demuestran que los observadores de cetáceos de la Macaronesia constituyen un grupo heterogéneo de acuerdo con sus diferentes intereses con respecto a la observación de los cetáceos, las condiciones del barco (comodidad)

y la cultura y preservación de los animales. En este sentido, se identificaron cuatro grupos de consumidores diferentes.

- (1) Los observadores de cetáceos apasionados y los comprometidos conforman los dos grupos de turistas más preocupados por el desarrollo responsable de la actividad.
- (2) Los turistas aficionados, quienes no manifiestan un gran interés en aprender sobre los cetáceos y su preservación.
- (3) Los observadores aficionados, los cuales no expresan intereses compatibles con la protección de los animales.

Desde un punto de vista práctico, este estudio demuestra que la gestión sostenible del avistamiento de cetáceos ha de hacer frente a un doble desafío para establecer soluciones eficientes. Es decir, los operadores deben:

- (1) Responder a las debilidades y los atributos de bajo rendimiento de la actividad, sin descuidar las diversas percepciones que los diferentes grupos de turistas tengan de la experiencia.
- (2) Velar por la compatibilidad ecológica y social de la actividad para que su desempeño satisfactorio no comprometa el bienestar animal y el desarrollo de esta industria a largo plazo.

En consecuencia, se necesitan acciones más responsables y sostenibles para armonizar la protección de los cetáceos con las diferentes demandas turísticas y la dimensión económica de las empresas en relación a su competitividad. De este modo, el capítulo 5 evalúa el valor económico de la responsabilidad social corporativa sostenible en el turismo de avistamiento de cetáceos. Los resultados confirman la existencia de un mercado potencial dispuesto a consumir prácticas sostenibles y responsables. En particular, se identificaron dos grupos de turistas; los sostenibles y los de consumo.

- (1) Los turistas sostenibles tienen mayores preferencias por soluciones de innovación tecnológica (monitoreo eficiente de cetáceos), por la adopción de medidas de protección, una estrategia de Responsabilidad Social Corporativa y la visita a un centro de interpretación de cetáceos en tierra.
- (2) Los turistas de consumo tienen preferencias más altas con respecto a la mejora de la experiencia en primera línea (gestión de los efectos de la

congestión de embarcaciones), seguidas de preferencias menos intensas para la conservación de los cetáceos y las estrategias regulatorias.

Desde un enfoque práctico, se anima a las empresas de avistamiento de cetáceos a adaptar sus prácticas de gestión a las preferencias de las diferentes demandas turísticas.

Limitaciones y futuras líneas de investigación

A pesar de las significativas contribuciones de investigación y las implicaciones prácticas señaladas en el anterior punto, esta tesis presenta algunas limitaciones, a saber:

- (1) Las muestras de estudio utilizadas tienen un tamaño medio, por lo que se necesitan muestras mayores (población objetivo y publicaciones de investigación).
- (2) El alcance geográfico del estudio también es limitado, por lo que debe ampliarse a otros destinos alternativos de turismo náutico, más allá de la Macaronesia y los mercados emisores seleccionados
- (3) El enfoque del estudio sobre los problemas de turismo náutico está fundamentado en una visión socioeconómica, por lo que también sería necesario una aproximación más interdisciplinaria en el entorno de la sostenibilidad.

Por su parte, las líneas de investigación futuras deberían dirigirse a abordar los siguientes temas:

- (1) Las posibles relaciones de sustitución con respecto a la inversión que los operadores de turismo de avistamiento de cetáceos deben asumir en pro de la sostenibilidad del sector, para garantizar una reasignación de fondos de forma eficiente.
- (2) Las brechas en las relaciones entre las organizaciones públicas y privadas para emprender soluciones de gestión integrales y personalizadas en el sector del turismo náutico y la actividad de avistamiento de cetáceos.
- (3) La creación colaborativa de productos, servicios y experiencias de turismo náutico transnacionales y sostenibles.

- (4) Las oportunidades e intereses del mercado europeo para participar en estas nuevas ideas turísticas y los mecanismos de promoción más fiables para ofrecerlas.
- (5) Las actitudes y percepciones de la comunidad local con respecto al sector del turismo náutico, la protección del medio ambiente marino y el bienestar de la vida silvestre, así como su voluntad para apoyar una industria turística sostenible y responsable.

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INTRODUCTION

'We need to respect the oceans and take care of them as if our lives depended on it. Because they do.' 'No Blue, no Green.' (Sylvia Earle, 2013)

The marine environment: its multiple benefits

The marine environment is embedded in about two-thirds of our 'Blue planet' (Lück, 2007), from the inshore ecosystems to the vast and deep oceans, hosting from the tiniest living beings to the magnificent blue whales (Hall, 2008; Higham & Lück, 2007). Humans greatly depend on the marine environment. Oceans, seas, and coasts constitute the major drivers for societies' growth and well-being (Mayén-Cañavate, Bernal-Conesa, Briones-Peñalver & Anunciação, 2019). They sustain, provision, protect, and provide non-material benefits to at least 40% of the world's population that live in the first 100 kilometres off the coasts on Earth (Mayén-Cañavate et al., 2019; Tonazzini et al., 2019).

The marine environment has become important for trade, transport and communication, and the development of other maritime economy sectors, such as fishing, aquaculture, renewable energy, or seabed mining (EC, 2019; Higham & Lück, 2007). One of the flourishing sectors in the marine environment is nautical tourism (Martínez-Vázquez, Milán-García & de Pablo-Valenciano, 2021; Orams & Lück, 2013). Since the first coastal resort trips in Great Britain in the 1850s, the increasing demand for nautical leisure and maritime recreation has made nautical tourism to become a fundamental economic sector in the maritime domain (Higham & Lück, 2007). The tourism industry uses oceans and coasts as a base for its products and services, which are provided to 0.7 billion tourists (Tonazzini et al., 2019; UNTWO, 2013). Maritime tourism represents nearly one-third of the global ocean economy in terms of gross value added and employment, expecting to continue growing (Dwyer, 2018; Ehlers, 2016).

Despite the multiple benefits the marine environment provides to societies, it has been proved that oceans, seas, and coasts are sensitive and vulnerable habitats to invasive human socioeconomic activities (Fernández-Macho, González & Virto, 2020). The intensive use and consumption of marine resources have caused severe impacts on the health of marine ecosystems and their regeneration capacity, leading to long-lasting effects such as the depletion of fisheries, as it almost occurred with whale populations. This, in turn, constrains the growth of the global economy and human well-being (Ehlers, 2016; Higham, Bejder, Allen, Corkeron & Lusseau, 2016).

In addition to this, the multiple maritime sectors usually conflict for the use and space of marine resources and the environment. According to White, Halpern and Kappel (2012), in a non-planning marine area, whale-watching -as a sustainable

model of tourism activity-, could be affecting the fishing efforts of the commercial fisheries (primary industry) or be competing to space with off-shore wind farms (clean energy industry).

In this regard, the 'Blue economy' strategy underlines the need to ensure the sustainable use of the oceans for economic growth, improved livelihoods, and jobs. To achieve this, it states that there is a must to consider the capacity of ocean ecosystems themselves to support the human well-being for the present and future generations while ensuring the resilience and health of the marine environment (Ehlers, 2016; Goddard, 2015; Sharafuddin & Madhavan, 2020).

A model of management and governance that accounts for the trade-offs of the different maritime sectors is also crucial to guarantee a critical balance between the utilisation of oceans and their preservation (EC, 2019; Leposa, 2020; Ehlers, 2016; White et al., 2012). Notwithstanding, the holistic, responsible management of the commons in the marine environment is still an academically and political challenge (Malinauskaite, Cook, Davíðsdóttir & Ögmundardóttir, 2021).

To breach this gap, some other prior issues must be faced. Research streams about sustainability have mainly focused on the socio-economic and environmental risks, and the consequences and adaptations to changes. Although further research is still needed to answer some of these aspects, the contribution of scientific knowledge to social demands is even feebler (Leposa, 2020). Sustainability strategies are mainly based on governmental decisions and some expert information, but rarely bear in mind public awareness, concerns, and priorities of entrepreneurs, local communities, or other actors implied, such as (tourism) consumers (Gelcich et al., 2014).

In this vein, it is easier to assess the contribution of tourism to the global economy and account for jobs creation rather than identify its social implications and measure the relationship between social needs and well-being (Hoyt, 2001; Leposa, 2020; Stiglitz, Sen & Fitoussi, 2009). Thus, despite its significant contribution to the maritime economy, nautical tourism remains one of the most understudied sectors (Mayén-Cañavate et al., 2019).

Remarkably, the constant changes in tourist preferences and travel motivations lead tourism to continuously evolve (UNWTO, 2013; Lam-González, Suárez-Rojas, León, 2019b). However, market logics in tourism research and policy contexts usually frame tourists as uncritical, all alike consumers rather than segmenting consumers according to their multiple interests, preferences and attitudes,

concerns, previous experiences, or other personal characteristics (Barradas & Ghilardi-Lopes, 2020; Pafi, Flannery & Murtagh, 2020; Pearce, 2005). This leads the tourism industry to unknown or have poor information about what tourists expect from the tourism products and services, thus constraining their competitiveness, positioning and sustainability (Araña & León, 2020; Filby, Stockin & Scarpaci, 2015; Mayén-Cañavate et al., 2020; Lam-González et al., 2019b). In this regard, understanding tourist behaviour while considering enterprise prospects still constitute a great research challenge towards sustainability in the nautical tourism sector.

In response, the present doctoral dissertation contributes to a better understanding of the nautical tourism sector, from both the demand and supply sides aimed to reconcile the tourism industry with sustainability. Besides, this research directs special attention to whale-watching tourism activity, as it represents a critical case for social and corporate sustainability and animal welfare matters. A general outline of the topics analysed and discussed in the following chapters is presented throughout this introduction.



Figure 1. Study object in the context of the marine environment.

Nautical tourism

The most widely used concept in the literature defines 'nautical tourism' as a multifunctional tourism sector. Leisure, recreation, navigation, and the practice of water sport activities at sea, beaches, the coastline and in marinas, constitute the main tourist motivations for travelling (Luković, 2013; Martínez-Vázquez, 2020; Orams & Lück, 2013). Likewise, enjoying the beach, the coastal landscape, or the cultural offer are other activities that nautical tourists usually engage in the destinations (Lam-González, León & de León, 2019a).

The majority of nautical activities involve some degree of physical effort and skills, although no formal professional training is generally required -e.g., sailing, motor yachting, sport and recreational fishing, surfing, jet-skiing, kayaking, and snorkelling. Tourists are increasingly demanding outdoor recreation activities motivated by thrill, adventure and rush sensation seeking. Socialising, escapism, and challenge are other pulling motivations of tourists to engage in this kind of nautical activities and water sports (Diehm & Armatas, 2004; Ewert, Gilbertson, Luo & Voight, 2013; Giddy & Webb, 2018; Hsieh, 2007; van Wijk, 2007). Notwithstanding, Eachus (2004) pointed out that vacation preferences are determined by many other motives, interests, and preferences beyond seeking adventure or 'strong' sensations.

Thus, nautical tourists also demand other more passive or 'soft' activities characterised by landscape and wildlife leisure – e.g., whale watching, semisubmarine tours, (sunset) one-day cruising, and marina visiting (Benevolo & Spinelli, 2019; Lück, 2007). These activities require minimum or no level of physical effort, expertise, knowledge, or equipment (Gross & Sand, 2019; Higham & Lück, 2007). In addition to this, the increasing demand of tourists for interacting with whales in the wild have led whale watching to be in the vanguard of the nautical tourism industry and to constitute a significant source of income for coastal destinations and regional economies (Bentz, Lopes, Calado & Dearden, 2016; Cisneros-Montemayor, Sumaila, Kaschner & Pauly, 2010; Higham & Lück, 2007; Tkaczynski & Rundle-Thiele, 2018).

From the supply side, the nautical tourism industry directly encompasses all companies that offer recreational and sports activities in the marine environment, such as those mentioned above. These nautical firms operate in a highly competitive environment, searching for tourists attracted by its services and features. This tourism sector also includes enterprises providing charter services, selling nautical equipment, and the marinas, which mainly offer berths and other services to yachts (Lam-González et al., 2019b).

From a broader perspective, other firms are embedded in the nautical tourism arena, such as those providing training activities, buying and selling yachts, and boat maintenance. Besides, private and public institutions of local, national and global governance involved in tourism promotion, marine environmental management and activities regulation are also fundamental partaking actors in this scenario. Their contributions are helpful to share and exchange information, influence policy creation, develop new products, and achieve a competitive edge (Gračan, Zadel & Pavlović, 2018). As Mayén-Cañavate et al. (2019) highlighted, private and public stakeholder collaboration in nautical tourism is as important as the quality of the marine environment or the optimal climatic conditions.

According to Pearce (2005), tourism is a 'people-to-people business in both its consumption and service provision'. In this regard, nautical tourism sustainability depends, at least, on a better understanding of consumers' and firms' behaviour and the relationship between consumers (satisfaction) and firms (performance). Notably, this will lead to i) offer quality, personalised and competitive tourist products and experiences, ii) contribute to the long-term positioning of the tourism sector in the marketplace and achieve more (economic) benefits, iii) support destinations on the promotion of nautical tourism as a key driver for sustainability and internationalisation, and iv) strengthen relationships with the other maritime sectors for the responsible use of the commons (Byrd, Cárdenas & Greenwood, 2008; Gračan, Zadel & Pavlović, 2018; Leiper, 2008; Mayén-Cañavate et al., 2020; Moscardo, 2000; Pepperdine & Ewing, 2001).

However, given the highly fragmented, multifunctional, and competitive nature of the sector, and the heterogeneity of its consumers' interests, motivations and preferences, there is a need for a more in-depth understanding of the supply and demand of nautical tourism.

Tourist behaviour and the environment

The analysis of tourist behaviour constitutes an important academic topic in tourism literature. While tourists invest in tourism experiences with no expectation of material or economic return from their purchase choices, they search for intangible satisfaction (Moutinho, 1987). Thus, understanding what tourists do and why, what they think and how they feel, what influences their

motives to travel, and what they reflect after the experience have broadly concerned researchers (Pearce, 2005; 1996).

Tourists are increasingly attracted to recreational activities involving direct contact with nature, particularly with those experiences interacting with marine wildlife. Moreover, visitors increasingly demand good quality natural environments as they also care more about environmental protection and animal welfare (Budeanu, 2007; Herzog, Grayson & McCord, 2015; Higham & Lück, 2007; Kline & Fisher, 2021; Orams & Lück, 2013; Moscardo, 2000). However, their interactions and behaviour negatively impact the environment and biodiversity (Budeanu, 2007), in turn affecting the economic and social dimensions of tourism destinations (Juvan & Dolnicar, 2016).

Academics have defined responsible, sustainable tourist behaviour toward the environment as the consumption process which minimises the impacts of its actions, which does not negatively impact the environment, or may even aim to benefit it, both at destination and global scales (Juvan & Dolnicar, 2016; Kollmuss & Agyeman, 2002). In this regard, research has aimed to answer the following: Are tourists really environmentally concerned? Do these attitudes correspond to how they relate to their environment? Do nature-based tourism activities contribute to tourists' environmental awareness-raising? Are tourists willing to purchase sustainable tourism experiences to protect the natural environment and animal welfare?

Aimed at understand tourists' attitudes closely related to their knowledge and perceptions about nature, the New Environmental Paradigm Scale has been one of the most broadly employed tools in the literature (Dunlap, Van Liere, Mertig, Jones, 2000). Findings have shown that tourists who prefer more direct and non-consumptive contact with the marine environment and wildlife –e.g., whale watching, snorkelling, or surfing, declare having higher environmental attitudes, in contrast with others demanding other consumptive nautical activities such as sport or recreational fishing (Filby et al., 2015; Mackay, Van Putten, Yamazaki, Jennings & Sibly, 2020; Malcolm & Duffus, 2007; Springwald, Jorge, Ramos & Viana, 2019).

On the other hand, it has also been found that not all tourists engaging in naturebased tourism activities are necessarily interested in the environment and wildlife (Bentz et al., 2016; Moscardo, 2000). As Pearce (2005) underlined, tourists are not all alike. They exhibit different levels of interest in tourism experiences or have
different opinions and perception from the same activity even though the same *stimulus* motivates them to undertake it (Duffus & Dearden, 1990; Moscardo, 2000).

In response, market segmentation has derived significant attention in nautical tourism research to explain heterogeneity in the tourism demand according to individual characteristics and backgrounds, travel career patterns, motivations, or other socio-psychological factors (Carvache-Franco, Carvache-Franco, Carvache-Franco, Hernández-Lara & Buele, 2020; Duffus & Dearden, 1990; Lambert, Hunter, Pierce & MacLeod, 2010; Malcolm & Duffus, 2008; Tkaczynski & Rundle-Thiele, 2018). Thus, it has been found different profiles among nautical tourists. More generalist tourists travel to coastal destinations motivated by multiple activities or a recreational wildlife-watching experience. Conversely, others demand the practice of more specialised nautical activities (e.g., yachting) or an educative wildlife-watching experience (Bentz et al., 2016; Carvache-Franco et al., 2020; Duffus & Dearden, 1990; Lam-González, de León and León, 2015).

As aforementioned, tourist behaviour strongly shapes the sustainability of many firms but also generate considerable environmental impacts (Pearce, 2005; Tkaczynski & Rundle-Thiele, 2018). For instance, Tkaczynski and Rundle-Thiele (2018) pointed out that to ensure investment and environmental conservation returns, the whale-watching industry in Hervey Bay (Australia) should focus on wealthy domestic families. However, addressing the value of the marine environment and its resources in tourism has constituted a challenge in academia because the non-material benefits it provides are outside the market (Alves, Ballester, Rigall-I-Torrent, Ferreira & Benavente, 2017).

In response, the non-market valuation of natural resources through stated and revealed preferences methods has produced significant research in the context of tourism management. In the last two decades, the discrete choice experiment model (DCE) has become the more commonly applied method in environmental decision making due to the flexibility for estimating tourist preferences and their willingness to pay (WTP) for a wider range of attributes (Cook, Malinauskaite, Davíðsdóttir, Ögmundardóttir & Roman, 2020; Chen & Chen, 2019; Cheung et al., 2019; Lew, 2015; Liu et al., 2019; Schwoerer, Knowler & García-Martínez, 2016). In this regard, literature in DCE has underlined that tourists care about the environment and tend toward more environmentally sustainable options and activities, particularly in the context of wildlife experiences (Bach & Burton, 2017;

Goodwin & Francis, 2003; Lee, Mjelde, Kim, Lee & Choi, 2019; Wakamatsu et al., 2018). For instance, it has been noted that whale-watchers strongly support limits to boat speed, the number of boats close to whales, or would be willing to pay significantly higher fees for a responsible dolphin watching (Bach & Burton, 2017; Shapiro, 2006; Warren, 2012).

The above insights are helpful to ensure firms' performance and contribute to the sustainability of the industry. Nautical tourism firms and policymakers would be able to design sound management strategies according to the types of experience tourists desire and their preferences, their level of specialisation or the different characteristics of their markets (Moscardo, 2000).

However, recent research has pointed out that focusing on environmental concerns are not enough to ensure marine wildlife tourism sustainability (Hughes, 2001; Sneddon, Lee, Ballantyne & Packer, 2016). Therefore, there is a need for indepth knowledge of other attitudinal traits, such as those measuring individuals' ethical behaviour and moral values concerning animal welfare and rights. Likewise, a further understanding of which other personal and socio-psychological characteristics, such as the importance they attached or their preferences toward the features and attributes of the tourism experiences, would also be helpful to explain tourist heterogeneity. Moreover, research in DCE still needs to identify social preferences or estimate WTP for environmentally responsible action plans or innovative management measures in nautical tourism, particularly regarding the whale-watching industry.

Sustainability and Corporate Social Responsibility

Sustainability is an ethical concept based on the interaction of environmental, economic, and social development (Hoarau, 2012). It also calls upon the moral responsibilities and obligations of individuals and organisations (Thiele, 2016).

In the tourism context, the notion of sustainability has prompted a large body of literature focusing on the sustainable strategic planning and development of tourist destinations, as well as on the role of firms to achieve it (Asmelash & Kumar, 2019; Byrd, 2007; Moneva & Ortas, 2010). Sustainable tourism is understood as tourism development that aims to reconcile the provision of economic benefits from tourism and tourists' needs with the preservation of destinations' ecological and socio-cultural integrity (Getz & Timur, 2012; Poudel, Nyaupane & Budruk, 2016). That is, sustainability constitutes the foundation of

quality and competitiveness in tourism aimed to ensure responsible tourism consumption scenarios for the long term (Ruiz-Ortega, Parra-Requena & García-Villaverde, 2021; Torres-Delgado & Saarinen, 2014).

Promoting environmentally responsible behaviour has become one of the primary goals in the tourism agenda (Kim, 2012). As pointed out in Font, Garay and Jones (2016), it has been found that environmental performance improves economic performance. In this regard, voluntary approaches, namely tourism eco-labels, have boomed in the last decades at different scales -local, regional and international-. Eco-labels are oriented to inform consumers about the environmental impacts of their purchase decisions and address some of the most concerning environmental issues, such as water quality and biodiversity conservation (Sipic, 2017).

In the nautical tourism context, the 'Blue Flag' has become one of the most recognisable and established eco-friendly voluntary certifications on beaches, marinas, and boating tourism operators (Foundation Environmental Education, 2019; Lissner & Mayer, 2020; Sipic, 2017). For instance, Sipic (2017) found that tourists interpret eco-certification as an indicator of high environmental quality, which would enable firms to charge higher prices for their eco-certified services, and differentiate from and positioning over their competitors. In a similar study, Lissner and Mayer (2020) confirmed that tourists would be willing to engage in an eco-labelled whale-watching tour, although this may imply paying more.

Despite the potential advantages of implementing these pro-environmental programmes, sustainable tourism still faces some challenges. On the one hand, it has been assumed that sustainability is just about promoting natural beauty quality and environmental protection to increase business profits. However, to achieve it, long-term economic viability, social well-being and even animal welfare must also be ensured (Swarbrooke, 1999; Fennell, 2013; Lissner & Mayer, 2020). Hence, according to Lissner and Mayer (2020), there is a need for a broader comprehensive scenario based on a 'full-blown' Corporate Social Responsibility approach.

On the other hand, the extended belief that investing in sustainability is expensive and complex. This usually leads to shallow eco-friendly behaviour, where the actions are taken without disturbing the status quo of current practices (Font et al., 2016). Notwithstanding, tourists are becoming more concerned with the environmental -animal- and socially-friendly actions that tourism enterprises undertake, as well as on their own actions (Araña & León, 2020). Thereby, sustainability and corporate responsibility must be seen as part of the firms' raison d'être (Font et al., 2016).

Corporate Social Responsibility (CSR) is understood as the responsibility firms have to undertake with the varied stakeholders that interact in their business and society as a whole (Blinova et al., 2018; Coles, Fenclova & Dinan, 2013). According to González-Morales, Santana-Talavera and Domínguez-González (2021), human resource management, adaptation to change, environmental management, local community development and collaboration with public and private agents are the main areas that configure firms' CSR strategies. That is, CSR is a voluntary approach that leads firms to engage in ethical issues to reconcile the protection of the environment and the wildlife, the safeguard of employee well-being and the satisfaction of consumers with the more traditional issues of profitability and other business concerns (Coles et al., 2013; Font et al., 2016; Font, Bonilla-Priego & Kantenbache, 2019).

In a recent study case, González-Morales et al. (2021) found that nautical tourism firms are environmentally responsible. However, its efforts towards social responsibility management did not positively impact because the sector is highly regulated, and actions are mandatory. On the other hand, some academics have underlined that CSR initiatives still have little effect on practice in whale watching, despite recognising the advantages of implementing them (Bertella, 2019; Hoarau, 2012; Parsons & Brown, 2017). Hereof, how to move from the rhetoric of sustainability into reliable and practical actions remains a challenge in tourism, particularly in nautical tourism and whale-watching activity (Ali & Frew, 2014; González-Morales et al. 2021; Higham, Bedjer & Lusseau, 2009; Lissner & Mayer, 2020; Mihalic, 2016). Besides, further research is still needed to provide quantitative data about the value of CSR initiatives and their impacts, such as by assessing consumer preferences and their willingness to pay for social and environmentally responsible nautical tourism experiences.

Whale-watching tourism

'Whale-watching tourism' involves close encounters with whales, dolphins, and other species of cetaceans in their natural habitat (Hoyt & Hvenegaar, 2002; Mallard, 2019). The activity emerged by the mid-1970s as a tourist educational experience to promote wildlife conservation and counteract commercial whaling (Duffus & Dearden, 1990; Mallard, 2019; Senigaglia, New & Hughes, 2020; Wakamatsu, Shin, Wilson & Managi, 2018).

Whale-watching has been successfully marketed as a non-consumptive and sustainable form of tourism (Mallard, 2019). It is viewed as a good alternative kind of tourism compared to other nautical tourism experiences such as sport or recreational fishing (Mancini, Leyshon, Manson, Coghill & Lusseau, 2020). In this regard, both the human fascination for whales and the social concern for animal welfare and rights has led whale-watching tourism to be one of the fastest-growing nautical tourism industries and consolidate as a big business (Hoyt, 2021; Senigaglia et al., 2020).

In the 1980s there were no more than 12 whale-watching enclaves or countries around the world, a number that reached to over 110 countries and territories in the early 2000s (Hoyt, 2001; O'Connor, Campbell, Cortez, & Knowles, 2009). In 2008, nearly 13 million tourists engaging in the activity. Global whale watching provided over \$800 million in direct expenditures, 2.4 times more if accounting for the total expenditures (O'Connor et al., 2009). In Europe, by that time, figures showed the following: more than 800,000 tourists generated over 28 million euros in direct expenditures (O'Connor et al., 2009).

Whale-watching tours in the Canary Islands and the Azores and Madeira started between the end of the 1980s and the beginning of the 90s (Hoyt, 2011). These three archipelagos constitute, along with Cape Verde, the Macaronesia Region. The three archipelagos have a relevant share of the worldwide and European industry of whale-watching, as it endows the 81.6% of the whale species of the North Atlantic Oceans. The proximity of the animals to the coasts, and the promotion efforts have also enhanced the profile and attractiveness of these archipelagos for the activity (Carrillo, 2007; Hoyt, 2003; O'Connor et al., 2009). Whale-watchers in the Macaronesian Region represent approximately 13.4% of total tourist arrivals, and the activity generates more than 35 million euros in direct revenues (Bentz et al., 2016; IWC, 2020; Krasovskaya, 2017).

The Canary Islands is a great example of the increasing magnitude of whalewatching. The archipelago, particularly the island of Tenerife, is positioned as the second most important whale-watching destination worldwide after the USA, and the first in Europe according to the number of annual tourists carrying out the activity (Servidio et al., 2002; Turismo de Canarias, 2015). In 2017, figures pointed out that 850,000 tourists did whale-watching, providing direct revenues of over 26 million euros, that is, over the figures of all European destinations of 2008 (IWC, 2020).

On the other hand, the Azores is also recognised as a worldwide destination for whale-watching and a successful case about the transition from whaling to whale watching (Neves, 2004; O'Connor et al., 2009; Silva, 2015; Vieira, Santos, Silva & Lopes, 2018). According to O'Connor et al. (2009), the whaling families got involved in the newly developing whale-watching industry, keeping the role of the 'vigias' (whaling look-outs). Nowadays, the whaling history and its cultural heritage constituted an attraction in Azorean whale watching. Thus, more than 59.000 tourists travel to the Azores motivated by engaging in whale observation, growing by over 15% since it started the promotion of this activity (Bentz et al., 2016).

Concerning Madeira, figures are not as significant as its neighbouring destinations. However, the activity has grown significantly in the last decades (Hoyt, 2003; O'Connor et al., 2009). From the 250 whale-watchers recorded in 1998, by 2008, Madeira accounted for over 59.000 tourists engaging in whale-watching, reporting an annual growth rate of 73% (O'Connor et al., 2009).

Despite the large evidence about the socioeconomic benefits of whale watching, there is currently a debate about whether whale watching is genuinely a sustainable tourism activity (Finkler & Higham, 2020; Hoyt 2021). On this subject, Hoyt (2005) pointed out the Canary Islands as an example of a destination failing to reach the minimum standards for sustainable tourism activity. Further, Hoyt (2021) reported that the problem of vessel crowding first appeared in Tenerife by the 1990s, where it was once accounted for nearly 100 boats close to a group of whales and dolphins, many of whom were unlicensed yachts and noisy 'drinking cruises'. In fact, this atmosphere of unfair competition and non-regulation compliance led the industry to decrease the tour prices and the experience quality (IWC, 2020). Hereof, from the tourism management perspective, two critical aspects have jeopardized the sustainability of the overall whale watching in the long term.

First, operators do not welcome the increased mandatory regulations for species protection, leading to their frequent non-compliance and an increase in nonlicensed whale-watching firms (Amerson & Parsons, 2018). However, beyond meeting tourists' expectations and obtaining economic benefits, the sustainable future of whale watching depends on the responsible corporate behaviour of operators (Higham, Bejder & Williams, 2014). As occurs in the nautical sector, well-managed whale watching tourism requires the implication of the different stakeholders -i.e., researchers, conservation agencies, policymakers, non-governmental organisations, and consumers (Bertella, 2019; Hoyt, 2021; Mallard, 2019). Following the example of Tenerife, the destination is currently working toward a sustainable transition, which is really succeeding. The project is holding by the following: the active involvement of the enterprises and the commitment of complying with consented good practices instead of top-down regulations (IWC, 2020). That is, whale-watching regulations should move towards a more collaborative framework with stakeholders (Mallard, 2019).

Second, the increase in popularity of the activity draws the attention of a novel segment of tourists, who place more value on a close-up, prolonged and unrestricted encounter with whales within the context of a typical sailing trip. These tourists often do not appreciate the harmful effects of their behaviour on whales (Higham et al., 2014). In this regard, it is fundamental to consider the educational aspect during the recreational experience because it explains a significant part of the activity's success (Hoyt, 2021). It has been demonstrated that on-board education favours consumers' knowledge and awareness-raising toward whales' protection and enhance the experience and the relationship between tourists and operators (Schaffer & Tham, 2019). In addition, it has also been found that sound education programmes are helpful for tourists to recognise irregular practices and make more informed consumer choices (Bertella, 2019; Finkler & Higham, 2020).

Outline of the thesis

According to the mentioned above, the present doctoral dissertation deeps on the tourist and enterprise behaviour to contribute to breaching some existing gaps in nautical tourism research. Besides, this doctoral dissertation aims to provide sound empirical insights for the nautical sector in general and whalewatching, which will contribute to private and public decision-making to deal with sustainability issues.

This thesis is structured in seven chapters, including the present introduction chapter and a conclusion chapter (see Figure 2). Each chapter corresponds to a specific research challenge within social behaviour research in the nautical tourism sector. Overall, the chapters contribute to the advancement in scientific

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knowledge while providing some adaptive management recommendations for nautical tourism and whale-watching. The first two chapters explore some understudied strengths of nautical tourism to establish as a competitive and sustainable industry. First, the expected choices of tourism consumers for engaging in nautical tourism activities, according to their attitudes toward marine environment care and sensation seeking, are assessed. By offering customised and responsibly sustainable experiences, firms will be able to position themselves in the competitive tourism market. Then, firms' performance and prospects for expansion toward other international markets are analysed. Results show that firms have the potential to expand to other similar competitive nautical tourism destinations.

The following chapters focus specifically on whale-watching as a segment of nautical tourism that has received much attention among scholars in the last decade. Recent interest has been on the debate about the sustainability of the touristic exploitation of whales' populations and the challenges raised by the impacts on their natural ecosystems and animal wellbeing. Moreover, the results of the first chapter about tourists' behavioural intentions into nautical tourism suggested the need for further insights into the whale-watching segment. Thus, the third chapter systematically reviews fifty years of whale-watching tourism and proposes a new sustainability framework for whale-watching research. The results of this chapter highlight the need for further understanding consumer demands. Thereby, chapters fourth and fifth addresses this research gap. The fourth chapter provides insights into how to tailor the whale-watcher segments for the sustainable management of whale watching. On the other hand, the fifth one emphasises the market potential for increasing responsible, sustainable practices in the activity.

Remarkably, this thesis has also supposed a methodological challenge. On the one hand, the literature overview of whale watching consisted of a systematic review based on scientometrics to map the literature at different scales of analysis with the aim to identify the main research trends, current gaps, and future research fronts. On the other hand, chapter four adopted an original and straightforward methodology that combines cluster analysis for segmentation with importance-performance analysis (IPA). Results derived from this methodology are helpful for the industry to overcome the current management practices based on the average customer toward tailored experiences. Finally, to go a step forward in the economic valuation of whale-watching tourism, a discrete

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choice experiment was designed and analysed employing a latent class regression model. This econometric approach is helpful to understand tourists' preferences regarding various measures of responsible sustainability to be undertaken by whale-watching firms.



Figure 2. Thesis research process.

Chapter one of this thesis is focused on the Nautical tourism demand: animal rights, environmental attitudes and sensation seeking. Nautical tourism activities involve different degrees of interaction with the environment and wildlife and different levels of challenge and risk for tourists. Previous literature has attempted to understand some sensations and concerns that move tourists to engage in nautical tourism. However, there is still a vacuum in tourism research concerning tourists' attitudes toward animal welfare and rights. An ordinal logistic model was employed to analyse how the differences between individuals' attitudes and concerns regarding environmental and animal protection and sensation seeking, previous experience and other sociodemographic characteristics explain their interest in engaging in nautical tourism activities.

The second chapter addresses Nautical tourism firms: factors constraining international growth. Sustainability is a fundamental condition for the strategic management of enterprises in terms of competitiveness, positioning, or image. On this subject, internationalisation stands as a key strategical driver of business growth. Despite the highly competitive environment where nautical tourism firms operate, research is still scarce in understanding motivations, attitudes and other business conditions that would conduce firms expand their business from domestic to outbound markets. Thus, in this chapter, factors determining international growth in nautical tourism firms were analysed. The binomial regression was chosen to explain international growth concerning conditions, motivations and differentiating features, and other socio-economic characteristics, namely, the number of employees, owning an internationalisation plan or a patent, and the island where the firm is located.

The third chapter contributes to the state of the art in whale-watching tourism research. As mentioned above, this study systematically reviewed empirical evidence from fifty years of whale-watching research. Sustainability in whale-watching tourism: A critical overview also supposes an advancement in scientific research. A new research focus for the compatibility of the whale watching activity with sustainability is proposed, aimed to provide helpful insights to reconcile diverse interests of tourism with the preservation and enhancement of the welfare of species. This study highlights a need for further research concerning whale-watching consumer demands to deliver tailored adaptive management responses to the industry. These insights motivated the following two studies.

A segmentation analysis of whale-watching tourism demand: reconciling tourists' interests with whale preservation defines the research topic of chapter four. The sustainability of whale watching depends on operators' responsible practices and management. Beyond increasing ecological and environmental impacts on the species, unsustainable practices may lead to a steady decline in tourist satisfaction and destination competitiveness. However, it has been found that there is a need for more sound conclusions for informing sustainable policies at the firm management level. Thus, this chapter is aimed to enable more excellent compatibility between tourists' interests and the sustainability of the activity, assuming that whale-watching tourists are a heterogeneous group exhibiting different levels of interest concerning the wildlife experience. To face this, a segmented IPA was developed.

Chapter five assesses The economic value of sustainable corporate social responsibility in whale-watching tourism, motivated by the need for more responsible, sustainable actions to reconcile whale protection with the various tourist demands, as was underlined in the previous chapter. Precisely, achieving a higher level of sustainability in whale-watching tourism faces the challenge of reconciling the complex relationships between ecosystems and socio-economic systems. However, research is still scant on analysing consumers' preferences for a full-blown CSR approach going beyond environmental issues and including technological innovations to improve the relationship between tourism and the marine environment. Thereby, a latent class discrete choice experiment was utilised to show the differences in preferences and economic value of tourists for sustainable policies in whale-watching practices.

Finally, a chapter with the overall conclusions and limits of this thesis and some guidelines for future research and management prospects for the sustainability of the nautical tourism sector closes this research work.

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CHAPTER NAUTICAL TOURISM DEMAND: Animal rights, environmental

attitudes and sensation seeking

NAUTICAL TOURISM DEMAND: Animal rights, environmental attitudes and sensation seeking

Abstract

Nautical tourism is a major driver for the socio-economic development of coastal and marine tourism destinations. For this sector to be successful, it is fundamental to understand the socio-psychological characteristics of tourism consumers, as this is likely to determine the decisions they make on holiday. This study assesses the extent to which individuals' concerns about animal rights, their environmental attitudes and sensation-seeking behaviour influence their interest in engaging in nautical tourism activities during their holidays. The ordinal logistic model reveals differences between individuals' attitudes and concerns and their interest in jet skiing, whale watching, kayaking, underwater observation, and snorkelling. These differences are concerned with risk seeking and excitement for the more challenging nautical water sports, while those associated with direct wildlife contact - e.g., whale watching and snorkelling - are more about pro-environmental and pro-animal protection attitudes. Results provide valuable insights that can help to ensure the competitive positioning of nautical tourism firms and the industry's sustainable development through customising the tourism offer and enhancing corporate commitment to environmental conservation and animal rights.

Keywords: Nautical tourism; Tourists behavioural intentions; New Environmental Paradigm; Pro-animal attitudes; Sensation seeking.

1.1. Introduction

Coastal and marine environments are magnets for millions of tourists and recreationists worldwide (Leposa, 2020; Lück, 2007). In the last few decades, nautical tourism has been a fast-growing sector within the global tourism industry, with expectations that this trend will continue (Dwyer, 2018; Martínez-Vázquez, Milán-García & de Pablo-Valenciano, 2021; Orams & Lück, 2013).

The success of nautical tourism relies on the quality of marine environments and on the possibility of offering unique experiences that integrate leisure, recreation, navigation and water sports with direct contact with nature (Lück, 2007; Luković, 2013; Martínez, 2020; Orams & Lück, 2013). Explaining nautical tourism demand is a growing area of academic interest because of the changing trends of tourist attitudes and preferences (Carvache-Franco, Carvache-Franco, Carvache-Franco & Hernández-Lara, 2020a). Attitudes towards environmental conservation, animal welfare and risk have become important pulling factors in deciding the demand for nature-based tourism activities, thereby helping to explain the growing complexity of consumer behaviour (Barradas & Ghilardi-Lopes, 2020; Giddy & Webb, 2018; Kline & Fisher, 2021).

Nautical tourism involves a set of activities related to different aspects of the environment, animal welfare, and the level of challenge faced by tourists. As such, most nautical tourism and water sports activities require some physical effort and skill – sailing, surfing, jet skiing, and snorkelling (Lück, 2007). Some of these activities also imply a level of risk, motivated by 'rush' attitudes (Buckley, 2012). However, it has been found that risk may affect human wellbeing: it can cause accidents, e.g., when jet skis are driven at excessive speed (Wilks, 2012), or increase the possibility of injuries, such as when surfing at risky surf breaks in the search of the perfect wave (Marumoto, Guzman, Harris, Vossler & Johnson, 2021).

On the other hand, there are other nautical tourists seeking more passive, or 'soft', exiting experiences, such as those involving direct contact with marine wildlife - i.e., whale watching - or with the environment - i.e., (semi) submarine tours, sunset cruising or visiting marinas (Higham & Lück, 2007; Lück, 2007; Sari, Bulut & Pirnar, 2016). However, these activities are not completely exempt from risk either - although here, the risk involved is directed more at the wildlife itself. For instance, it has been argued that whale-watching tourists sometimes demand close up and prolonged encounters with whales that lead operators to engage in inappropriate

behaviours, impacting on the species biophysical and behavioural patterns (New et al., 2015; Orams, 2000; Parsons, 2012; Senigaglia et al., 2016; Valentine et al., 2004).

However, it is worth asking if tourists really seek out risk, and whether they have genuine environmental concerns or often simply do not care too deeply about animal protection. Thus, there is a need to gain further insight into the attitudes regarding animal welfare, the environment and risk that determine the demand for nautical tourism. This paper employs three different attitudinal scales - *Animal Attitude, New Environmental Paradigm* and *Sensation Seeking* - aimed at explaining whether and how these attitudes influence the level of interest marine recreational consumers have to engage in various nautical tourism activities. Earlier literature has argued that assessing tourists' socio-psychological features, recreational specialisation, previous experiences, and individual characteristics is helpful for characterising and segmenting tourists and potential tourists, and that firms and managers must be sensitive to this (see Jin, Xiang, Weber & Liu, 2019; Litvin, 2008; Pearce & Packer, 2013).

1.2. Literature review

1.2.1. Nautical tourism demand

Understanding the tourist experience has been a significant academic task for decades, with the intention to provide reliable insights to tourism industry management in order to ensure its sustainability and competitiveness (Mayén-Cañavate, Bernal Conesa, Briones Peñalver & Anunciação, 2019; Pafi, Flannery & Murtagh, 2020; Yao, Liu & Huang, 2021). Studies have sought to explain consumer motivations, interest, and preferences and how these aspects influence individuals holiday choices, consumer satisfaction, perceived image, re-visit intentions, and loyalty (Carvache-Franco et al., 2020a; Jovanovic, Dragin, Armenski, Pavic & Davidovic, 2013; Lam-González, León, González-Hernández & de León, 2021; Larsen, Wolff, Doran & Øgaard, 2019).

With regard to the antecedents of consumer choice, Suárez, Zoghbi and Aguiar (2013) reported 'practical lifestyles' (push factor) and 'feelings and affection' (pull factors) as the main factors predicting tourist intentions to practice marine water sports. They also found that past destination choices favoured the practice of nautical activities in their subsequent visits. On the other hand, Lam-González, de León Ledesma and León (2015) identified trip motivation and organisation, and

individuals' perceptions of nautical activities as factors differentiating nautical tourists into 'yachtsmen' and 'water sports practitioners'.

Recent publications (Carvache-Franco et al., 2019; 2020a; 2020b) have also shown that, according to motivational factors, two main tourist segments visit coastal and marine destinations: 'beach lovers' and tourists with 'multiple coastal motivations' - e.g., motivated by the practice of physical activities, and enjoying heritage and nature. Furthermore, the authors noted differences according to some sociodemographic variables and travel career patterns - frequency of visits (Carvache-Franco et al., 2020b).

Studies have also focused on understanding consumer behaviour in particular regard to nautical activities - yachting, sea kayaking, recreational fishing, diving, and whale watching. For instance, in yachting tourism, seeking 'novelty', 'leisure and sport', 'multi-experience', and 'self-realisation' constituted motivational factors defining yachtsmen segments (Yao et al., 2021). On the other hand, O'Connell (2010) pointed out that 'enjoying nature and learning' and 'socialisation' were primary motivations for the practice of sea kayaking, and that the level of experience was a personal aspect influencing tourist's motives. Concerning recreational fishing, Golden, Free and Jensen (2019) discovered that anglers were motivated by quality catches and the possibility of fishing diverse species when deciding to travel to 'exotic' fishing destinations.

'Exploration and excitement', 'socialisation', 'challenges', and 'escape' have been identified as major push motivations for tourists seeking to engage in diving experiences (Akkoç, 2020; Albayrak, Caber & Cater, 2019; Bentz, López, Calado & Dearden, 2016b). Moreover, Thapa, Graefe and Meyer (2005) highlighted that the greater the level of environmental awareness of divers, the higher their level of specialisation. Similarly, tourists engaging in whale watching display differences concerning their motivations and preferences in destination choice, e.g., in terms of destination crowding or the whale-watching operators' commitment to marine wildlife and the environment (Bentz, López, Calado & Dearden, 2016a). Likewise, academics have also identified different whale-watching tourist segments according to their recreational specialisation, among other characteristics (Bentz et al., 2016a; Duffus & Dearden, 1990; Tkaczynski & Rundle-Thiele, 2018).

Therefore, the need to understand the consumers of tourism products has given rise to an extensive number of studies, intending to direct tourism firms towards effective management decision-making, enhance destination image, and favour competitiveness and business internationalisation (Carvache-Franco et al., 2020a; Lam-González, Suárez-Rojas & León, 2019b; Pafi et al., 2020; Yao et al., 2021). However, consumer interests and motivations continuously vary, as do their experiences, perceptions and values (Barradas & Ghilardi-Lopes, 2020; Lam-González, León & de León, 2019a). Therefore, further research is still needed in order to identify the multiple behavioural antecedents determining consumers' desire to engage in nautical experiences.

1.2.2. Sensation Seeking

As mentioned previously, facilitating the appropriate harmonisation between consumers' personality traits and tourism destinations and products is an essential issue in tourism management (Giddy & Webb, 2018; Litvin, 2008; Yao et al., 2021). In this vein, literature has demonstrated that tourists, particularly those engaging in adventure or outdoor recreation activities, are moved to seek risk, thrill, fear, or a rush (Giddy & Webb, 2018; Hoyle, Stephenson, Palmgreen, Lorch & Donohew, 2002; Litvin, 2008). Moreover, it has also been pointed out that the level of arousal is an aspect characterising individuals' different attitudes, behaviours and motives to engage in a particular tourism activity (Galloway, 2002).

The most widely used scale to measure individuals seeking 'sensations' is the (brief) Sensation Seeking Scale (SSS) (Hoyle et al., 2002; Zuckerman, 1971; 1983). The SSS was developed to assess individual differences in the desire and willingness to take physical and social risks and engage in varied, novel, and complex experiences (Zuckerman, 1971; 1979). The SSS aims to characterise the many aspects of behaviour that manifest in this context, including those relating to sensory experience, socialising, and thrill-seeking (Hoyle et al., 2002). According to Fontaine (1994), sensation seeking constitutes the basis of travel motivation. For instance, Pizam, Reichel and Uriely (2001) pointed out that individuals who preferred to participate in extreme sports scored higher on the SSS than those choosing to engage in a leisure trip that included guided tour packages. In addition, extreme sensation seekers are more willing to accept uncertainty and risk in travel to less familiar places (Pizam et al., 2001).

In the context of nautical tourism, it has been found that divers are adventurous individuals who display a great propensity for thrill sensation-seeking (Hsieh, 2007; van Wijk, 2007). On the other hand, the reported motivations for engaging

in sea kayaking identified that level of specialisation was an aspect that influences practitioners regarding their level of sensation seeking. For example, novice kayakers expressed a lower level of motivation for sensation-seeking than advanced, experienced practitioners (Ewert, Gilbertson, Luo & Voight, 2013). With regard to surfing, Diehm and Armatas (2004) suggested that surfers were characterised by higher levels of sensation seeking, according to the dimension 'thrill and adventure-seeking' in the SSS. Likewise, the authors highlighted that personality traits and the motivation to engage in surfing were valuable in differentiating practitioners according to the level of risk they were willing to assume and, therefore, in promoting surfing as a positive risk-taking pursuit (Diehm & Armatas, 2004).

According to the evidence, research is still scarce in defining the level of adventurousness and thrill seeking of tourists engaging in broader nautical activities. Are whale-watching tourists sensation seekers too? Do sea kayakers and jet-skiers seek the same level of arousal? As Eachus (2004) argued, vacation preferences are determined by many personal aspects, one of which is sensation seeking. Therefore, research also needs to assess other psychographic characteristics of tourists and the relationship these have with their interest in getting involved in 'risky and thrilling' nautical activities and water sports (Giddy & Webb, 2018).

1.2.3. New Environmental Paradigm (NEP)

The tourism industry is heavily dependent on natural resources to develop the different activities it provides. In addition to provisioning and regulating, natural resources provide other, less tangible services to tourists in the form of aesthetic appreciation or recreational experiences. These so-called 'cultural services' influence their perceptions and are crucial to their satisfaction and emotional well-being (Pueyo-Ros, 2018; Taff, Benfield, Miller, D'antonio & Schwartz, 2019). In this regard, environmental attitudes are fundamental to understanding how tourists perceive the environment and predicting their behaviour, thus assisting in tourism and environmental management (Giddy & Webb, 2018).

The most commonly employed tool to assess tourists' environmentally conscious behaviour has been the New Environmental Paradigm Scale (Lück, 2003). The New Environmental Paradigm (NEP) (Dunlap & Van Liere, 1978; Dunlap, Van Liere, Mertig & Jones, 2000) measures the human beliefs or attitudes (values) associated with their knowledge about and perception of nature. It especially shows human attitudes for their ability to upset the balance of nature, the existence of limits to growth for societies, and their right to rule over nature (Dunlap et al., 2000; Luo & Deng, 2008). For instance, Uysal, Jurowski, Noe and McDonald (1994), the first to apply the NEP in the tourism context, identified a significant correlation between trip behaviour and environmental attitudes. Uysal et al. (1994) pointed out that individuals who preferred more direct contact with wildlife and nature were more likely to have greater environmental awareness, whereas those who were more interested in organised guided experiences, such as cruise tours, expressed more anthropocentric attitudes.

In this regard, research about tourist' attitudes towards the environment in the context of nautical tourism has largely focused on those activities that engage with nature in a more direct way. Thus, it has been shown that whale-watching tourists possess pro-active conservation attitudes and acknowledge the finite existence of natural resources (Malcolm, 2003; Malcolm & Duffus, 2007). Likewise, Filby Stockin and Scarpaci (2015), who employed a modified NEP scale, revealed that dolphin-watching tourists also have biocentric attitudes towards dolphins and marine wildlife conservation. A recent study confirmed that snorkelers and divers strongly agreed with the biocentric belief statements measuring general environmental value orientations, in contrast with the NEP-anthropocentric statements (Philips, Szuster & Needham, 2019).

With regard to 'consumptive' nautical activities such as recreational fishing, researchers have found that only those anglers expressing a desire to comply with all management directives, or supporting mandatory fishing programmes, had higher environmental values and felt responsible for conservation issues (Mackay, Van Putten, Yamazaki, Jennings & Sibly, 2020; van den Heuvel, Blicharska, Blyth & Rönnbäck, 2020).

On the other hand, some scholars have assessed the environmental attitudes of surfing tourists, as the sustainability of surf destinations has recently gained considerable attention (Larson, Usher & Chapmon, 2018; Moore, 2011; Springwald, Jorge, Ramos & Viana, 2019). Findings show that surfers have mid to high pro-environmental concerns (Moore, 2011; Springwald et al., 2019). Interestingly, they often display greater pro-environmental behaviour than the attitudes expressed suggest they would (Larson et al., 2018).

As shown above, literature has evidenced the environmental attitudes of some specific nautical tourist segments or niches. However, no evidence has been found concerning other high-demand nautical activities such as sea kayaking or jet skiing. These seem to be activities that are practised in nature, rather than experiences which 'consume' nature. As Giddy and Webb (2018) argued, motivational studies concerning these more adventure experiences have been directed more at sensation-seeking attitudes than environmental ones. Therefore, there is a need for research explaining to what extent the higher or lower environmental concerns of tourists determine their interest in engaging in these other nautical activities.

1.2.4. Animal Rights

People have always been interested in animals. As such, animals have been widely used for recreational purposes, from circuses and zoos to ecotourism and wildlife tourism (Fennell, 2011; Orams, 1999). In recent decades, tourist demand to visit and observe wildlife has continued increasing, as has their awareness of and concern about animal welfare (Herzog, Grayson & McCord, 2015; Kline & Fisher, 2021).

Animal ethics theories are necessary for determining the rightness or wrongness of tourism practices to minimise the impact of the tourism industry on animals (Fennell, 2011). Hughes (2001) found that concerns for the environment in general in wildlife-based tourism experiences were not enough to ensure animals' rights and welfare in its practices. In response, some academic attention has led to assessing individuals' ethical behaviour and moral values with regard to animal welfare and rights, when experiencing animal-based tourism (Bertella, 2016; Fennell, 2011; 2012; 2013; Herzog et al., 2015; Kline & Fisher, 2021).

In this respect, the Animal Attitude Scale has commonly been employed in literature aimed at measuring the aspects of humanity's relationship with other species, particularly in regards to general attitudes about animal protection (Herzog et al., 2015). The Animal Attitude Scale (AAS) (Herzog, Betchart & Pittman, 1991; Herzog et al., 2015) assesses the social tendency to engage in animal welfare actively - to 'take action' - and attitudes toward the treatment and use of animals, including for recreation - 'ethics'.

Sneddon, Lee, Ballantyne and Packer (2016) highlighted the need to pay attention to the values that underpin visitor attitudes and behaviour. Values occupy a

significant position in tourists' decision-making, thereby influencing individuals' behaviour. However, and despite the psychometrically robustness of the AAS, little research has focused on the context of tourism to measure tourists' concerns for animal rights and welfare (Herzog et al., 2015). For instance, in an attempt to understand tourists' attitudes toward animal-based attractions, Shani (2009) pointed out that tourists expressed the highest level of agreement that it was the duty of tourist attractions to ensure conservation and animal welfare. They attached great importance to the way animals are treated among diverse animal-based attractions, such as traditional zoos, theme parks with animals, or safari parks.

1.3. Research design

1.3.1. Survey Design and Fieldwork

The questionnaire, which was the main research instrument, was structured into three sections (see SM.1. Questionnaire 1 in Supplementary Material). The first section consisted of a 5-point Likert scale question related to respondents' interest in doing/practising various nautical activities during holiday (1= not interested at all; 5= very interested). Participants were also asked about their previous experience in doing/practicing the selected nautical activities. The second group of questions was dedicated to measuring attitudes towards the environment and animal rights (NEP and the Animal Attitude Scale), and towards risk and adventure sensation-seeking (SSS). On a 5-point Likert scale, tourists were asked about their opinion regarding the natural environment, animal rights (3). The final section focused on socio-economic questions related to gender, age, education level and occupation.

Before the closing survey, a pre-test was conducted to validate the questionnaire's comprehensibility and its effectiveness according to the study's goals. The final fieldwork was conducted through a specialised enterprise on advanced fieldwork for market and consumer studies.

During the fieldwork, participants were filtered according to the following questions:

(1) If they have travelled for holidays in the previous two years.

(2) Which kind of destination they had been to (Seaside/ Beach/ Island destination; Mountain destination; Urban destination; other).

If respondents answered 'No' to the first question and/or answered other options different from 'Seaside/Beach/Island destination' in the second one, they did not continue with the questionnaire.

One thousand and ninety-four European adults (n = 1094) were surveyed at their country of origin. The United Kingdom (UK), Germany and Portugal were the countries selected, as they constitute three of the biggest outbound tourist markets to European marine and coastal destinations.

1.3.2. Data analysis

Data was collected from respondents to fit a model based on identifying the factors determining the overall interest (INTEREST) of individuals in doing/practising the following nautical activities: jet skiing, sea kayaking, whale watching, snorkelling, and underwater observation (semi-submarine tour). The dependent variable of the model - INTEREST, is ordinal. Therefore, the estimation utilised in this study was the ordinal logistic regression approach (Midi, Sarkar & Rana, 2010).

According to the previous studies described above, individual interest in doing/practising one or other nautical activity during the holiday is expected to differ in regards to attitudes towards animals and the environment, adventure-seeking items, and other personal variables - previous experience, gender and age. Table 1.1 shows the explanatory (independent) variables included in the regression.

In order to reduce the number of variables in the regression model, the NEP scale together with the AAS-5 was factor analysed utilising a Principal Component Analysis (PCA) with Varimax rotation. A briefly modified NEP was utilised in this study to assess respondents' biocentric values concerning animal use and its implications. In addition, only three of the AAS-5 statements were included in the analysis - 'it is morally wrong to fish/hunt just for sport'; 'I sometimes get upset when I see animals in cages at zoos or in tanks/ pools at aquariums'; 'the slaughter of whales should be immediately stopped'.

Frequency analysis was utilised to characterise the general profile of the respondents. The data analyses were run using SPSS 26.0.

Variable	Description
Dependent variable	
INTEREST_j (j= Jet ski, Whale watching,	1 to 5 level of interest in the nautical activities (1= not
Kayak, Underwater observation, Snorkel)	interested at all; 5= very interested).
Explanatory variables	
SSE_ Physical risk	1 to 5 level of agreement (1 = totally disagree; 5 = totally agree) regarding <i>I would like to try activities that may involve in some physical risk.</i>
SSE_ Challenge	1 to 5 level of agreement (1= totally disagree; 5= totally agree) regarding <i>I like to face unexpected situations that suppose a challenge for me.</i>
SSE_ Exciting experience	1 to 5 level of agreement (1= totally disagree; 5= totally agree) regarding <i>I would love to have new and exciting experiences.</i>
FACTOR_j (j=1,, 4)	Constructs from PCA measuring environmental and animal welfare concerns through the NEP and various AAS-5 statements (1= totally disagree; 5= totally agree).
PE_j (j= Jet ski, Whale watching, Kayak, Underwater observation, Snorkel)	Previous experience in practising nautical activities (1= never practised; 2= once; 3= between 2- 3 times; 4= 4- more than 4 times)
Age	Continuous variable
Gender	Dummy variable (1= female; 2= male)

Table	1.1.	Description	of the	regression	model	variables.
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As Table 1.2 shows, on average, respondents from the UK (33.6%), Germany (33.3%) and Portugal (33.1%) were middle-aged (mean=44.61; SD= 16.95), with a high level of education, and employed with a yearly income of between 12.000 and $36.000 \notin (53.3\%)$ of the sample). No significant differences were identified within the variables. According to earlier studies, this kind of online surveying delivers a diverse study sample, representing a wide range of sociodemographic backgrounds (see Taff et al., 2019).

Variables	Categories	%		
Sex	Female	49.9		
Age	18-34 years	30.6		
	35-55 years	37.9		
	> 55 years	31.4		
Nationality	English	33.6		
	German	33.3		
	Portuguese	33.1		
Educational level	Bachelor's degree	43.5		
Occupation	Employed for wages	56.5		
Income	12.001 - 36.000 €	53.3		

Table 1.2. Sociodemographic profile	Table	1.2. So	ciodemo	ographic	profile
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n= 1094

In Table 1.3, the average interest of respondents to engage in the study's nautical activities and water sports is shown (measured in a 5-point Likert scale). Whale watching, closely followed by underwater observation and snorkelling, i.e., marine wildlife-based activities, are, on average, the most interesting activities for European marine and coastal tourism consumers to engage in during their holidays.

Nautical activity	Mean	Stand. Dev.
Jet ski	2.73	1.415
Whale watching	3.78	1.181
Kayak	2.78	1.350
Underwater observation	3.43	1.321
Snorkel	2.95	1.420
n= 1094		

Table 1.3. Interest in nautical tourism activities.

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1.4. Results

1.4.1. Factor analysis

Table 1.4 shows the results of the PCA that was applied to reduce the number of variables of the scales included in the model -FACTOR_ j (j=1, ..., 4). The Kaiser-Meyer-Olkin (KMO= 0.872) showed that the sample was factorable, and the significance of Bartlett's test of sphericity (4950.75; p< 0.001) confirmed the adequacy of the analysis. Two attributes of the NEP scale were removed due to their low communalities (<0.3) and factor loadings (<0.5): i) *the Earth has plenty of natural resources if we just learn how to develop them*, and ii) *the Earth is like a spaceship with very limited resources and room for humans and other animal species to live together*. Factor analysis extracted four factors (HUMAN, BALANCE, ANIMAL, CRISIS), explaining 58.0% of the total variance. Cronbach's alpha coefficients indicated acceptable scale reliability for each factor.

The first factor, *Human domination* (HUMAN), includes six attributes, preferably explaining the anti-environmental thrust and rejection of exceptionalism of society (anti-NEP items), i.e., 'nature exists primarily for human use and has no inherent value of its own' (Dunlap et al., 2000). This factor obtained an eigenvalue of 4.56 and explained 28.51% of the total variance. BALANCE factor obtained an eigenvalue of 2.51 and explained 15.62% of the total variance. The attributes included in this *Environmental balance* factor realise humanity's ability to impact nature and disclose the need for a balance, as humans are still subject to its laws.

The third factor includes the three attributes of the AAS-5 concerning the 'use' of animals for recreational purposes or consumption and the NEP attribute indicating that 'humans are severely abusing the animals'. This factor, called *Animal protectionism* (ANIMAL), obtained an eigenvalue of 1.13 and explained 7.09% of the total variance. Finally, the (*Eco-*) CRISIS factor, comprises the two attributes of the NEP focused on the beliefs about the existence of limits to growth for human societies and the possibility of a 6th mass extinction if things continue on their present course. This last achieved an eigenvalue of 1.05 and explained 6.59% of the total variance.

Our results are similar to those of Dunlap et al. (2000) and Luo and Deng (2008), who suggested that the NEP is composed of the following dimensions: human domination of nature or humans over nature (HUMAN), the balance of nature (BALANCE), and limits to growth or eco-crisis (CRISIS). Our factor analysis reported an additional construct (ANIMAL), since various attributes of the AAS-5 scale were included in the analysis.

Factors/ Attributes	Factor loading	Communality	Eigenvalue	% variance explained	Cronbach α	
HUMAN - Human domination			4.56	28.51	0.82	
Humans will eventually learn enough about how nature works to be able to control it	0.75	0.58				
Humans have the right to modify the natural environment to suit their needs	0.74	0.63				
The adaptive capacity of animals is strong enough to cope with the expansion	0.74	0.58				
Human ingenuity will insure that we do NOT make the earth unliveable	0.73	0.65				
The so-called 'ecological crisis' facing humankind has been greatly exaggerated.	0.69	0.52				
Humans were meant to rule over the rest of the animals	0.66	0.53				
BALANCE - Environmental balance			2.51	15.65	0.73	
Despite our special abilities' humans are still subject to the laws of nature	0.77	0.60				
The balance of nature is very delicate and easily upset	0.66	0.61				
Animals have as much right as humans to exist	0.62	0.56				
When humans interfere with nature it often produces disastrous consequences	0.61	0.55				
ANIMAL - Animal Protectionism			1.13	7.09	0.68	
It is morally wrong to fish/hunt just for sport	0.77	0.60				
I sometimes get upset when I see animals in cages at zoos or in tanks/ pools at aquariums	0.73	0.59				

 Table 1.4. PCA of the attributes concerning environmental and animal attitudes.

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Factors/ Attributes	Factor loading	Communality	Eigenvalue	% variance explained	Cronbach α
The slaughter of whales should be immediately stopped	0.57	0.47			
Humans are severely abusing the animals	0.50	0.54			
CRISIS - Eco-crisis			1.05	6.59	0.57
If things continue on their present course, we will soon experience the 6th mass extinction	0.78	0.68			
We are approaching the limit of the number of people the earth can support	0.73	0.57			

Note: KMO measure of sampling adequacy= 0.872; Bartlett's test of Sphericity= 4950.75 (p= 0.000); Percentage of total variance= 58.0%

1.4.2. Ordinal logit model

Table 1.5 summarises the results of the ordinal logistic regression model, explaining the variable INTEREST_j for each of the nautical tourism activities of concern (i.e., jet skiing, whale watching, sea kayaking, underwater observation, snorkelling) and the regression weights that explain it with significant results. The five models are a good fit, according to *Chi*-2 values. A correlation analysis of predictor variables was carried out before running the logistic regression model. All the predictors were positively connected with the dependent variable, INTEREST_j (between 0.1- 0.05 of significance). According to Midi et al. (2010), a correlation matrix is helpful, but not enough to detect collinearity. Therefore, a multicollinearity diagnosis was also run, which confirmed the absence of multicollinearity.

As Table 1.5 shows, the more intense the search for exciting experiences (SSE-Exciting exp) on the part of respondents, the higher the probability of being interested in doing/practising nautical activities. On the other hand, there is a positive and significant relationship between physical risk-seeking (SSE- Physical risk) and the level of interest in nautical activities, except for engaging in whale watching. As Li, Lu, Tsai and Yu (2015) pointed out, individuals characterised by higher levels of sensation seeking may be more likely to be independent tourists instead of individuals undertaking organised tours. Likewise, looking for a challenge (SSE- Challenge) influences the respondents' probability of doing/practising jet skiing ($\beta = 0.226$, p < 0.01), kayaking ($\beta = 0.230$, p < 0.01) and snorkelling ($\beta = 0.192$, p < 0.01) during their holiday. According to Gross and Sand (2019), these 'hard' activities require tourists to have a relatively high level of skill, physical condition, and commitment, and are associated, as these results show, with considerable risk perception. Conversely, 'soft' activities, such as whale watching and underwater observation, require little to no previous knowledge and no particular skills, and the risk is more of a subjective perception that some people have (Gross & Sand, 2019), as occurred, in this case, with underwater observation.

On the other hand, as expected, the relationship between respondents with a greater positive attitude towards animals and nature and an interest in engaging in the whale-watching activity was direct and positive (BALANCE $\beta = 0.420$, p < 0.01; ANIMAL $\beta = 0.210$, p < 0.01; CRISIS $\beta = 0.128$, p < 0.05). Likewise, those who expressed an interest in engaging in a snorkelling experience during their holiday presented a significant positive attitude towards *Animal protectionism* ($\beta = 0.130$, p < 0.05) and *(Eco-)crisis* ($\beta = 0.144$, p < 0.05). Concerning underwater observation, results show that individuals who displayed mid-level environmental concern, i.e., individuals who recognise humanity's ability to impact nature and the need for an *Environmental balance* ($\beta = 0.147$, p < 0.05), were interested in having an underwater experience on their next trip. Conversely, those with high anthropocentric attitudes (HUMAN $\beta = 0.234$, p < 0.01) expressed significant and positive interest in jet skiing. No direct and positive influence was presented between pro-environmental or anthropocentric attitudes and respondents' interest in sea kayaking.

Previous experience in doing/practising a specific nautical activity has a direct and positive influence on respondents' interest in doing this same activity on their next holiday. This is consistent with earlier findings in the nautical tourism context (Lam-González et al., 2015; O'Connell, 2010). Likewise, having done snorkelling before positively influences respondents' interest in sea kayaking or engaging in an underwater observation experience. However, having done whale watching before directly and negatively affects respondents' interest in other nautical activities, i.e., jet skiing ($\beta = -0.321$, p < 0.01), kayaking ($\beta = -0.170$, p < 0.05), underwater observation ($\beta = -0.180$, p < 0.05) and snorkelling ($\beta = -0.199$, p < 0.05). These findings could be explained based on the following: whale-watching tourists may not seek out (hard) experiences that challenge their perception of risk or could give rise to some unexpected situations (Gross & Sand, 2019).

With respect to age, as expected, the younger the individual (significant negative relationship), the greater their interest in engaging in nautical activities, i.e., jet skiing, kayaking, underwater observation, and snorkelling. On the other hand, there is a significant positive relationship between gender (women) and an
interest in whale watching on holiday ($\beta = 0.523$, p < 0.01). According to Stipanović, Rudan and Zubović (2019), women generally prefer to opt for 'softer' tourism activities. In this vein, there exists considerable debate regarding the assumption that women have a more developed ethic of care ('eco-feminism') that is reflected in the context of tourism and women's interest in animals (Fennell, 2012; Bertella, 2016; 2019).

	Jet s	ki ^a	Whale watching ^b		Kayak ^c		Underwater observation ^d		Snorkel ^e	
Variable	β	Wald St.	β	Wald St.	β	Wald St.	β	Wald St.	β	Wald St.
SSE- Physical risk	.406**	44.11	.114	3.46	.481**	61.33	.195**	10.56	.315**	26.48
SSE- Challenge	.224**	11.82	.008	.018	.233**	12.90	.095	2.23	.184**	7.96
SSE- Exciting exp.	.222**	11.36	.380**	34.97	.324**	24.15	.371**	34.17	.205**	9.89
HUMAN	.220**	12.59	084	1.85	.001	.001	017	.081	.087	1.97
BALANCE	0004	.005	.417**	49.15	.022	.139	.185**	10.10	.088	2.19
ANIMAL	021	.125	.166**	8.48	.007	.014	.042	.562	.137*	5.57
CRISIS	034	.349	.139*	5.95	.013	.047	.072	1.62	.160**	7.65
PE- Jet ski	.736**	71.32	.041	.227	.117	1.94	.002	.000	121	2.03
PE- Whale watching	342**	17.53	.363**	19.90	174*	4.74	194*	6.06	218**	7.31
PE- Kayak	.051	.342	031	.129	.603**	46.88	070	.651	.099	1.30
PE- Underwater	026	.106	.062	.597	087	1.16	.578**	49.62	.115	1.98
PE- Snorkel	.019	.082	.018	.075	.150*	5.41	.182**	7.98	.996**	195.41
Age	031**	68.50	.000	.000	028**	59.14	015**	18.24	027**	55.15
Gender- Female	163	1.89	.523**	19.60	.169	2.04	.142	1.51	021	.031

 Table 1.5. Ordinal logit model estimations about the interest in engaging in nautical activities.

Note: a. Log likelihood: X²= 581.40; Sig = 0.000; Pseudo R²: Cox & Snell= .412; Nagelkerke=.431
b. Log likelihood: X²= 226.96; Sig = 0.000; Pseudo R²: Cox & Snell= .187; Nagelkerke=.199
c. Log likelihood: X²= 601.93; Sig = 0.000; Pseudo R²: Cox & Snell= .423; Nagelkerke=.442
d. Log likelihood: X²= 321.68; Sig = 0.000; Pseudo R²: Cox & Snell= .255; Nagelkerke=.267
e. Log likelihood: X²= 623.54; Sig.= 0.000; Pseudo R²: Cox & Snell= .434; Nagelkerke=.453
*p<0.05; **p<0.01

1.5. Discussion

Individuals make decisions about their holidays according to certain personal aspects - motivations, preferences, attitudes, previous experiences, and sociodemographic characteristics - and in search of various degrees of stimulation and sensation (Barradas & Ghilardi-Lopes, 2020; Carvache-Franco et al., 2020a; Giddy & Webb, 2018; Higham & Lück, 2007; Kline & Fisher, 2021; Lück, 2007; Sari et al., 2016). However, their choices are sometimes unpredictable, as they are influenced by other values, perceptions, and concerns (Barradas &

Ghilardi-Lopes, 2020; Eachus, 2004), and are continuously changing because of social, environmental and cultural factors. Nonetheless, little research has focused on analysing individuals' concerns toward animal rights and the environment in combination with other attitudes related to the quest for adventure and risk experiences (Bjerke, And & Kleiven, 2006; Eachus, 2004). Therefore, the present study is original in explaining the extent to which the various key attitudinal characteristics of marine tourism consumers - toward animal rights, environmental concerns, and risk/thrill seeking - influence their interests in nautical tourism.

The earlier study of Bjerke et al. (2006) analysed the relationships between the interest of the Norwegian population in outdoor recreation and their environmental attitudes. Interestingly, the results of Bjerke et al. pointed out that analysing only individuals' environmental attitudes (through the NEP) was insufficient for predicting their interest in undertaking outdoor activities, thus suggesting there were other variables missing in their model. The present article is the first to examine the relationships between the personal characteristics and attitudes of European coastal and marine tourists and their interest in engaging in nautical activities. It also provides evidence on the demand for some understudied nautical activities and water sports, such as jet skiing and underwater observation.

The results deliver meaningful findings that may contribute to the sustainable management of nautical tourism (Carvache-Franco et al., 2020a; Jovanovic et al., 2013; Lam-González et al., 2021; Larsen et al., 2019). The evidence is consistent with earlier studies confirming that the higher the level of tourists' environmental concerns and biocentric attitudes, the stronger their interest in having direct and close up experiences with nature and marine wildlife (Filby et al., 2015; Luo & Deng, 2008; Philips et al., 2019). Similarly, the higher the proclivity for taking risks and having challenging experiences, the greater the interest in engaging in tourism activities requiring some level of skill, physical condition or commitment (Ewert et al., 2013; Hsieh, 2007; Pizam et al., 2001).

In contrast to Giddy & Webb (2018), the findings in this paper show that adventurous tourists do hold some significant and positive environmental attitudes. This is particularly the case for tourists interested in snorkelling, as opposed to those interested in jet skiing, who show higher levels of anthropocentric values. Beyond seeking risk, new challenges and excitement, the

former show the highest level of concern for animal rights. Therefore, snorkelling and diving clubs could adjust better to tourists' needs by providing thrilling experiences full of adventure that are also sustainable. To this end, the encouragement of marine environment and wildlife preservation in the nautical sectors is an opportunity to enhance market profile. For instance, active diving campaigns focusing on 'cleaning the oceans' or accompanied by some environmental education programme could be offered.

For tourists demanding the underwater observation activity, the pursuit of sensation-seeking experiences plays a similar role than for tourists interested in snorkelling. However, in contrast to 'snorkelers', the environmental concerns of tourists interested in underwater observation are more similar to marine aquaria visitors (Cater, 2010). Cater (2010) found that marine aquaria visitors' attitudes were not much more environmentally oriented than the general population. According to Moscardo (2000), despite engaging in marine wildlife experiences, not all tourists are necessarily concerned with wildlife (Moscardo, 2000). Therefore, besides providing an exciting nautical experience, the underwater observation activity faces the challenge of raising visitors' wildlife and environmental awareness. An interactive underwater experience supported by technological innovation would facilitate a suitable strategy for this objective.

Whale watching is, on average, the activity that garners the most interest among tourists to coastal regions. This finding is consistent with Ballantyne, Packer and Sutherland (2011) and Moscardo (2000), who argued that marine mammals are the species that attract tourists the most to wildlife-based nautical activities. Moreover, the higher the environmental and pro-animal protection concerns, the greater the interest in whale watching. In addition, as Filby et al. (2015) pointed out, whale-watching tourists are generally aware of environmental issues and do not want to impact species negatively. Therefore, whale-watching firms should work toward a corporate commitment to animal welfare and rights to ensure responsible wildlife encounters, thus meeting tourists' biocentric concerns (Jones & Comfort, 2021).

In line with the evidence, and considering that nautical tourism is a multifunctional tourism segment (Luković, 2013; Martínez-Vázquez, 2020), understanding consumers' interests and concerns will enable firms and decision-makers to improve and customise the tourist offer. In this way, they can provide the industry with the opportunity to position itself favourably within the

competitive tourism market, encourage sustainable development, contribute to the health and resilience of marine environments, and ensure the welfare of wildlife (Lam-González et al., 2019b; Larsen et al., 2019; Pafi et al., 2020).

1.6. Conclusions

The present study provides the first approach in nautical tourism research that assesses how animal rights concerns and environmental attitudes combine with thrill and adventure seeking to explain tourism consumers' interest in engaging in nautical tourism activities and water sports during their holidays. Understanding the tourism demand is relevant because there is a great potential for growth in human wildlife interaction and wildlife-based activities (Moscardo, 2010). According to the literature, holiday decisions and preferences are determined by multiple socio-psychological characteristics, personal values and other factors that go beyond the mere quest for experiences that still need to be explained to predict tourists' interests (Bjerke et al., 2006; Eachus, 2004; Giddy & Webb, 2018).

The results highlight a direct relationship between individuals seeking risk, challenge, and excitement and their interest in engaging in 'hard' nautical water sports (i.e., jet skiing, kayaking and snorkelling), which is consistent with previous findings (Ewert et al., 2013; Hsieh, 2007; Pizam et al., 2001). On the other hand, individuals' high pro-environmental and pro-animal protection attitudes directly influence their interest in engaging in marine wildlife-based nautical activities such as whale watching and snorkelling. However, the activity of underwater observation does not seem to attract tourists concerned with environmental or animal issues, which is more in line with results obtained for marine aquaria visitors (Cater, 2010).

Regarding socioeconomic variables influencing nautical demand, age had a negative relationship with interest in engaging nautical activities, i.e., higher demand was demonstrated amongst younger individuals. On the other hand, regarding gender, it was observed that women are more interested in whale watching. This result is consistent with earlier studies, which have pointed out that women have a higher ethic of care toward animals (Fennell, 2012; Bertella, 2016).

The results allow the industry to have reliable insights for enhancing the competitive positioning of nautical tourism firms in the market, thereby contributing to sustainability. In response, firms are encouraged to provide

thrilling and adventurous tourism experiences without neglecting responsible and ethical management aimed at environmental protection and animal rights and welfare.

More in-depth research would be necessary concerning other attitudinal and behavioural issues in order to take advantage of the changing needs, values and culture of prospective nautical tourists. In addition to providing more tailored tourism experiences, this strategy would also help firms in the pursuit of a higher international profile by expanding products and services to a larger range of consumers from different geographical source markets. Likewise, there would be need of a larger sample of tourists from different outbound markets that would enable a segmented analysis to be conducted in order to identify heterogeneous differences among individuals. Future research should also assess tourists' experiences at destinations post-holiday in order to evaluate service quality in terms of the distance between expectations and performance.

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CHAPTER NAUTICAL TOURISM FIRMS:

Factors constraining international growth

NAUTICAL TOURISM FIRMS: Factors constraining international growth

Abstract

In tourism, entrepreneurial internationalisation is considered a measure of the development of the industry and a key driver of innovation, competitiveness, and image enhancement. In nautical tourism, research is still scarce in terms of supporting business' internationalisation. This paper analyses factors constraining the international growth of island-based nautical tourism firms. Results provide up to date information about current conditions and barriers to the internationalisation process within nautical tourism. It also identifies the profile of the firms with the best international performance. The study is of great usefulness for the industry as it guides the areas requiring special attention to enhance those social, environmental, and economic conditions of nautical tourism firms that ensure sustainable international growth. Moreover, it helps policymakers of island destinations seeking specialisation and positioning within the international nautical tourism for internationalisation, thus contributing to increase tourism competitiveness. Finally, the study highlights the importance of fostering wider cooperation among islands with common interests in nautical specialisation and the challenges for tourism management.

Keywords: Internationalisation; Nautical Tourism; Islands; SMEs; Tourism Competitiveness; Sustainability.

2.1. Introduction

Studies focused on explaining business internationalisation have contributed significantly to the tourism sector, especially to formulate better marketing strategies and positioning of companies in an increasingly competitive environment (Eusébio & Vieira, 2013). Despite the extensive knowledge generated, there is still no consensus on the businesses' conditions and capabilities that guarantees their international success and on a sound methodology for evaluating and measuring business internationalisation (Borda, Geleilate, Newburry & Kundu, 2017; Westhead, Wright & Ucbasaran, 2001).

Tourism enterprises, particularly nautical tourism firms, operate in a highly competitive environment searching for tourists attracted by its features, e.g., from the magnificent diversity of whales and dolphins of its waters to the on-board last generation equipment for sailing or recreational fishing activities. In this scenario, the undertaking of internationalisation strategies may raise firms' opportunities to work towards sustainable development by focusing on those attributes that are more capable of nourishing their image within the global market and are relevant to face competitors out of their natural environment (Schnitzer, Seidl, Schlemmer & Peters, 2018).

As far as nautical tourism is concerned, there is scarce literature that aims to support internationalisation strategies. It is not possible to provide valuable recommendations to nautical enterprises that guarantee the efficiency in the use of resources dedicated to international growth. More specifically, to date, it is still not possible to explain to what extent the possession of marketing and internationalisation plans benefit the internationalisation processes of nautical tourism firms. Also, there is limited knowledge on the likely influence of factors of socio-psychological nature -i.e., motivations and attitudes, that have been widely investigated as determinants of business expansion in other tourism segments (Agndal & Elbe, 2007; Bianchi, 2011; De Correia, Lengler & Mohsin, 2019; Leandro, 2009; Rivera Mateos, 2010; Wood, Logar, Riley & William, 2015).

Therefore, the present study aims to analyse factors determining international growth in small and medium enterprises (SMEs) dedicated to nautical tourism activities. The study also identifies regional differences regarding firms' conditions and capacities for internationalisation. Results are helpful for nautical tourism planning, especially for coastal and island destinations seeking to make nautical tourism a key driver for competitiveness, resilience, and positioning improvement.

That is, this study provides empirical evidence on the international performance of nautical tourism SMEs that can be useful for better predicting success in future investments and the design of proper incentive mechanisms for internationalisation in nautical destinations.

The research focuses on the Macaronesian Region, where a sample of 60 companies located in six different islands with a high nautical specialisation is used. In this sense, the research subject of this article is concerned with the contribution that earlier nautical tourism SMEs' individual experiences in competing islands destinations has on the identification of synergies and areas where destinations may be able to work together, i.e., coopetition. The international success among nautical tourism firms will enhance the image of the nautical enterprise itself and promote the successful management strategies of their destinations to increase regional competitiveness and sustainability (Rusko, 2013).

2.2. Literature review

2.2.1. Nautical tourism in the context of tourism development challenges and sustainability

Nautical tourism encompasses a broad and growing spectrum of activities related to the sea (Luković, 2013). In literature, nautical tourism has been defined as a tourist activity carried out at sea and linked to navigation, with boats being a leisure vehicle rather than a mean of movement, and where ports and marinas are conceived as platforms for housing the recreation activities of the tourists on land (Blommestein, 2004; Dragin, Pavic, Davidovic, Jovanovic & Armenski, 2011; Kovačić & Favro, 2012).

The evolution of the industry and the constant changes in tourist preferences and travel motivations have modified the initial definition towards a broader approach (Vera-Rebollo & Baños Castiñeira, 2010; Sotomayor & Barbieri, 2016; Van der Merwe, Slabbert & Saayman, 2011). The concept most used today defines nautical tourism as a multifunctional tourist segment (Jennings, 2007; Luković, 2007; 2013) where leisure, recreation, and the practice of sporting activities in the marine environment are the main motivations for travelling (Ferradás Carrasco, 2002) and where tourists can do other activities, such as enjoying the beach, the coastal landscape, or the cultural offer of the destination (Besteiro, 2004).

Nautical activities have considerable qualities for socio-economic development. The generation of stable and qualified employment, its easy complementarity with the traditional tourism offer, its attenuating effect on seasonality, and its impetus to the qualification and diversification of coastal infrastructure and technological innovation are only some attributes that support this statement (Landaluce, 2012).

Thanks to its potential, nautical tourism stands out as a key sector for the sustainability of many coastal and island destinations highly dependent on tourism activity, especially sun and beach tourism products (Pérez Labajos et al., 2014; Twining-Ward, 2010). While tourism development challenges of several destinations are aimed at the nautical sector, there is not enough available data, studies, and information (ECORYS, 2013; European Commission, 2014; Sotomayor & Barbieri, 2016). It is argued that research related to this segment is scarce when compared with the figures of actual and expected economic growth of the activity (Jovanovic, Dragin, Armenski, Pavic & Davidovic, 2013).

From the point of view of the offer, the nautical tourism industry encompasses all companies that offer sports and/or recreational activities at sea, either on the surface or underwater, on beaches and in ports, marinas, or other nautical facilities (Gómez Javaloyes, 2012; Rangel et al., 2015; Van der Merwe et al., 2011). The success of nautical destinations is highly dependent on the good health of the coastal and marine ecosystems and the existence of specialised companies with international prestige and high-quality products and services that benefit the nautical tourist experience (Pereira, Mascarenhas, Flores & Pires, 2014). Therefore, nautical destinations seeking positioning and sustainable development are also aware of the importance of business internationalisation as a means for value creation.

The present research focuses on analysing factors determining the international growth of nautical tourism enterprises. To this end, and following (Van der Merwe et al., 2011), the sector has been defined as the group of tourism-based organisations specialised in a broad spectrum of maritime activities such as sailing, sport fishing, whale watching, diving, row and board sports and jet skiing. According to earlier research, cruising activities are not included in nautical tourism since the contact of the tourist with the sea is circumstantial (Diakomihalis, 2007; Garau-Vadell, 2005; Mikačić, Horak, Marušić & Krešić, 2006, Wild & Dearing, 2000).

2.2.2. Internationalisation in hospitality and tourism

The international economy is continuously changing. The irrelevance of territorial boundaries, markets' globalisation, new sources of communication, and the new trends in consumer demands push companies to continuously expand their business towards several destinations (Fletcher, 2001; Kubíčková, Votoupalová & Toulová, 2014; Wang, Liu, Zhu & Wang 2018). Along these lines, internationalisation is an opportunity to work towards sustainable development for several tourism enterprises seeking to survive within the increasingly competitive environment they are in (Eusébio & Vieira, 2013).

Internationalisation is understood as the company's bridge to the markets outside the natural geographical environment. An internationalised company presents a lower financial risk, is less vulnerable to internal market crises, and generally has higher levels of profitability, which makes it more competitive (Dunning, 2015; Johanson & Wiedersheim-Paul, 1975; Scherer, Minello, Krüger & Rizzatti, 2018; SIECAN, 2017). In addition, internationalisation multiplies commercial and financial flows, positively affects other economic activities and promotes the exchange of knowledge and good practices between the different regions and/or countries involved (Leandro, 2009; Martín González, 2015). In tourism, the benefits of internationalisation are also associated with the positioning and prestige of the brand and the search for diversification of companies (Bianchi, 2011; Dunning & Kundu, 1995; PwC España, 2017).

With regard to nautical tourism, it can be highlighted especially those firms that sell nautical experiences or are involved in the management and exploitation of ports and marinas (SEGITTUR, 2017). These are the cases of Nautal, a digital collaborative platform; Portbooker, a company considered the largest mooring reservation centre in the world and PETER Diving System, defined as one of the most secure, comfortable, light weight and environmental-friendly diving system (Anen, 2017).

The success of an internationalisation process is conditioned by a series of environmental factors and by several attributes (that is, the capabilities, conditions, and attitudes) that are within the control of the tourism enterprises (Berbel Pineda, 2008; Leonidou, 2000; Reijonen & Komppula, 2007; Scherer et al., 2018), thus depending on a greater extent on business advances in innovation and competitiveness, as well as on business collaboration and networking (Buckley, 1993). That is, internationalisation success depends on those strengths

and weaknesses of the business strategy that guarantee the sustainability of the sector.

Despite its significance, very scarce research has been conducted to determine the likely influence of factors of a socio-psychological nature (i.e., motivations and attitudes) and some business features on firms' decisions to expand their business from domestic to outbound markets (De Correia et al., 2019; Wood et al., 2015). The following sub-sections summarise the review of literature on the study of factors explaining international growth and success of tourism-based SMEs, with particular attention to empirical studies which have been undertaken in nautical destinations.

2.2.2.1. Business features

In the case of nautical tourism, it has been demonstrated that enterprises with training programmes for highly qualified staff are more likely to be successful in international expansion processes (Buckley, 1993; Holmlund & Kock, 1998; Hutchinson, Alexander, Quinn & Doherty, 2007; Leandro, 2009; Leonidou, 2000; Terziovski, 2003). In addition, the accumulated experience in the organisation of international events, such as sailing, racings or sport fishing tournaments, or the participation in international trade fairs and boat shows are found to have a positive relation with international growth (Agndal & Elbe, 2007; European Commission, 2015; Holmlund & Kock, 1998; Hutchinson et al., 2007; ICEX, 2016; PwC España, 2017; Terziovski, 2003).

Also, having sufficient financial capacity and/or have received public subsidies, loans, or capital from external shareholders (Bianchi, 2011; ICEX, 2016; Leonidou, 2000; PwC España, 2017) are also considered features of those companies with very good standing all over the world. This kind of external support helps nautical firms overcome obstacles such as legal regulations, lack of capital and information on cultural and language differences (Sommer, 2010). As Hutchinson et al. (2007) concluded, business networks and government assistance are important for SMEs as they support the choice of foreign markets and provide information on international business operations.

However, there is no evidence on how the possession of marketing and internationalisation plans and customer satisfaction surveys impact the international performance of tourism-based SMEs dedicated to nautical activities, which is investigated in the present paper. These features have been found with positive relationships with international growth and success in other business segments. According to Agndal and Elbe (2007) and Leandro (2009), the possession of marketing plans and customer satisfaction surveys are considered basic tools that allow tourism companies to measure their innovative capacity and the value that the marketplaces on their products and services on the one hand, and effective support for the internationalisation process, on the other hand. Finally, having an internationalisation plan allows the tourism company to have a clear idea of the expected positioning, as well as identify attractive investment destinations and their characteristics, risk and profitability, competition, language, and the barriers and opportunities they provide (Agndal & Elbe, 2007; Bianchi, 2011; Cámara de Comercio de España, 2017; Leandro, 2009; Leonidou, 2000).

2.2.2.2. Motivations

Limited research has been conducted to determine the likely influences of motivations of tourism-based SMEs' owners to expand their business models abroad on firms' international performance. In this regard, motivations can be grouped into 'push' and 'pull' factors (Onkelinx & Sleuwaegen, 2008; Treadgold, 1988). Concerning push factors, literature has been able to demonstrate that the desire for diversification (i.e., different portfolio of products and services) and the search for greater profitability and brand prestige are the main motivations of tourism-based firms to expand their business abroad (Agndal & Elbe, 2007; Cámara de Comercio de España, 2017; European Commission, 2015; ICEX, 2016; Leandro, 2009; Martín González, 2015).

In addition, the social networks where the firms are involved and the proactive behaviour of their owners are recognised as catalysts and facilitators for SME's international expansion within the tourism industry (De Correia et al., 2019; Hutchinson et al., 2007). That is, the interests and personal goals of the businessman are crucial to explaining why and how the company engages in international activities and, particularly, how the dynamic nature of such activities can be conceptualised (De Correia et al., 2019).

Regarding pull factors, the concept of 'psychological distance' introduced by (Johanson & Wiedersheim-Paul, 1975) is particularly relevant. The entry of a firm to the international market tends to occur through the market or country psychologically closest to the company's country of origin. This means that the company will always choose at first those markets that have a shorter psychological distance until progressively entering markets that are further away. Once the international experience is acquired, the company will base its investment decisions on other factors such as the size and economic conditions of the market that it wants to enter (Bianchi, 2011).

Nevertheless, these relationships have not been verified for the case of the nautical segment. This study, therefore, explores the impact of motivations of SMEs owners on the international growth of their firms. For this research, only push motivations are considered. That is, those aspects that are related to the desire of the entrepreneur to expand internationally, without considering some external environmental aspects, such as market preferences and accessibility (Hutchinson et al., 2007).

2.2.2.3. Differentiation

Differentiation is a key element for the sustainability of tourism enterprises and destinations. Several challenges need to be faced by tourism managers and marketers given the limited budgets, lack of overall product control, highly competitive and political environments, which force them to work towards brand recognition and saliency to gain competitive advantages (Thrane, 2008). To this end, i) the development of emotional relationships with consumers (Thrane, 2008), ii) the search of outstanding products, services, and highly qualified staff (Burt & Mavrommatis, 2006; Hutchinson et al., 2007), iii) competitive prices (Dunning, 2015; Leonidou, 2000), iv) the constant search for innovation in their business model (Leandro, 2009; Martín González, 2015), and v) the highly choreographed and focused communication campaigns are strategies that managers usually undertake (Leonidou, 2000; Martín González, 2015). Thus, differentiation means the consolidation and strengthening of the brand, intended to a well-defined market or a specific customer segment, all of which contribute to ensuring consumers' satisfaction, long-lasting relationships, and the sustainability of the industry (Hutchinson et al., 2007).

Along these lines, the search for brand identity is found as a driving force behind the international expansion in tourism. It motivates the enterprises to take a proactive decision to respond to foreign market opportunities for a better positioning than their competitors (Hutchinson et al., 2007). Meanwhile, other key differentiating aspects -such as competitive prices and high qualified staffleading to competitive advantages have not been investigated in relation to international growth (De Correia et al., 2019). Therefore, the following hypothesis is investigated in the present study for the case of nautical tourism firms: whether the successful management strategies of tourism enterprises to promote differentiation, in its various dimensions, leads to higher international growth.

Additionally, literature states that the possession of patents and capital investments from foreign companies lead to competitive advantages of tourism companies, thus contributing to international growth (Buckley, 1993; Cámara de Comercio de España, 2015; European Commission, 2015; ICEX, 2016). This suggests that larger companies show a more positive international performance thanks to greater resource availability (Agndal & Elbe, 2007; Bianchi, 2011; Buckley, 1993; Leonidou, 2000; Lu & Beamish, 2001). Therefore, the size of the firm is another factor influencing the internationalisation process (Bowen, 2019), being the smaller enterprises the ones with lower probability to export (Sommer, 2010), a statement that has not been verified for the case of the nautical segment.

Finally, as tourism management largely depends on managers (Thrane, 2008), it is expected that entrepreneurs' attitudes and disposition towards international growth favour the internationalisation processes of their organisations, as well as the high sense of belonging and organisational culture of the company's staff. The latter is a key differentiating aspect that ensures the international success of tourism businesses, according to the researches of Cámara de Comercio de España (2015) and ICEX (2016). Thereby, this aspect is also considered in this paper, as there is no evidence on the impact that motivations and attitudes of firms' owners have on the international performance of nautical enterprises.

2.3. Research design

2.3.1. Study area

In Europe, the nautical tourism industry is mainly composed of SMEs with a very favourable international projection and recognised entrepreneurial skills in exports, inside and outside the European Union, especially towards United States, Asia, and/or Russia (European Boating Industry, 2016). In this scenario, islands destinations rely heavily on the foreign exchange of maritime activities to expand and develop their economies, and their seaports play a crucial role within the European maritime economy, acting as transportation hubs. Moreover, EU islands and archipelagos are the most important regions in Europe in terms of international tourism arrivals and the pursuit of nautical activities (Machado, 2012).

More specifically, the archipelagos of the Macaronesian Region –the coalition of five archipelagos in the North Atlantic Ocean off the coast of the continents of Europe and Africa, thanks to their biogeographic and socioeconomic similarities, have promoted maritime tourism development as a source of wealth and sustainability for their coasts during the last decades. It is recognised that the nautical industry plays a fundamental role in promoting innovation and economic growth in the region (European Commission, 2015; Landaluce, 2012; Rebollo & Castiñeira, 2010). Therefore, it can be suggested that the nautical tourism organisations of the islands of Macaronesia are a good representation of the nautical industry.

In line with this, the target population of the study was defined as the group of enterprises that conform the offer of nautical products, services, and experiences in the Macaronesian Region. Cruising activities and companies that sell accessories and nautical equipment, maintenance and repair of boats or other infrastructures were not included. Three of the five archipelagos of the Macaronesia were chosen; the Canary Islands, Madeira, and Cape Verde, because of their relevance in the offer of activities related to nautical tourism (Lam-González, León & de León, 2017).

The Canary Islands are considered a tri-continental platform for economic relations between Europe, Africa, and America, motivated mainly by their geostrategic situation (Martín González, 2015). Many tourist companies in the archipelago have internationalised, especially in the areas of accommodation, hospitality and catering, consulting, or transport. Within the nautical tourism industry, the companies of the Canary Islands are identified by their maturity, extensive knowledge of the sector and wide experience in participating in international events (Gobierno de Canarias, 2013; Martín González, 2015; SEGITTUR, 2017). Madeira stands out for its experience in organising high-profile sporting events such as international sailing races (ICEX, 2019). Finally, although the business sector dedicated to nautical tourism in the Cape Verdean islands is small, it is a favourite destination for sailing and the practice of sport fishing thanks to its strategic geographical position between the European and American continents (Twining-Ward, 2010).

2.3.2. The proposed model

In this paper, a universal model of causes of international growth of SMEs is proposed, thus validating a more holistic approach in explaining internationalisation within the nautical sector. That is, the present research focuses on analysing the interrelation between the international growth of nautical tourism firms and several factors, ranging from the business features (i.e., attributes that are under the control of tourism managers), to other variables of socio-psychological nature, such as motivations and attitudes of SME's managers in respect to the internationalisation subject and perceptions about distinctive features of their organisations.

The starting point was the consideration that there are basic attributes and conditions of nautical enterprises that favour their international growth and success. In this sense, the model includes variables such as i) the possession of marketing plans, ii) customer satisfaction surveys, iii) staff training plans, iv) experience in the participation/organisation of international events, and v) having received capital injections or public subsidies, among others (see Figure 2.1). All these variables are measured in the same way (take value 1 if the company has the condition, and 0 if not) and can be grouped into a construct named COND-basic conditions for internationalisation (see Table 2.1).

Secondly, it is estimated that the international growth of the company depends on its ability to differentiate from the competition, which we have called differentiation factors (DIF). Along these lines, it is expected that those companies defining themselves as innovative, with competitive prices, a high sense of belonging and nautical culture show greater international performance. Thirdly, considering that motivation is an important antecedent of successful international growth in tourism (Agndal & Elbe, 2007; Leandro, 2009; Martín González, 2015), it is expected that nautical tourism firms with foreign investments are the ones giving more importance to motivational aspects (MOT) as shown in Table 2.1. In this model, the endogenous variable refers to the international growth of the firm (variable INT in the model) and involves only two alternative choices, taking value 1 if the enterprise has foreign investments and 0 if not. In this case, a Binomial Logit model guarantees robustness as it is based on the theory of random utility. All the information used in the study has been self-reported by the owner or manager through in-depth interviews. Other variables related to the socio-economic profile of the companies were also included in the model, such as the number of employees (EMP), the possession of patents (PATENT) and an internationalisation plan (P_INT), which were measured as shown in Table 2.1. International success can vary among nautical tourism firms according to their place of origin, specialisation degree and accumulated experience (Van der Merwe et al., 2011). Thus, another hypothesis that is studied in the present paper is to what extent the island where the firm is located has an influence on its international growth (variable DEST in the model).



Figure 2.1. Factors and variables included in the model.

Variable	Description
INT (dependent var.)	Dummy variable that takes value 1 if the enterprise has foreign investments and 0 if not.
COND	Construct- basic attributes and conditions for internationalisation.
DIF	Construct- 1 to 5 level of agreement declared by the entrepreneur regarding differentiating features of their business model (1= completely disagree; 5= completely agree).

	Table 2.1.	Description	of the var	riables in	the model.
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Variable	Description
MOT	Construct- 1 to 5 level of importance declared by the SME's (small and medium enterprise) owner to various motivational aspects for internationalisation (1= not important at all; 5= very important).
EMP	Continuous variable indicating the number of employees in the enterprise.
DEST	Continuous variable indicating the island where the enterprise is located.
PATENT	Dummy variable that takes value 1 if the enterprise has a patent and 0 if not.
P_INT	Dummy variable that takes value 1 if the enterprise has a plan for internationalisation and 0 if not.

2.3.3. Research instrument and Fieldwork

Face-to-face interviews were conducted with managers and/or owners of the companies in the sample, using a questionnaire as a guide and support for the database creation. The questionnaire was structured into four groups of questions, which contained open, closed, and multiple-choice formats (see Table 2.2). The first section consisted of the socioeconomic characteristics of the firm. In the second group of questions, seven company attributes were verified, where the manager had to answer 'Yes' if the company complies with the condition, and 'No', if not (Table 2.2).

In the third section of questions, the interviewee had to assess six aspects that, in his/her opinion, differentiated the company from the competitors. The valuation was carried out on a Likert scale of 5 points, where 1= I do not agree (the manager considers that the company does not have this particular characteristic that differentiates it from the competition) and 5= I completely agree (the manager fully agrees with this statement). Regarding motivations, the manager had to assess ten aspects on a 5-point Likert scale, where 1= Not important (if the motivation stated was not relevant for him/her when considering international growth) and 5= Very important (if the motivation is considered completely transcendent).

The questionnaire was validated through focus groups with experts from the University of Las Palmas de Gran Canaria and four business people who acted on behalf of the sector. That is, questions were assessed for their efficacy and appropriateness for the research objectives by intensive work with focus groups discussions with experts. See the questionnaire employed (SM.2. Questionnaire 2) in Supplementary Material.

Phases	Objective
I. Company characteristics	Collects operation features, number of employees, main activities and services, main customer markets, seasonality of demand, etc.
II. Basic Conditions	Checks if the company has marketing plan, training plan; customer satisfaction surveys; participate/organize international events; belongs to a Federation/Association; receives public subsidies and/or injection of external capital.
III. Differentiation	Perception of the entrepreneur about certain aspects of the company in relation to competitors (prices, human resources, export potential of his business model).
IV. Motivations	Identifies the value or importance that the owner/manager gives to a set of elements that justify the desire or purpose of international growth.

Table 2.2. Structure of the interview.

The population size is unknown due to the lack of official statistics of the industry at a regional and island level. Thus, the study required the creation of a regional directory of enterprises. This was done through: i) the comprehensive review of the main promotional guides of the three destinations and the existing directories published by the regional chambers of commerce, and ii) the Snowball Method (Goodman, 1961). The greatest difficulties for the creation of the directory were found in the Cape Verdean archipelago. The final directory covered a total of 142 companies in the three destinations, while the final sample size was 60 companies and was composed by those companies that were willing to participate in the interview phase. Table 2.3 shows the sample distribution per island and the period of the interviews.

The fieldwork was carried out in the main offices of the companies. Entrepreneurs were briefly informed of the structure and purpose of the interview and the way in which they had to rate the different aspects. Although the fieldwork was carried out in different moments of the year, there were no significant differences in the profiles of the respondents and non-response rates between early May and late December 2017.

Aspects	Description						
Target market	SMEs dedicated to activities and experiences in nautical tourism in the Macaronesia (the Canary Islands, Madeira, and Cape Verde).						
Fieldwork	Direct and individualised surveys via face-to-face interviews.						
Period	May - December 2017.						
Size and structure of the sample	60 companies – Canary Islands (76.6%); Madeira (16.6%) Cape Verde (6.6%).						

Table 2.3. Fieldwork description.

2.3.4. Data analysis

The database was built with the coded responses from the interviews. After coding the information, the database was processed with the SPSS program (version 14.0). Table 2.4 presents a description of the various methods utilised in the empirical analysis of the data. A *t*-test was employed to assess the differences between early May and late December respondents. Former ones represented more than 70% of the total sample. The results showed non-significant differences at the 0.05 level (Armstrong & Overton, 1977).

Frequency analysis and Chi-square test were used for the descriptive analysis of the results, and to identify the regional differences between the companies in terms of their profile and basic conditions for internationalisation. On the other hand, the ANOVA analysis of variance was used to analyse the differences between the companies from different islands regarding the perception of the differentiation and motivational factors. In all cases, the factor was the island where the company is based, which divided the sample into six subgroups, 1= Gran Canaria; 2= Lanzarote; 3= Fuerteventura; 4= Tenerife (the Canary Islands); 5= Madeira; and 6= Cape Verde.

Before estimating the model, an Exploratory Factor Analysis (EFA) was undertaken in order to reduce the number of variables and define the constructs in the model. Before running the logistic model, we also examined multicollinearity between predictors, confirming the pertinence of the variables included in the model. The R² parameter was used to evaluate the explanatory power of the variance of the dependent variable-INT.

Method	Context
<i>T</i> -test	Analyses differences between earlier May and late December respondents.
Frequency analysis Chi-square test	Comparative analysis between enterprises of different islands regarding the socioeconomic profile and basic conditions for internationalisation.
ANOVA	Identifies differences between the companies from diverse islands regarding differentiation and motivational factors for internationalization.
Exploratory Factor Analysis (EFA)	Grouping of variables that measure firms' conditions, motivations and differentiating features, leading to construct definition (COND, MOT, DIF).
Multicollinearity test	Confirms the absence of highly correlated predictor variables in the model.
Logistic regression	Identifies causal relation between international growth (INT) and predictors; variables (DEST, EMP, P_INT, PATENT) and constructs (COND, DIF, MOT).

Table 2.4. Description of the methods of data analysis.

2.4. Results

2.4.1. Sample characteristics

Table 2.5 shows the distribution of the companies in the sample by region and type of main activity. In this classification, those enterprises with a heterogeneous portfolio, integrating multiple activities in the maritime environment (i.e., whale watching, snorkelling and kayak), have been grouped into the 'various activities' category. Gran Canaria and Lanzarote (the Canary Islands), and Madeira are the islands that have the largest number of SMEs interviewed. On average, these companies dealt with around 12,500 customers each year and were set up an average of fewer than 15 years ago. 48.3% of companies offer various activities, being the most frequent category.

			Activity							
		Various activities	Sport Fishing	Nautical Charter	Scuba Diving	Total				
	Gran Canaria	16.7	6.7	5.0	3.3	31.7				
Island	Lanzarote	8.2	3.3	8.3	6.7	26.5				
	Fuerteventura	11.7	-	-	-	11.7				
	Tenerife	3.4	-	3.3	-	6.7				
	Madeira	10.0	1.7	1.7	3.3	16.7				
	Cape Verde	-	3.3	1.7	1.7	6.7				
	Total	48.3	15.0	20.0	15.0	100%				

Table 2.5	Sample	distribution	ner island	and	activity
	Sample	uistiibution	per isianu	anu	activity.

Table 2.6 shows the seasonal analysis of demand, which points to the existence of significant differences between firms of different islands during the spring season. While most companies stated they receive few or null customers in April and May, 75% of companies in Cape Verde confirmed that these months are the ones in high demand. This suggests an opportunity for the European firms to take benefit from other nautical destinations such as Cape Verde during these months of the year.

Month	GC	Lzte	Ftv	Tnfe	Mad	CV	Chi-2
April	-	25.0	-	25.0	-	75.0	19.25**
May	5.6	37.5	-	25.0	12.5	75.0	14.01**
July	66.7	62.5	66.7	50.0	75.0	50.0	no sig.
August	66.7	68.8	100.0	75.0	87.5	25.0	no sig.
September	44.8	81.3	83.3	75.0	75.0	25.0	no sig.

 Table 2.6. Months with highest demand.

Note: GC: Gran Canaria; Lzte: Lanzarote; Ftv: Fuerteventura; Tnfe: Tenerife; Mad: Madeira; CV: Cape Verde.

***p*<0.01

Regarding the main clients' countries, there are also differences between companies based on different islands. While any company in Cape Verde identified the English market among its main users, more than 68% of the firms in the Canary Islands and Madeira identified the British market as one of the most important ones for them. Most SMEs also identified Germany as one of the main markets, again with the exception of Cape Verde. Finally, no companies in Tenerife or Madeira claimed to receive users from the US, whereas it was considered the main market for 75% of those in Cape Verde (see Table 2.7).

Main market	GC	Lzte	Ftv	Tnfe	Mad	CV	Chi-2
English	68.4	87.5	85.7	100.0	85.7	-	16.14**
German	63.2	62.5	71.4	75.0	100.0	25.0	no sig.
Spanish	31.6	31.3	0.0	0.0	0.0	0.0	no sig.
Portuguese	-	6.3	-	-	-	-	no sig.
French	5.3	31.3	57.1	50.0	57.1	25.0	11.30**
American	10.5	6.3	14.3	-	-	75.0	17.94**
** p < 0.01							

2.4.2. Regional analysis

Significant differences were found between companies from different islands regarding the possession of marketing plan, customer satisfaction survey and staff training plans (Table 2.8). In Madeira, 100% of the companies interviewed claimed to have their own marketing plan, whereas in Gran Canaria, only 37% of the companies used it (Chi-2= 13.1; p< 0.01). Similarly, almost 89% of entrepreneurs in Gran Canaria indicated they did not use customer satisfaction surveys, while in the rest of the islands, more than 68% of the companies used these questionnaires (Chi-2= 24.8; p< 0.01). This is an important aspect to explain island-based nautical SMEs' progress towards internationalisation, insofar as it depends on these attributes.

Aspects	GC	Lzte	Ftv	Tnfe	Mad	CV	<i>Chi</i> -2
Marketing Plan	36.8	75.0	57.1	75.0	100.0	50.0	13.1**
Customer satisfaction surveys	10.5	68.8	83.3	100.0	80.0	75.0	24.8**
Staff training plans	26.3	66.7	71.4	50.0	80.0	75.0	11.1*
International events/fairs	21.1	53.3	28.6	50.0	50.0	75.0	6.9
Association/Federation	47.4	53.3	28.6	50.0	40.0	50.0	1.4
Grants/Projects	5.3	-	-	-	-	-	7.2
Investments/shareholders in last 5 years	10.5	6.7	28.6	25.0	11.1	25.0	3.0

 Table 2.8.
 Regional Analysis of companies' basic conditions for internationalisation.

***p*<0.01; **p*<0.05

Finally, Table 2.9 presents the results of the ANOVA analysis of ten motivational aspects and six differentiating features that managers evaluated for their companies. Here we present the sample average for each subgroup of companies according to the base island and the value and significance of the *F*-Fisher statistic. As far as the motivations were concerned, all the entrepreneurs indicated on average that having sufficient financial capacity to hire employees and sufficient liquidity to assume an investment was not significant reasons, in their opinion, to consider international expansion. This is a highly relevant conclusion for tourism managers as it identifies the elements that are not a priority for the design of incentive mechanisms for the industry. On the contrary, all entrepreneurs consider diversifying the portfolio of services and leveraging human resources (HR) capabilities are compelling reasons to expand abroad.

Regional differences lie in the existence of accessible markets (F= 3.88; p< 0.01), increased profitability (F= 3.01; p< 0.05) and prestige (F= 2.56; p< 0.05). That is,

the average number of companies in Gran Canaria and Cape Verde differ from the rest since they do not consider the existence of accessible markets to be sufficient motivation to expand abroad. Companies from Cape Verde differ from the rest because they do not believe that internationalisation will increase their profitability and brand prestige within the sector.

Regarding differentiation, regional differences fall into three aspects: competitive prices, human resources, and business models. The companies in Tenerife stand out as the only ones in the sample that, on average, do not consider their prices to be the most competitive in the Canary Islands. On the other hand, business people in Gran Canaria do not believe that staff training programs are their distinguishing feature in the sector, unlike companies from the other islands (F= 5.53; p< 0.01). Thirdly, companies from the Canary Islands, unlike those from Portugal and Cape Verde, perceive that their business model has a high export potential to other geographical contexts (F= 3.42; p< 0.01). All companies on average agree that their employees have a high sense of belonging and nautical culture. These findings allow elaborating islands' profiles thanks to the distinctive capacities of their nautical industries, thus contributing to identify opportunities for developing islands' competitive advantages within the nautical sector.

	GC	Lzte	Ftv	Tnfe	Mad	CV	F
Reasons to expand internationally							
Sufficient financial capacity to employing staff	2.68	2.50	3.71	3.00	3.50	2.75	1.17
Sufficient liquidity for making investments	1.89	2.44	3.29	2.75	2.00	2.75	1.31
Accessible markets for expanding business model	2.95	3.75	5.00	4.00	3.20	2.75	3.88**
Strengthen economic situation	3.37	3.31	4.86	3.00	3.30	3.00	1.80
Expansion of company market	3.79	3.56	4.71	2.75	3.00	3.25	1.80
Taking advantage of HR skills	3.84	3.63	4.71	3.75	3.60	2.75	1.51
Increase of business profitability	4.79	3.94	4.86	3.75	4.40	2.50	3.01*
Diversification of product and services portfolio	4.16	3.50	4.57	3.00	4.20	3.00	2.22
Increase of prestige at a regional and national level	4.63	3.88	5.00	3.75	4.30	3.00	2.56*
Increase of business and competitiveness	4.42	4.06	4.14	4.50	4.50	4.00	0.47
Differentiation factors							
I have the most competitive prices in my region	4.32	3.56	4.43	2.75	4.00	3.50	2.97*
I have the most competitive prices at a national level	3.68	3.50	4.71	3.00	3.90	4.25	1.77
I possess the most competitive prices at an international level	3.79	3.63	4.71	3.75	4.00	4.25	0.96
High sense of belonging & nautical culture among employees	4.16	4.44	5.00	3.75	4.90	4.50	1.64
I have skilled HR	1.74	3.38	4.43	4.25	3.80	3.50	5.53**
I have a business model with high export potential	2.32	3.06	4.57	3.75	2.90	2.75	3.42**
** <i>p</i> <0.01; * <i>p</i> <0.05							

 Table 2.9. Regional Analysis of companies' motivations and differentiation factors for internationalisation.

2.4.3. Factor analysis

With the purpose of reducing the variables in the model, an Exploratory Factorial Analysis (EFA) was carried out with the 23 variables that assessed the conditions, motivations, and perception of differentiation of the companies. The factor analysis resulted in four dimensions or constructs with a total explained variance of 68.47%, as shown in Table 2.10. The coefficients of the factorial loads were always above 0.50, indicating a high correlation between the variables within the dimensions. The reliability of the scales was measured through Cronbach's Alpha coefficient and obtained values greater than 0.75, which is considered a good consistency of the analysis. Bartlett's sphericity test with Chi-2= 42196.83 and p< 0.00, and the Kaiser-Meyer-Olkin statistic at 0.838 indicate that the variables used were adequate for factorisation.

Two constructs were obtained on the motivational aspects (MOT 1 and 2), a construct that groups the perception of the entrepreneur on the aspects that differentiate his company from the competition (DIF) and another on the *basic conditions for internationalisation* (COND). With regard to motivations, the first construct (MOT 1) measures the importance that the entrepreneur attaches to the search for *prestige and competitiveness* of the company as a motivational factor to expand internationally. At the same time, the second (MOT 2) is based on *the financial and market capabilities* and the need the company has to take advantage of these.

Factors/ Attributes	Factor loading	Eigenvalue	% variance explained	Cronbach's α
MOT1 - Prestige & Competitiveness		5.55	36.98	0.829
Taking advantage of HR skills	0.957			
Increase of business profitability	0.851			
Diversification of product & service portfolio	0.748			
Increase of prestige at regional & national level	0.609			
Increase of business profitability	0.607			
MOT2 - Exploiting financial & Market resour	ces	1.76	11.77	0.807
Strengthen economic situation	0.913			
Expansion of company market	0.886			
Sufficient financial capacity	0.779			
Sufficient liquidity for making investment	0.771			
Accessible markets for expanding	0.672			
DIF - Competitive & Genuine business mode	el	1.56	10.43	0.766
I have the most competitive prices/region	0.791			
I have the most competitive prices/national	0.789			

 Table 2.10.
 Factor Analysis of motivations, conditions, and differentiation aspects.

Factors/ Attributes	Factor loading	Eigenvalue	% variance explained	Cronbach's α
I possess the most competitive prices/internat.	0.761			
High sense of belonging and nautical culture	0.742			
I have skilled HR	0.723			
I have a business model with export potential	0.589			
COND Basic conditions		1.40	9.29	0.785
Marketing plan	0.766			
Customer satisfaction surveys	0.753			
Staff training plans	0.716			
International events/fairs	0.707			
Association /Federation	0.618			
Grants/Projects	0.519			
Investments/shareholders in last 5 years	0.513			

Note: Kaiser-Meyer-Olkin (KMO)= 0.838; Total Variance= 68.47%; Cronbach's Alpha= 0.875; Bartlett's test-Chi-2= 42196.83; p=0.000.

2.4.4. Binomial logit model

Table 2.11 summarises the general results of the model, including the regression weights that were significant to explain the variance of the dependent variable (INT-international growth). The R² value for the endogenous variable is also presented, which shows high reliability of the measure, indicating 68% of the variance of INT.

The results determined that the island where the enterprise is located (DEST) does not influence its *international performance* (INT), in line with previous research that states that location and geographical distances (in this case, caused by insularity) are not a constraining factor for international growth (Johanson & Wiedersheim-Paul, 1975). In addition, the advantage of *possessing a patent* (PATENT) does not show any significance in explaining SME's international growth (β = 6.099; *p*> 0.05), although this is a significant aspect in other tourism segments (European Commission, 2015; ICEX, 2016). Thus, it can be stated that nautical tourism firms differ from the rest of tourism enterprises with respect to the role of innovation in explaining international growth. This is probably due to the fact that nautical tourism firms suffer more constraints when it comes to innovation due to the restricted environmental regulations that exist in the places where they operate, as occurs with whale-watching or other nautical activities involved in marine protected areas (SEGITTUR, 2017).

There is also a direct relationship between the *baseline conditions* (COND) and the *international growth* of the firms (INT), thus confirming that the probability of

international success increases if the nautical tourism firm presents marketing plans, customer satisfaction surveys, training staff programs, and also with the participation/coordination of international events and funded projects. Similarly, the more capital investment the company has received, the more likely it is to invest in foreign markets (β = 0.360; p< 0.01), which aligns with the existing literature on the tourism sector.

In general, the study confirms the findings of (Leandro, 2009; Martín González, 2015), proving that the search for *prestige and competitiveness* (MOT 1) and *distinctive attributes* (DIF) are of great importance in explaining international growth in nautical tourism firms. These findings are in line with previous research, stating that internationalisation depends on the existence of a significant advantage of the company over its competitors (Dunning, 2015). Therefore, those companies owning international investments at the moment of the interview show greater conviction that their prices are the most competitive and their business model has great export potential (β = 0.261; *p*< 0.05) and, furthermore, give greater importance to understanding internationalisation as a vehicle to increasing company prestige and competitiveness within the sector (β = 0.410; *p*< 0.01).

A novelty arising from the research was that the *number of employees* (EMP) is a constraining factor of international growth being firms with fewer staff members the ones more likely to have foreign investments, although literature states that for a tourism firm it is the opposite (Bianchi, 2011). In this sense, it can be assumed that large companies that are well established on their island, with large profit margins and a consolidated brand image, do not feel the need to expand to international markets in order to diversify or make their businesses more profitable.

Finally, having an internationalisation plan was found to be another determining factor in the model with direct and positive relation with INT (International growth). In fact, the strength of the relationship between P_INT and INT variables (β = 0.587) is higher than for the rest of the explanatory variables with *p*< 0.01. As a result, it can be stated that this is the most important factor determining *international growth* in nautical tourism firms. To summarising, the design of an appropriate *internationalisation plan*, together with the promotion of *competitiveness and distinctiveness*, are elements that need to be incorporated in the positioning strategies of nautical enterprises seeking international

development. But this is not a subject, which only concerns the industry, as it also requires the implementation of effective mechanisms of promotion of internationalisation from tourism authorities and other public and private agents, posing a challenge for nautical tourism governance in general.

Variables/Factors	β	3
COND - Basic conditions	0.360*	0.012
DIF - Competitive & Genuine business model	0.261*	0.011
MOT1 - Seeking prestige & Competitiveness	0.410**	0.008
MOT2 - Exploiting financial & Market resources	1.184	0.200
EMP - Number of employees	-0.189*	0.033
DEST - Island where the SME is based	0.958	0.066
PATENT	6.099	0.060
P_INT - Internationalisation plan	0.587**	0.001

 Table 2.11. Results of the Binomial Logit model for INT-International growth.

Note: Chi-2= 36.33, Sig= 0.002; Log-verissimilitude= 30.667; R² Cox & Snell= 0.477; R² Nagelkerke= 0.684.

***p*<0.01; **p*<0.05

2.5. Discussion and Conclusions

Since nautical destinations depend critically on the set of products and services on offer, the better the international positioning of nautical tourism firms, the greater opportunities for destinations to increase their competitiveness and resilience capacities. Thus, among the potential strategies for raising the sustainability of nautical destinations, there is scope to ensure the adequate management of the nautical industry that leads to international growth and success of enterprises in the long term.

In order to study the potential for internationalisation success among nautical tourism firms, this article has empirically investigated factors determining international growth of SMEs dedicated to nautical activities in the context of island destinations, thus contributing to define a profile of the nautical tourism firms with greater international performance.

The model developed in this paper i) provides a better and wider understanding of the determinants of international growth in the context of nautical firms of islands destinations, ii) identifies the attributes of nautical SMEs that are crucial in predicting international success, iii) shows the important role that managers' motivations and sense of distinctiveness have to explain international growth of their firms and, finally iv) provides sound knowledge on similarities and
differences in the context of competing island destinations of the same region with a common interest in positioning improvement within the global nautical tourism market.

From a theoretical point of view, this research validates a universal model that explains the causes of international growth of nautical tourism-based SMEs, including factors at different dimensions in line with previous research (Grundy, 2006; Holmlund & Kock, 1998; Hutchinson et al., 2007; Terziovski, 2003), on the one hand; and incorporating under-investigated variables at the level of firms' attributes and others of socio-psychological nature, on the other hand. In this sense, the inclusion of motivational aspects (MOT) and the perceptions of managers regarding the potentialities of their enterprises (DIF) allowed obtaining higher reliability of the measure to explain the variance of the dependent variable (INT-International growth) in the model.

Furthermore, this paper provides empirical evidence that serves as a reference for all island-based nautical companies with international projection. It identifies areas requiring special attention to ensure sustainable international development, being the island where the company is based, not relevant. This finding also provides sound knowledge on island-island relationships, as new regional policies can benefit several islands at the same time in so far as they use this information.

From a managerial and policy perspective, this finding is of great usefulness for tourism managers to design more appropriate incentive strategies for the industry and adapt their promotional plans with a new segmentation approach based on the conditions, motivations and differentiating features of the enterprises in each island. At the same time, it opens a new perspective for the development of island-based nautical destinations networking structures and coopetition. That is, competing enterprises that belong to the same archipelago can be framed within a unique network and co-create new nautical products and services with export potential during the low seasons (e.g., enterprises of the Canary Islands during April–May in Cape Verde).

For the case of the Macaronesian Region, a joint nautical tourism offer broadens the spectrum of opportunities to access new tourism markets. At the same time, it represents an important boost for the desired positioning of the Macaronesian nautical destinations, which together with the geographical proximity, the equality of conditions from the point of view of their insularity and vulnerability, and the accumulated experience of some entrepreneurs, will allow to make good practices available to everyone. For instance, the extensive experience of whalewatching firms of the Canary Islands or Madeira could contribute to the capacitybuilding of the Cape Verdean staff. Thus, coopetition can be justified in the context of nautical tourism to promote internationalisation, value co-creation, and consequently greater competitiveness for the destinations and regions involved.

For the archipelagos of Macaronesia, this study has multiple utilities since the growth of nautical tourism is considered a priority action at the public level, but companies have difficulties diversifying their portfolio of products and services abroad (SIECAN, 2017). In general, tourism policy in these islands should focus not only on giving encouragement or stimulus to grow and search of the prestige of the nautical industry but also on guaranteeing that enterprises meet the basic criteria for internationalisation, thus, ensuring more efficient use of the resources to this end.

Additionally, proper incentive mechanisms for internationalisation should be accompanied by tools that guide the nautical entrepreneurs to enhance their essential strengths, as well as to be capable of self-evaluating their comparative and competitive advantages and identifying the correct tools for analysing the best options to invest their capital. It is so important that policymakers embrace helpful recommendations of the foreign markets that are more suited to the expansion and guide enterprises to select the best pathways, given the fact that geographical distance is only a psychological barrier.

Although technological innovation, and especially the use of information and communication technologies (ICTs), are playing an important role in the promotion of destinations and communication flows; for the nautical sector, and according to the results of this study, innovation does not seem to play a significant role in explaining international growth. This finding cannot be fully generalised for all types of nautical tourism firms, particularly in those marine wildlife-based activities, where technology is increasingly helpful for ensuring good sustainable practices. However, it opens up a new perspective in which island-based nautical tourism SMEs may be less dependent on current TICs advances for international success.

Finally, companies have the great challenge of becoming architects of their own history, gaining influence in the public policy to promote and support their industry for the internationalisation process. To do this, nautical tourism SMEs must be aware of the attributes and capabilities that guarantee international success, have detailed plans and knowledge about the foreign markets and new urban areas of nautical development from the supply and demand perspective, thus, recognising their competitive advantages. Indeed, the best possible strategies for internationalisation in nautical destinations are the ones that promote interest and motivation among nautical firms to grow towards the future and broaden their market in the best socio-economic and environmental conditions for their sustainability.

This study faces various limitations that substantially reduce the potential generalisation of its results and the scope of its conclusions. Firstly, it is based on six island destinations for nautical tourism, and therefore there is a need to consider evidence on other alternative nautical destinations. Secondly, the small analysis sample requires further evidence with much larger samples in order to consolidate proof of the robustness of the relationships found in the investigation, which justify future research directions. Thus, future studies should consider investigating the sector in island destinations of other regions and compare it with empirical evidence from coastal mainland studies. This assessment might be useful for suggesting more universal recommendations that would meet the specific requirements of the various types of maritime tourism industries. Finally, evaluate the environmental awareness is also needed, given the high dependency and significance of the nautical industry in the marine environment.

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CHAPTER SUSTAINABILITY IN WHALE-WATCHING TOURISM: A critical overview

SUSTAINABILITY IN WHALE-WATCHING TOURISM: A critical review

Abstract

In whale-watching tourism, the need to ensure responsible, sustainable human-cetacean interactions has raised critical academic debate. This paper systematically reviews empirical evidence from fifty years of whale-watching research. The study mapped and downscaled scientific knowledge to identify the main research trends, current gaps, and future research fronts, with particular emphasis on the sustainability perspective. Research has gradually evolved from focusing exclusively on the benefits of ecotourism to the assessment of the ecological impacts on whales due to human disturbance. Recent research has also shifted focus to the understanding of consumer behaviour. However, there is a need for more in-depth insights in order to deliver tailored adaptive management responses to reconcile whale-watching with sustainability. Therefore, this paper proposes a new sustainability framework for whale-watching research involving the interplay between consumer analysis, ecological impacts, innovation, and external drivers, highlighting key research areas that include social responsibility, climate change, non-visible impacts, and co-creation.

Keywords: Whale-watching tourism; Systematic review; Scientometrics; Sustainability; Management.

3.1. Introduction

Whale-watching tourism is a human activity that involves encountering whales, dolphins, and other species of cetaceans in their natural habitat for recreational purposes (Hoyt, 2002). According to Hoyt (2007), sustainable whale watching is defined by its i) contribution to good long-term financial management, ii) the attention it pays to conservation, iii) its scientific and educational input and output provision, iv) investment in society with good customer care and community relations, and v) enhanced benefits and reduced costs. Therefore, the sustainable, environmentally friendly, and economically beneficial use of whales defines whale-watching tourism as a responsible tourism activity (O'Connor, Campbell, Cortez & Knowles, 2009).

However, whale watching has been found to be less *friendly* than initially expected (Bejder et al., 2006b). Human recreational interactions with cetaceans negatively impact animal ecology and welfare, constraining the industry's long-term sustainability (Curtin, 2010; Finkler & Higham, 2020). Despite receiving considerable scientific attention for years, current debate still questions whether whale watching is environmentally respectful, ethical with animals, and socially responsible while economically profitable (Amerson & Parsons, 2018). Therefore, this study aims to revisit the literature to identify critical research gaps and provide valuable insights into tailored adaptive responses for sustainable whale-watching tourism.

Whale watching first emerged in the 1950s, touted as a non-extractive, wildlife conservation-oriented service industry (Duffus & Dearden, 1990) to counteract the worldwide decline in whale populations due to whaling (Wakamatsu, Shin, Wilson & Managi, 2018). The activity grew out of the traditions of land-based forms of wildlife watching (Hoyt, 2002). The respectful contemplation of nature was closely connected with the development of the industry. Initially, the gray whale (*Eschrichtius robustus*) attracted the most attention. Nonetheless, in the 1970s, the humpback whale (*Megaptera novaeangliae*) turned whale watching into a big industry, thanks to its more socially friendly behaviour; ideal for tourists who, in addition to contemplation, wanted to take photos (Hoyt, 2002).

At the beginning of the 1990s, the activity was formally recognised as a legitimate tourism industry that worked towards the sustainable use of cetaceans (International Fund for Animal Welfare, 1995). Whale watching became a thrilling awareness-raising activity, annually generating around \$500 million in economic

benefits. By this time, this industry industry experienced its most intensive growth. From the 12 countries where the activity was initially carried out in the 1980s, the number of watching enclaves multiplied by five in just a decade (Hoyt, 1996). However, although whales were recovering from years of uncontrolled hunting, another factor appeared to impact their welfare: recreational harassment, mainly due to the inexperience and poor management of operators (see Beach & Weinrich, 1989; Constantine, 1999). As a result, by the end of the 1990s, and with more than \$1,000 million in annual profits, whale-watching tourism began to be considered as just another form of harmful marine-wildlife exploitation, and regulations and policies were developed in response to this uncontrolled, growing industry (Orams, 1999; 2000).

In the early 2000s, the number of whale-watching destinations had increased to over 100, and consumer demand, along with the socioeconomic benefits, continued to grow (O'Connor et al., 2009). Meanwhile, evidence regarding the activity's negative effects on the animals continued to accumulate, and research effort was still primarily directed at understanding whale behaviour (Orams, 2000). Nevertheless, attention did later turn towards tourists as a factor influencing operators' inappropriate practices and their increasing impacts upon whales (Curtin, 2010; Finkler & Higham, 2004; Valentine, Birtles, Curnock, Arnold & Dunstan, 2004). Thus, whale watching was no longer considered a benign activity carried out by environmentally respectful tourists, as it initially was (Malcolm & Duffus, 2008). In the 2010s, and with the industry widely consolidated worldwide, other issues were added to the factors aimed at explaining the problems whale watching was having to reconcile with sustainability (Higham, Bejder, Allen, Corkeron & Lusseau, 2016; New et al., 2015). On the one hand, the limited or ineffective communication between science, politics, and business dimensions; on the other, the strong tendency to advocate and encourage whale-watching tourism development for short-term gains to the detriment of long-term sustainable resource use (Finkler & Higham, 2020; Higham et al., 2016).

At present, we are immersed in a 'great pause' due to the COVID-19 pandemic, which provides an opportunity to reflect on the future of whale watching. In line with Constantine and Bejder (2008) and Higham et al. (2016), it is time to move whale-watching tourism towards a sustainability paradigm. Reconciling the activity with sustainability is crucial if the industry is to avoid collapse, as has already occurred with whaling and local fisheries (Higham et al., 2016). This paper

critically reviews the potential of previous and current whale watching research to support this transition, starting by posing the following research questions:

- (1) What are the main areas and interests of scholarly research in whale watching?
- (2) Has past and current research contributed to the sustainable management of whale watching?
- (3) What would be a feasible future research framework aiming at sustainable whale-watching tourism development?

The present paper seeks to respond to these questions through a systematic review designed to explore fifty years of whale-watching tourism research. By analysing and mapping literature, this study focuses on i) defining the state of the scientific knowledge on whale watching, ii) assessing research evolution, especially from a sustainability perspective, iii) identifying research gaps and currently overlooked connections, and iv) providing recommendations to redirect the whale-watching model towards sustainability. This review enables the construction of a new research framework on sustainability for whale watching that brings together consumer analysis, ecological impacts, and innovation and external drivers, highlighting key research areas that would encourage sustainability: social responsibility, human change, climate change, non-visible impacts, co-creation, and long-term effects.

This study is organised into four main sections. The first presents a description of the study's scope, the research method and the tools employed for data analysis and data processing. The second section discusses the results, describing the cutting edge of the research field. Third, future insights for bridging research gaps and tailored whale-watching management pathways are critically discussed. The final section includes closing remarks, concluding this review.

3.2. Research design

3.2.1. Research method and tools

This study employs a research method consisting of a systematic review based on scientometrics (Chen & Song, 2019). Systematic review embodies a comprehensive search of relevant studies to assess the nature and extent of a specific research-field and uncover potentially significant -but currently overlooked- connections within the body of literature (Chen & Song, 2019). One

of the most widely used sources is the Web of Science (WoS), a multidisciplinary comprehensive citation database covering all scientific fields and including the most impactful academic journals (Gao, Wu, Luo & Guan, 2021; Wang, Xu, Su & Zhou, 2021). Once having organised and analysed the existing literature, scientometrics provides a broader overview of the underlying knowledge domain with computational and visual analytical approaches (Bai, Bai & Wang, 2021; Chen & Song, 2019). VOSviewer (Van Eck & Waltman, 2010) and CiteSpace (Chen, 2006) are two of the most widely used programmes for analysing and mapping citation databases.

VOSviewer is a visualisation software that conducts systematic analysis, creating and exploring maps from the network data and displaying the cluster analysis results (Bai et al., 2021; Van Eck & Waltman, 2010). In maps, results are visualised as nodes and links. The nodes represent the elements analysed - for example, authors, sources, or countries. The nodes' colour represents the cluster the node belongs to in (co-)occurrence analysis, while the size shows the occurrence frequency. The links and thickness of links show the strength of relationships between two nodes (Bai et al., 2021). On the other hand, CiteSpace is a multidimensional, time-sharing, and dynamic visualisation software. Going beyond VOSviewer, CiteSpace detects bursts, amongst other useful functions (Chen, 2006). Burst detection algorithm is used to identify abrupt changes in the nodes, enabling one to i) visualise emergent elements regardless of how many times their host documents are cited, ii) reflect explosive data that has attracted scholars' attention within a certain period, and iii) demonstrate predictors of research-frontiers (Bai et al., 2021; Chen, 2006)

3.2.2. Scope delimitation and data processing

The criteria for collecting research publications and the scope of the review must be clearly defined and delimited (Wang et al., 2021). With this in mind, WoS was selected to conduct the systematic literature review of 'whale-watching tourism', 'dolphin-watching tourism', and 'cetacean-watching tourism' - together known as whale-watching tourism (Table 3.1). The search period was fixed between 1971 (when the first document was recorded) and (February) 2021. A total of 427 publications among research articles, books, proceeding-papers, reviews, doctoral dissertations, and other publication sources were obtained from the first search. The search was filtered by considering the complementary keywords to fit the research-field closely (Table 3.1). The title, abstract and keywords of the records were analysed in detail before including them in the final database. Publications in which whale watching was not practiced as a tourist activity - such as in the cases of scientific data collection and citizen science - or which did not fit the primary research objective were excluded. The definitive database was downloaded as a text file including comprehensive and detailed data of records (Table 3.2). After this, duplicate records were removed in CiteSpace, delivering a final sample of 292 publications. On the other hand, a hand-curation data processing of keywords was also done to reduce 'noise' and obtain more accurate results from the co-occurrence analysis of keywords. For example, 'whale watching', 'whale-watching', 'whalewatching', and 'whale-watching tourism' were all replaced by 'whale watching'. Likewise, 'boat/s', 'ship', 'vessel/s', were grouped under 'tour boat', and so on. In this regard, from the initial 1066 keywords retrieved from WoS, the sample was finally composed of 903.

Data Source	Web of Science
Database	WoS Core-Collection
Searching period	January 1971 -February 2021
Main keywords	Whale (dolphin; cetacean) watching AND tourism; OR whale
	(dolphin; cetacean) tourism; OR whale (dolphin; cetacean)-based
	tourism
Complementary keywords	Management, (OR) Sustainability; Impacts; Tourists; Whale-
	watchers; Consumer demand; Operators; Firms; Economic value
Main publications	Articles, Books, Proceeding-Papers, Reviews, Doctoral-
	dissertations
Language	English, Spanish (2)

Table 3.1. Summary of selection criteria.

Mapping research	#
Publications	292
Publication sources	145
Authors	704
Institutions	338
Countries	50
Keywords	903
Cited references	8,830

Table 3.2. Database figure	s.
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Figure 3.1. Study roadmap.

3.3. Results

3.3.1. Research-field overview

This section delivers an initial overview of the scope of whale-watching tourism research through the evolution of its publications and its geographic distribution and how they relate to some industry milestones; about where studies have been published and under which disciplines; and about who has encouraged and influenced the academic debate and discussion.

Thereby, Figure 3.2 shows the distribution of publications per year. The first recorded publication dates from 1971 - the date of the first commercial whale-watching tour in North America (Hoyt, 2002). In 1984, the International Whaling Commission (IWC) aired the new concept of 'non-consumptive use' of whales (O'Connor et al., 2009). This year, five publications were recorded, including Hoyt's Whale Watcher's Handbook - one of the most comprehensive natural classic

books (Carwardine, 1995). In the 1990s, between 1 and 4 studies per year were published, Duffus and Dearden's (1993) article being the seminal research of the period (Mallard, 2019). They pointed out that the industry needed to be managed to avoid resource degradation and optimise recreational experience. In the 2000s, the number of studies nearly quadrupled. In 2008, Constantine and Bejder (2008) reported that whale-watching management was either inadequate or utterly lacking, despite Duffus and Dearden's (1993) recommendations and years of extensive academic debate. By the same year, the IWC underlined more precise research efforts about whale watching long-term impacts (O'Connor et al., 2009). Finally, from 2010 to 2020, publications grew exponentially, 2020 registering the highest figure (31).



Figure 3.2. Publications (#) per year.

Based on the above, this research attempts to respond to practical needs and issues. In this regard, Figure 3.3 shows 16 of the 50 countries publishing studies on whale watching (see also Appendix 3.1). The USA, Australia, and Canada are the largest contributors to the whale-watching tourism literature and are also identified as the most in demand and consolidated whale-watching destinations (Hoyt, 2002). As Hoyt (2002) pointed out, since commercial whale watching began in the USA, the activity has rapidly grown in countries like Australia or Mexico. It has also successfully spread to other -traditional whaling- countries like New Zealand, Portugal, and Iceland, where the activity has provided alternative and significant economic incomes.



Figure 3.3. Country productivity network.

On the other hand, journal analysis highlights some aspects of whale-watching tourism research development, such as how studies are distributed and classified throughout the literature. In this case, only journals were selected to map productivity and co-citation, thus excluding the other sources included in the database (Table 3.3). Journals are organised into two different clusters according to some main scientific disciplines. Cluster 1 journals are related to multidisciplinary and social sciences. For example, Marine Policy publishes studies about the social value, the economic benefits, or the service quality of whale watching. Cluster 2 comprises journals that research expert concerns in the natural sciences. Notably, Marine Mammal Science publishes articles about changes in cetaceans' biological and ecological patterns in response to human disturbance. Whale-watching literature is distributed over many journals; the top ten most productive journals publish barely 30% of all studies. On the other hand, the relationship between top-productive journals and top-cited journals is not balanced. Researchers prefer to publish in multidisciplinary journals. However, within the co-cited journals, those of cluster 2 seem to be the cornerstone sources of reference and knowledge for academia (see Table 3.3). Concretely, each article published in Marine Mammal Science is cited four times more than one in Marine

Policy. Figure 3.4 shows the 30 top co-cited journals network, where journals of cluster 2 (in dark blue) shows stronger collaborative links.

Productive journals		Daula	Co-cited journals		
#Docs	Journal (cluster)	капк	(cluster) Journal	#Citat.	
22	Marine Policy (1)	1	(2) Marine Mammal Science	245	
13	Journal of Sustainable Tourism (1)	2	(1) Tourism Management	237	
13	Ocean & Coastal Management (1)	3	(2) Biological Conservation	185	
11	Marine Mammal Science (2)	4	(1) Journal of Sust Tourism	185	
9	Aqua Conserv: Mar& Freshw Ecos (2)	5	(2) Marine Ecology Progr Ser	163	
8	Current Issues in Tourism (1)	6	(2) Conservation Biology	113	
8	Tourism Managment (1)	7	(2) Jour Cetac Res & Manag	109	
6	Conservation Biology (2)	8	(1) Marine Policy	99	
6	Tourism Management Persp (1)	9	(1) Ocean & Coastal Manage	96	
5	Coastal Management (1)	10	(1) Tourism in Marine Enviro	82	

 Table 3.3. Top 10 most productive and co-cited journals.

Note: Threshold of productive journals= 5 documents of a journal; of 145 journals, 14 meet the threshold; Threshold of co-citation= 50 citations; from 4,463 co-cited journals, 30 meet it.



Figure 3.4. Journal co-citation network.

Scholars shape research-trends and push the boundaries of research, and their contributions are essential to the development of expertise and the sharing of knowledge. By analysing and mapping author citation and co-citation (Table 3.4), results show that Lusseau and Bejder constitute two of the three most productive and influential scholars in the research-field. These authors pioneered the identification and measurement of cetacean behavioural responses due to tourism-induced impacts - a relevant research-topic within whale watching. As the author co-citation network shows in Figure 3.5, these academics are grouped

in cluster 2 (dark blue), similarly to the thematic clustering of journals. On the other hand, Hoyt is ranked as the second top-cited author (cluster 1, light blue). The relevance of Hoyt's work relates to his comprehensive and widely agreed upon definition of the activity (Hoyt, 2002) and to his description of the industry worldwide (Hoyt, 2001), and in Europe (Hoyt, 2003), among other contributions.

Productive authors		Dould	Co-cited authors		
#Docs	Author	капк	Author	#Citat.	
12	Lusseau, D	1	Lusseau, D	245	
11	Bejder, L	2	Hoyt, E	237	
9	Christiansen, F	3	Bejder, L	185	
8	Harcourt, R	4	Orams, MB	185	
7	Orams, MB	5	IWC	163	
5	Higham, JES	6	Williams, R	113	
6	Parsons, ECM	7	Parsons, ECM	109	
6	Dearden, P	8	Christiansen, F	99	
5	Bentz, J	9	Constantine, R	96	
5	Hoyt, E	10	Higham, JES	82	

Table 3.4. Top 10 most productive and co-cited authors.

Note: Threshold of productive authors= 5 documents of an author; of the 704 scholars, 14 meet the threshold; Threshold of co-citation= 20 citations; of the 5,731 co-cited authors, 55 meet it.



Figure 3.5. Author co-citation network.

3.3.2. Leading research-topics

Publications that have raised the greatest academic attention or led to sharp changes in the streams of knowledge in a specific period show how the research-field sets its trends, deals with its debates, and sheds light on future frontiers. By identifying the top-cited publications and the top explosive studies (burst detection of the top-cited references), this section provides a more detailed picture of the research-field development than the above to reveal the mainstream research-topics and why these are important to whale watching. Figure 3.6 shows the top 24 most influential and cited document network (see also Appendix 3.2), and Table 3.5 shows the top 12 references with the strongest citation burst.

While studies are built upon each other, there are various research debates transversal to one another (Johnson & Samakovlis, 2019). To better understand the foundations of whale-watching research development, results in this section are discussed attending to three meaningful research-topics: 1) the sustainable perspective of whale-watching; 2) the conflict between the activity development and cetacean welfare; and 3) the determinants of whale-watching demand.

In addition to these research topics, two other significant contributions to whalewatching literature, (Hoyt's, 2001; O'Connor's, 2009) constituted useful references for any researcher to contextualise the industry. The authors described the activity's status - tourism numbers, expenditures, and economic benefits - at all of the consolidated whale-watching destinations worldwide.

4.3.2.1. The sustainability perspective

As whale watching arose as an alternative environmental-friendly and economically beneficial use of whales (O'Connor et al., 2009), sustainability has been a concept of extensive debate in the literature. The most influential publications promoting whale-watching sustainability show some various currents of knowledge. On the one hand, the studies that focus on understanding human interactions with wildlife (bluish-green cluster, Figure 3.6), and on the other hand, those connected to the macro-cultural discourse of whale-watching development.

Duffus's (1993) article, considered the most influential of the early 1990s, underlined the need for an in-depth human-ecological understanding. Duffus and Dearden (1993) proposed a framework for the non-consumptive recreational

use of whales. They highlighted the importance of reinforcing the knowledge and planning stages of activity management, thereby avoiding degradation of the resource and/or the recreational experience. Their study has triggered a considerable debate-stream throughout the decades and within the different research-topics, encouraging academia to i) seek an in-depth understanding human-whale interactions from new multidisciplinary approaches (see Stamation, 2008), ii) propose alternative frameworks for monitoring whale-watching management (see Ku, Chen & Ying, 2014), iii) model the activity impacts and their consequences (see Tseng, Huang, Kyle & Yang, 2011; Williams, Trites & Bain, 2002), iv) explore consumer motivations, behaviour and satisfaction as inputs for improved whale-watching management (see Bentz, Lopes, Calado & Dearden, 2016a; 2016b), and iv) discuss the role of the whale-watching industry as a sustainable, viable alternative over whaling (see Cunningham, Huijbens & Wearing, 2012).

Nearly a decade after Duffus and Dearden (1993), Hughes (2001) highlighted the need to consider whale-watching practices animal welfare. The author criticised the lack of general environmental concern, which did not especially guarantee animal rights, and suggested that consideration of animal ethics could bring about a structural transformation in tourism provision. Thus, the ideas of Hughes (2001) represented another key milestone within the whale watching research-field focusing on sustainability. Along with this, Cloke (2005) detected the broader expectation tourists had than the activity was able to provide 'upon demand' and argued against the commodification of nature. Cloke and Perkins (2005) posed the challenge to operators of ensuring emotional and aesthetic experiences with wildlife, even when interactions had not been as successful as expected - a question which the debate had already begun with at the start of the decade with Orams (2000).

Regarding the macro-cultural discourse in whale conceptualisation, it is found not to be connected to the other top publications (Figure 3.6), although this issue is considered essential to achieving the sustainable use of whales. In this regard, Lawrence and Phillips (2004) pointed out that macro-cultural changes, along with institutional innovation, allowed whale watching to outgrow whaling in North America. In this respect, Corkeron (2004), one of the top-12 burst references, highlighted that the real motivations for those interested in cetacean conservation to support the tourism industry were, besides history, economics and politics surrounding whale watching growth. This author also questioned, among other things, the influence of the argument 'whale watching is good or bad' in marine wildlife management and whether considering 'whales as a resource or as fisheries competitors' moves the argument away from sustainability. These controversial statements garnered significant attention in academia between the mid-2000s and 2010s. In line with this, and for years of sound informed studies on the activity impacts, Neves (2010) critically analysed whale watching as the antithesis of whale hunting. She pointed out that whale watching and whaling were two different business models, and that more analytic and effective environmental approaches were needed to relate this tourism activity with conservation goals.

Last, but not least, White et al. (2012) revealed the importance of assessing ecosystem service trade-offs to improve transparency and maximise ecological, economic, and social outcomes in marine spatial planning to manage the space for whale watching with other ocean uses, such as offshore wind farms and commercial fishing (White, Halpern & Kappel, 2012). Their ambitious framework has constituted a feedback for various recent studies in the research-field (see Malinauskaite, Cook, Davíðsdóttir, Ögmundardóttir & Roman, 2020; Malinauskaite, Cook, Davíðsdóttir & Ögmundardóttir, 2021). However, their research-question does not seem to be linked to the main topics of the top most influential publications (Figure 3.6). This reveals that the management of marine commons is still a challenge within the literature.

4.3.2.2. The ecological impacts

As mentioned previously, academia has warned about the non-sustainable relationship between the activity and the resource. Thus, between the 2000s and 2010s, great attention was given to understanding the activity and its impacts on wildlife in order to provide sound management guidelines that could face them and reconcile whale watching with sustainability. Consequently, about half of the most influential whale-watching studies deal with identifying and measuring whale watching's effects on whales and dolphins (cluster in dark blue, Figure 3.6).

Bejder is the first author in the rankings of both the most influential and burst studies. Bejder's articles expanded on quantifying short-term (bottlenose) dolphin reactions due to tour boats - and swimmers - (Bejder et al., 1999; Bejder et al., 2006a). Moreover, Bejder (2006b) provided the earliest study on understanding the long-term effects on dolphins (Bejder et al., 2006b), which became the cornerstone of whale-watching research. This article contributed

towards bridging one of the major gaps in the misinterpretation of dolphin behavioural responses, thus leading to a better understanding of the complexity of ecosystem dynamics (Bejder and Samuels, 2003; Bejder et al., 2006a).

Bejder and colleagues' seminal study of 1999, among others, became a milestone within this section's topic, encouraging academia to i) expand research to different study areas or other cetacean species - e.g., Williams (2002) with killer whales -, ii) employ different methodologies and analysis tools, and iii) measure different animal responses to various whale watching exposure levels, leading to the identification of new impacts. Williams, Lusseau & Hammond (2006) discovered that boat disturbance was having a greater impact on killer whales in terms of reducing energy acquisition than increasing energetic demand, as was initially thought. Academics also looked at assessing, as Constantine (2004) did, the effectiveness of laws and regulations by measuring the effects on cetaceans of different numbers and types of licenced tour boats. With regard to the second statement, the Markov chain methodology, which was first employed by Lusseau (2003), faced another analytical gap in whale-watching research by modifying impact quantification due to boat presence in the vicinity of cetaceans (Lusseau, 2003). Lusseau's foundations based on Markov chains have encouraged some further studies that, for example, assess operators' compliance with regulations (see Meissner et al., 2015) or examine macroeconomic determinants of whalewatching tourism and weather conditions (see Chen & Lin, 2019).

The top influential and burst-cited studies concerning the whale-watching impacts research topic have prompted extensive and meaningful investigation into the effects of the activity on wildlife in order to gain insights and to manage it efficiently (Constantine, Brunton & Dennis, 2004). However, in recent years, influential publications have turned towards the kind of studies that review and provide a general overview of the harmful effects of the activity on different species and the efforts made to mitigate them, rather than provide new insights, as shown Parsons's (2012) and Senigaglia's (2016) burst timelines. These findings highlight that review publications are increasingly becoming key documents in scientific literature, probably due to the large amount of in-depth research over many years into understanding cetacean ecology and behaviour in response to whale-watching activity.

4.3.2.3. Consumer demands

Duffus and Dearden (1993) pointed out that the cost of whale watching includes harassment by recreational users, so its management should also be focused on the human domain. They argued that along with whale contact, other elements influence the value of the experience, enabling it to provide higher socioeconomic and ecological benefits. Thus, this section analyses the most influential literature from the perspective of consumer demand and its role in contributing to the sustainability of whale watching.

The leading publication of the early 2000s by Orams (2000) highlighted that research had primarily focused on the impact of boat proximity, due to the extended basic assumption that consumers want an 'up close' experience, and the need to limit the distance. Furthermore, he criticised the small amount of effort directed at understanding the effect of the watchers' motivation on whale-watching activity, even though research in the tourism field had demonstrated that tourist motivations were rarely as simple as 'getting close to whales.' In this regard, Orams identified that factors based on the operator's performance, such as the number of passengers, the service provided or the trip duration - in addition to the presence of whales - were more important for tourist satisfaction and the industry's sustainable management than the proximity to whales. Moreover, he also found that even in the absence of whales, customer satisfaction could be achieved.

In the middle of the same decade, Valentine's (2004) article also contributed towards understanding tourist expectations and the factors determining their satisfaction. Their results were largely consistent with Orams' (2000). However, in contrast to the latter, they found that closeness to whales was a significant factor in consumer satisfaction. As Valentine and colleagues (2004) pointed out themselves, this discrepancy was down to the differences in the case studies, i.e., while Orams (2000) interviewed tourists engaged in humpback whale-watching, Valentine et al. (2004) questioned divers that swam with minke whales.

These studies encouraged other publications to look at consumer demand. For example, some scholars analysed tourists' expectations, motivations, and opinions regarding boat comfort, crowding, close encounters, knowledge provision on whales and marine wildlife, and other desires that form the basis of satisfaction (see Ávila-Foucat, Vargas, Jordan & Flores, 2013; Bentz et al., 2016a; Fraser, McWhinnie, Canessa & Darimont, 2020; Malcolm, Dagostino & Ortega,

2017). However, research aimed at comprehending the complexity and dynamics of tourist behaviour and how the activity meets tourist expectations in order to assist long-term sustainability management is still scarce.



Figure 3.6. Publication citation network.

Reference	PY	Strength	Begin	End	1971-2021
Hoyt (2001), WW 2001, V0-P0	2001	11.13	2003	2011	
Bejder (1999), doi.org/10.1111/j.1748-7692.1999.tb00840.x	1999	6.84	2003	2009	
Williams (2002), doi.org/10.1017/S0952836902000298	2002	8.24	2004	2011	
Lusseau (2003), doi.org/10.1111/j.1523-1739.2003.00054.x	2003	5.73	2004	2013	
Constantine (2004), doi.org/10.1016/j.biocon.2003.12.009	2004	8.88	2006	2013	
Bejder (2006b), doi.org/10.1111/j.1523-1739.2006.00540.x	2006	7.63	2006	2016	
Corkeron (2004), jstor.org/stable/3589096	2004	6.10	2006	2014	
Bejder (2003), MAR MAMM FISH TOUR MANG, V0-P0	2003	5.78	2006	2013	
Williams (2006), doi.org/10.1016/j.biocon.2006.06.010	2006	6.50	2008	2016	
OConnor (2009), WW WORLD, V0-P0	2009	8.72	2012	2019	
Parsons (2012), doi.org/10.1155/2012/807294	2012	6.94	2015	2021	
Senigaglia (2016), doi.org/10.3354/meps11497	2016	5.51	2017	2021	•

Table 3.5. Top 12 references with strongest citation bursts.

Note: Co-citation analysis parameters: look back years= 10; top N per slice= 100; top N%= 50%; threshold burst= 2 years.

3.4. Downscaling the research-topics

Keywords are fundamental for ascertaining the knowledge structure underneath whale-watching research topics (Johnson & Samakovlis, 2019). Thus, this section delivers a more accurate analysis of the dominant academic trends through keyword mapping. Instead of a paper-by-paper study, this analysis nests keywords of the whole set of publications to identify and analyse the different research streams and ascertain research gaps. This will enable future research to underpin the whale watching transition to a more sustainable pathway. This point is structured as follows: first, research evolution shows keywords by specific periods; second, the overall keyword map describes the thematic structure. For both sections, a co-occurrence analysis was run. 1993 was the first year selected, concurring with Duffus and Dearden's study publication; therefore, when the core academic debate began. According to this, and after the hand-curation data processing, the final sample analysed comprises 903 keywords.

3.4.1. The research evolution

Figure 3.7 shows the density view of the keywords by periods, where the colours range from blue (lowest item density) to yellow (highest density). That is, the larger the number of items in the neighbourhood of a keyword, the higher their weights and, thus, the closer the keyword to yellow. For a more precise description of the keyword evolution, time frames are analysed by 5-year groups, except for the first period (1993-2000).

Over the first eight years (1993-2000), keyword analysis shows a research period that recognises whale watching as whales' safeguard, since one of the keywords with the higher frequency of occurrence is 'ecotourism'. Interestingly, by 1995, the International Fund for Animal Welfare declared whale watching as a sustainable tourism industry. Likewise, 'Canada' is shown as a top-occurring research destination, probably because its whale-watching industry was already considered somewhat mature in the mid-1990s and due to their large whaling tradition (Hoyt, 2001).

Conversely, the following five years (2001-2005) are defined as the period of the loss of whale watching innocence presumption. 'Management' and 'conservation' begin to hold a high density of occurrence. Throughout these years, the activity's explosive growth led scholars to start turning their gaze towards whale watching environmental impacts and management requirements to address them.

Interestingly, 'tourism' seems to be eclipsed by the more environmentally-friendly concept of 'ecotourism', which seems to reinforce a paradigm shift regarding whale-watching tourism research.

The period between 2006 and 2010 could be defined as a burning development stage of the whale-watching impacts' research topic. 'Tour boats', 'human disturbance' and 'behavioural responses', among others, were added to the top keywords at the same time that several influential studies analysing whale-watching impacts started to garner a sharp increase in citations (see Table 3.5). This period witnessed the opening up of the research field to include a broader range of species, led by 'bottlenose dolphins' and meaningful whale-watching tourism destinations such as 'New Zealand', in line with the explosive development exhibited by the whale-watching industry. During these years, 'tourism' appears as a top-occurring keyword closely linked to 'management' and 'behavioural responses', whereas 'ecotourism' reappears, this time near 'conservation'. As Orams (1995) pointed out, the argument integrating conservation within tourism has been traditionally associated with ecotourism.

The 2011-2015 period seems to be established as the expertise stage on the study of whale-watching impacts. This period nearly doubled the number of keywords from previous years (from 175 to 317). Although the top-occurring keywords remained practically the same, their occurrence density increase notably. The almost double number of keywords reveals the starting of more specialised, indetail studies related to the scope of impacts and managerial issues in whale watching. Likewise, during this stage, 'tourism' and 'management' are still closely co-occurring, and even with a higher density (intense yellow). According to Parsons (2012), the introduction of management guidelines for whale watching constituted the most common method aimed at mitigating the impacts of the activity.

The current period (2016-February 2021) can be defined as a burning development stage of the study of whale-watching tourism consumer demand. Many new keywords were added concentrically to the keyword network during these years, extending the analytical efforts to other research topics, such as the demand side of whale watching. Together with 'satisfaction' with the experience, tourist 'perceptions', 'attitudes' and 'behaviour' overcome the threshold established. From this time, scholars begin to keep in consideration Orams' (2000) and Valentine's (2004) findings regarding the importance of understanding

consumer demand, especially tourist motivations and their satisfaction, and how these affect the experience (see the above section, 'consumer demand'). Remarkably, 'wildlife tourism' makes its foray into the keyword map, closely linked to those top-occurring keywords explaining tourist consumption. According to Newsome, Dowling and Moore (2005), wildlife tourism is associated with close contact and humans' overall appreciation of wildlife. Finally, concerning keywords explaining the ecological impacts, in this period, 'noise' is added to the network. According to Radeta, Nunes, Vasconcelos and Nisi (2018), the increase in lowcost and less invasive acoustic monitoring techniques in recent years has led scientists to make more effort on understand the effects of boat noise on whales.





2016-2021Feb

Note: 1993-2000: threshold = 3 minimum occurrences of a keyword; of the 77 keywords, 3 meet the threshold; 2001-2005: threshold = 5; of the 109 keywords, 6 meet; 2006-2010: threshold = 5; of the 175 keywords, 14 meet; 2011-2015: threshold = 5; of the 317 keywords, 14 meet; 2016-2021: threshold = 5; of the 542 keywords, 39 meet.

3.4.2. Thematic clustering

Figure 3.8 shows the final keyword network, according to the strength with which two keywords occur in a publication (see also Appendix 3.3). Keywords were grouped into three different clusters: Cluster 1 (green), which roughly corresponds with the above research topic on sustainability; cluster 2 (dark blue), comprising those keywords that explain the ecological impacts; and cluster 3 (light blue), embracing keywords related to the consumer demand research-topic.

Cluster 1 keywords reinforce findings of the above section about the various currents of knowledge around the sustainability debate since it includes i) the definition of a comprehensive 'framework' to manage 'whale watching' and achieve the 'sustainability' of the industry, ii) the conceptualisation of whale watching as a 'tourism' or 'ecotourism' activity alternative to 'whaling', and iii) the reference to the overall 'impacts' of the activity on the species and their habitats. Besides, downscaling the literature into keywords has enabled the identification of 'climate change' as another keyword nourishing the sustainability discourse. According to Lambert, Hunter, Pierce and MacLeod (2010), climate change effects will limit the availability of the resource in traditional whale-watching spots, constraining the future sustainability of the activity and its associated benefits.

Cluster 2 encapsulates the keywords explaining the research efforts focused on whale-watching impacts on the 'whale population', differentiating by i) the subjects of the pressure ('tour boats', 'swimmers', etc.) and the vectors of '(human) disturbance', ii) the 'patterns' explaining the pressures on 'animal behaviour' and the range of their adaptive 'behavioural responses', iii) the significant countries ('New Zealand') and sites ('bay') where whale-watching tourism has been studied, and iv) the most studied target species. As Weinrich (2001) pointed out, 'bottlenose dolphins', 'killer whales', and 'humpback whales' are the best-understood cetaceans thanks to their wide-ranging distribution, easy accessibility and identification. Contrarily, 'minke whales' seems to have a weaker frequency of occurrence, which is concentrated in the last years (see Appendix 3.4). Despite the wide distribution and abundance of the species worldwide, they are still double harassed by whale watching and whaling (IWC, 2020b). Thus, the current research effort focuses on providing sounder guidelines to face minke whales' decline.

Cluster 3 groups keywords that characterise the investigation on whale watching 'management' with a particular sensitivity towards 'conservation' issues. 'Marine

mammals', 'wildlife tourism', nature-based 'recreation', and especially 'dolphin watching' are framed into a broader research stream aimed at assessing the industry performance under 'sustainable tourism'. On the other hand, this cluster emphasises the role of 'knowledge' in reaching the sustainable pathway. The determinants of 'value' and 'satisfaction' with the whale-watching tourism experience are crucial aspects for harmonising the industry's development with natural resource conservation, and 'education' performs as a mediator since it seems to encourage pro-environmental awareness and behaviour and foster the compliance of management guidelines by operators (Bentz et al., 2016a; García-Cegarra & Pacheco, 2017). The systematic analysis of the complex relationships between tourists' 'perceptions', 'attitudes' and 'behaviour' also shows that whalewatching research has required the development of new and advanced methodological tools, led by those about 'contingent valuation', aimed at eliciting the 'willingness to pay' (WTP) of whale watchers for different attributes of the whale-watching experience. As Cheung et al. (2019) pointed out, understanding tourists' WTP may encourage service quality and provide higher economic benefits to achieve feasible, sustainable tourism.



Figure 3.8. Keyword co-occurrence network.

3.5. A new sustainability research paradigm for whalewatching tourism

The present systematic review has provided an update on the state of the research field's scientific knowledge, enabling the identification of several knowledge gaps and unsolved research questions that are limiting the whale-watching tourism pathway towards sustainability. This section makes some suggestions and provides future research recommendations for a comprehensive, tailored science engagement with management practices. A new research paradigm for the compatibility of whale watching with sustainability is proposed, with the aim of working toward the reconciliation of the diverse interests of tourism and the preservation and enhancement of the welfare of species.

Figure 3.9 illustrates the proposed sustainability paradigm framework that supports guidelines for future research from a holistic view. The ideas of the circularity motion of the elements and their interconnection are based on McKinsey's 7S model (Waterman, Peters & Phillips, 1980). The proposed framework places the pillar focus on four major research hotspots: ecological impacts, consumer demand, innovation, and external drivers, and how they are related to one another. These elements are in a continuous motion of interconnections and feedback looping. The outputs of one or more research streams constitute inputs to others, and the impact of any potential change in one element may impact another. Innovation and external drivers participate in this framework to deal with some research issues that currently constrain the development of whale-watching tourism investigation and its practical implications.

By considering innovation, research provides creative, and science- and experience-based insights useful for management. This is enhanced by the application of technology and the promotion of more socially and environmentally responsible whale-watching activities. For example, research that innovates in technology, especially supported with transdisciplinary outcomes, assists in developing accurate tools to analyse non-visible and long-term impacts and some external drivers. In practice, the creative use of technology may add value to the whale-watching experience while leading to higher cost-effectiveness and market differentiation. Technological innovation on-board, along with social capital development (experience co-creation) have the potential to deliver more affective and emotional consumer experiences with less need to be close to the species.

External drivers are those aspects that influence the whale-watching activity but are not controlled by it. That is, whale watching should be analysed as part of a broader and more complex scenario that includes the interactions between humans and natural environments. For instance, other non-direct impacts affecting animal welfare and the development of the activity (climate change or microplastic pollution) should be considered. Research on external drivers may provide information useful for identifying the factors affecting the biophysical and behavioural changes of cetaceans and prospective changes in consumer demand and preferences.



Figure 3.9. Sustainability paradigm framework for whale-watching research.

3.5.1. Changing human attitudes and behaviour

Dou and Day (2020) pointed out that human-wildlife interactions are fundamentally about managing people. Thereby, whale-watching tourism research still needs to contribute to a more in-depth understanding of social behaviour and differences between consumers. Researchers, as well as operators, have broadly assumed that whale watchers are a homogenous group of consumers sharing the same motivations and thus demanding a specific tourism experience (Filby, Stockin & Scarpaci, 2015). Additionally, it has been suggested that well designed educational programmes and on-board interactive interpretation do contribute to human pro-environmental attitudes, behavioural changes, and long-term intentions to engage in conservation actions (Ballantyne, Packer & Sutherland, 2011; Finkler, Higham, León & Aitken, 2019; Zeppel, 2008).

The research effort undertaken to understand the different tourist interests and preferences has underlined that whale-watchers are a heterogeneous market segment. While some tourists are interested in an educative, environmentallyfriendly experience, others demand more recreational time, up-close to whales, which is not compatible with sustainability (Bentz et al., 2016b; Malcolm & Duffus, 2008). On the other hand, it has been argued that educational efforts are more likely to lead to changes in attitudes and behaviours for the most receptive visitors (Zeppel, 2008). Research has also highlighted that educational and interpretative programmes should build upon consumers' prior knowledge and beliefs and integrate the emotional (affective) aspects of watching marine wildlife (Hughes, 2013). However, the literature is currently limited in these matters (Bentz et al., 2016b; Malcolm et al., 2017; Senigaglia, New & Hughes, 2020). Thus, more research aimed at better comprehending tourist heterogeneity is needed to i) move tourists towards more sustainable practices and behaviours through persuasive education and interpretation, ii) assess potential trade-offs between unsustainable consumption attributes and the preferences for ecologically sound behaviours, iii) design tailored, economically profitable and ecologically compatible whale-watching experiences, and iv) provide valuable insights to contribute to product differentiation and market competitiveness.

On the other hand, understanding tourists' preferences is another fundamental condition for supporting a cost-effective, sustainable long-term whale-watching industry (Cook, Malinauskaite, Davíðsdóttir, Ögmundardóttir & Roman, 2020; Mayer et al., 2018). From the traditional contingent valuation methods, academics
have moved towards employing discrete choice experiments (DCE) in recent years, taking advantage of the flexibility of DCE for assessing multiple attributes and determining the marginal effects of those to be prioritised (Cook et al., 2020; Lee, Mjelde, Kim, Lee & Choi, 2019). However, studies still need to assess tourists' WTP for a broader range of aspects of the experience and estimate substitution relationships for compensating the less friendly preferences. This will provide sounder insights for the industry to invest in with greater financial security in an innovative, ethical, and responsible form of whale watching. Likewise, more advanced and accurate models should be encouraged in order to represent and understand the role of individuals' emotional and aesthetic values, among others (Cook et al., 2020; Malinauskaite et al., 2021).

3.5.2. Non-visible impacts

The direct impacts of tour boats and their visible short- and long-term effects on whales and dolphins are now widely acknowledged (see Burnham, Duffus & Malcolm, 2021; New et al., 2015; Parsons, 2012; Senigaglia et al., 2016). Notwithstanding, research has paid less attention to indirect or non-visible impacts, such as the implications of boat noise and vibrations, or carbon emissions and how these can be linked to less obvious behavioural responses, such as increases in hormonal stress levels. The protracted engagement or the costs that data collection imply to monitor these animals due to their longevity and migratory patterns, among others, makes monitoring difficult (Burnham et al., 2021; Erbe et al., 2019; IWC, 2020a; New et al., 2015). In this regard, i) the open-source availability of extended data series from years of studies, ii) the recent advances in technology to reduce efforts on tracking and to decode whales' stress signals during encounters, iii) the innovation in analysis methods, such as in statistical modelling, and iv) the data sampling standardisation worldwide would help to close these gaps (Burnham et al., 2021; New et al., 2015).

3.5.3. Innovation

Innovation shares three common elements: creativity, problem-solving and new ways of thinking and applying knowledge (Moscardo, 2008). In whale watching, innovations from applied technology have assisted scientific research development, particularly in measuring ecological impacts on whales and explaining environmental issues (Alves et al., 2019; Hays et al., 2019). However, technological innovation has broader implications that could assist efficient

management solutions for tourism sustainability (Perles-Ribes & Ivars-Baidal, 2018). For example, previous studies have reported that hydrophones constitute a valuable interactive tool that positively influences the recreational and educational tourist experience, while improving scientific knowledge from the whale-sound track (Orams, 2002). In addition, environmentally-friendly boat engines, apart from mitigating pollution emissions, also reduce fuel consumption by over 60% (Hoarau & Eide, 2019), which increases operators' financial returns (Chuang, Chen, Kung & Shih, 2020). However, there is still scant research evaluating the potential effects of the applications of technology on consumers' experiences that mitigate whale disturbances and may be cost-effective, as may be the case with electric engines implemented for a silent whale-watching encounter. Similarly, there is need to ascertain the impacts of sustainable innovations on consumers' preferences for higher quality experiences based on technology. This would increase the tourists' experience value while raising the industry's social responsibility.

In line with this, little attention has been paid to the social business dimension. Creativity in capacity building and knowledge can lead firms to innovate in market differentiation strategies, in their environmental and social awareness visibility, and in the tailored design of their experiences (Hoarau & Hjalager, 2020). However, existing initiatives signalling tourist firms' sustainability efforts seldom encourage scientific-based animal conservation or contribute to the socio-economic development of the destination (Moscardo, 2008; Bertella, 2019; Fraser et al., 2020; Garrod & Fennell, 2004). In addition, there is a market niche demanding tourist experiences that are engaged with ethical issues, such as those involved with the Corporate Social Responsibility initiatives (Lissner & Mayer, 2020). Therefore, whale watching requires scientific research directed towards innovation in social responsibility strategies and its potential to reconcile care of natural resources, employee wellbeing and consumer satisfaction with economic returns. Further, in-depth empirical analysis is also needed to ascertain the impact of this holistic approach in practice (Bertella, 2019).

3.5.4. External drivers

Global climate change (CC) particularly affects whales' geographical distribution. Their displacement from the traditional breeding and feeding sites is unfavourable for whale-watching tourism destinations since it constrains the industry's ability to adapt to these changes and negatively influences its attractiveness (Albouy et al., 2020; Richards, Meynecke & Sahin, 2021; Salvadeo et al., 2013). Thus, further research should be directed towards implementing, from a holistic perspective, practical adaptive responses and include them in sustainable whale-watching planning while contributing towards mitigating the effects of CC on wildlife. In this regard, academia is challenged to strengthen CC analysis within the whale watching scenario to i) provide reliable insights concerning both whale and industry vulnerability, ii) assess tourists' choices for engaging in whale watching in the context of changing conditions and other questions such as their willingness to assume the cost of carbon offset measures, and iii) identify the causal linkages within which the whale-watching industry operates to assess the multiple impacts constraining its development (Albouy et al., 2020; Cornejo-Ortega Chávez-Dagostino & Ivanova-Boncheva, 2014; Meynecke, Richards & Sahin, 2017).

3.5.5. Knowledge-based participatory management

According to Stamation (2008), wildlife tourism management is multi-faceted, requiring an understanding of the long-term biological impacts and the needs of tourists, industry, and other stakeholders to succeed in sustainable management under an adaptive system. However, the benefits of an integrated and holistic approach are rarely adopted in whale-watching management. Therefore, the sustainability framework for whale-watching tourism research also needs to face other enabling issues that encourage scientific communication and knowledge transfer and involve active stakeholder participation.

The existing regulatory guidelines have failed in the attempt to ensure sustainable development. In whale-watching management, collective interests and common sense have been ignored for years, the building of trust relationships has been unsuccessful, and scientific knowledge has not been considered, nor has science attended to real industry needs (Garrod & Fennel, 2004; Higham, Bejder & Lusseau, 2008; Hoarau & Kline, 2014). These weaknesses need to be faced to reach a research paradigm based on sustainability. Thereby, academia is encouraged to pursue further collaborative work and knowledge sharing between different research disciplines, to redefine study goals and methodologies, and to better understand the complexity of human-wildlife interactions, which will help both science and the industry. For example, transdisciplinary research enabled Nunes and colleagues (2020) to develop an App prototype based on cetacean location and sound signalling. In addition to constituting a significant advance

concerning research project collaboration, this tool, in response to the technological innovation challenge, further expects to fulfil tourist satisfaction with the experience without disturbing wildlife.

On the other hand, building trust relationships between academia, operators, tourists, decision-makers, and local communities is another fundamental condition for ensuring bottom-up management decisions. For example, operators and tourists are more willing to comply with regulations when they feel privileged to be in a whale watching area declared under a multi-stakeholder collaborative process (IWC, 2020a). An innovative strategy that contributes to active participation is the experience co-creation process (Campos, Mendes, Valle & Scott 2018; Hoarau & Kline, 2014). Co-creation between researchers and whale-watching firms allows operators to organise their learning and innovation processes and differentiate within the competitive market (Hoarau & Eide, 2019; Hoarau & Kline, 2014). Furthermore, co-creation between tourists and operators shows that participating in tailored activities enhances value creation and customer satisfaction (Xie, Tkaczynski & Prebensen, 2020). Despite this evidence, further effort is still needed to provide theoretical and practical insights for the various whale watching scenarios at destinations worldwide.

3.6. Conclusions

Whale watching tourism faces many unanswered challenges in order to become a sustainable activity that reaches full compatibility between environmental and human ecosystems, calling for a new paradigm that orientates future developments and research. After mapping the literature from over 50 years, this work has developed a systematic and critical, updated review, paying particular attention to the sustainability perspective that is needed to reconcile whalewatching tourist activities with tailored adaptive management responses. Findings reveal that the ecological impacts on whales due to human disturbance have significantly led the literature. Wildlife welfare and conservation have strongly concerned academia and have shaped the evolution of the most meaningful research streams. Recent interest has focused on understanding the reasons why tourists engage in the whale-watching activity. Although these findings have been oriented towards supporting management for a sustainable whale-watching industry, there is need of broader research insights, more accurate research methods, effective transdisciplinary communication, and sound collaborations.

Therefore, this study proposes a new sustainability perspective framework for whale-watching research to address current research shortcomings. The framework is based on the ideas of the circularity motion of the research hotspots (ecological impacts, consumer demand, innovation, and external drivers), and their interconnections and feedback looping. The new research paradigm aims at the compatibility and reconciliation of whale-watching tourism with sustainability in the long term. In order to avoid an unsustainable path and eventual industry collapse, Higham et al. (2016) earlier pointed out that a science-based adaptive framework for sustainable whale-watching must acknowledge the complexity of the management context. Therefore, the new research paradigm proposes to work towards i) the reconciliation of the diverse interests of tourism with more responsible practices, ii) innovation in operators' practices based on new technology and cost-effectiveness, iii) the preservation and enhancement of the welfare of species, and iv) the informed, tailored, and participatory decision making of the different stakeholders.

Finally, this study is not exempt from limitations. Although publications were selected in detail, some published articles were not considered since they are not registered in the WoS core collection database. Additionally, mostly only articles written in English were included in the analysis. Therefore, future research should consider more publications from other research databases and/or written in different languages, among other selection criteria.

3.7. Appendices

Rank	Country	#Docs	#Citat.
1	USA	63	1659
2	Australia	57	1267
3	Canada	36	1641
4	New Zealand	31	975
5	Scotland	20	459
6	Mexico	15	116
7	Portugal	11	103
8	Iceland	10	170
9	Argentina	10	133
10	England	9	400

Appendix 3.1. Top productive countries

Note: Threshold= 7 minimum publication of a country; 16 meet the threshold

Appendix 3.2. Top 24 cited publications

Rank	Label	DOI /JSTOR	#Citat.
1	Bejder (2006b)	doi.org/10.1111/j.1523-1739.2006.00540.x	331
2	White (2012)	doi.org/10.1073/pnas.1114215109	229
3	Constantine (2004)	doi.org/10.1016/j.biocon.2003.12.009	215
4	Lawrence (2004)	doi.org/10.1177/1350508404046457	206
5	Lusseau (2003)	doi.org/10.1111/j.1523-1739.2003.00054.x	193
6	Bejder (2006a)	doi.org/10.1016/j.anbehav.2006.04.003	166
7	Williams (2002)	doi.org/10.1017/S0952836902000298	157
8	Erbe (2002)	doi.org/10.1111/j.1748-7692.2002.tb01045.x	132
9	Bejder (1999)	doi.org/10.1111/j.1748-7692.1999.tb00840.x	105
10	Orams (2000)	doi.org/10.1016/S0261-5177(00)00006-6	98
11	Lusseau (2004a)	doi.org/10.1016/j.tourman.2003.08.012	97
12	Corkeron (1995)	doi.org/10.1139/z95-153	83
13	Cloke (2005)	doi.org/10.1068/d57j	83
14	Lück (2003)	doi.org/10.1016/S0964-5691(03)00071-1	80
15	Garrod (2004)	doi.org/10.1016/j.annals.2003.12.003	80
16	Cisneros-M. (2010)	doi.org/10.1016/j.marpol.2010.05.005	73
17	Lusseau (2004b)	jstor.org/stable/26267644	73
18	Stensland (2007)	doi.org/10.3354/meps332225	62
19	Valentine (2004)	doi.org/10.1016/j.tourman.2003.09.001	61
20	Hoarau (2014)	doi.org/10.1016/j.annals.2014.01.005	60
21	Duffus (1993)	jstor.org/stable/44502848	57
22	Neves (2010)	doi.org/10.1111/j.1467-8330.2010.00770.x	57
23	Stamation (2010)	doi.org/10.1111/j.1748-7692.2009.00320.x	56
24	Hughes (2001)	doi.org/10.1016/S0261-5177(00)00070-4	55

Note: Threshold= 50 citations of a document. The Label corresponds to the first author of the study and the publication year.

Label	CI	Occ	Label	CI	Осс
whale watching	1	92	minke whales	2	11
tourism	1	45	New-Zealand	2	10
ecotourism	1	39	patterns	2	8
impacts	1	26	swimmers	2	8
whales	1	25	management	3	53
cetaceans	1	20	conservation	3	46
dolphins	1	13	wildlife tourism	3	16
sustainability	1	13	marine mammals	3	14
whaling	1	11	dolphin watching	3	12
climate change	1	10	tourist behaviour	3	12
framework	1	10	knowledge	3	12
bottlenose dolphin	2	63	recreation	3	11
behavioural responses	2	59	education	3	11
tour boats	2	50	values	3	10
killer whale	2	36	tourist perceptions	3	10
humpback whale	2	31	satisfaction	3	9
disturbance	2	30	sustainable tourism	3	9
bay	2	16	contingent valuation	3	9
human disturbance	2	14	tourist attitudes	3	8
whale population	2	12	willingness to pay	3	8
animal behaviour	2	11			

Appendix 3.3. Top co-occur keywords

Note: Threshold= 8 minimum occurrences of a keyword; of the 903 keywords, 41 meet the threshold.



Appendix 3.4. Keyword co-occurrence by average publication year

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CHAPTER A SEGMENTATION ANALYSIS OF WHALE-WATCHING TOURISM DEMAND:

Reconciling tourists' interests with whale preservation

A SEGMENTATION ANALYSIS OF WHALE-WATCHING TOURISM DEMAND:

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Abstract

Whale watching has the dual challenge of preserving whale welfare and the marine environment and ensuring sustainability while providing a satisfactory tourism experience. This study shows that importance-performance analysis (IPA), in combination with cluster analysis, provides insights into how to tailor the segments for the sustainable management of whale watching. The segmentation analysis reveals that there are differences in the perceptions of the activity's performance between specialised and generalist whale-watching tourists. These differences are concerned with the factors relating to whale conservation, observation performance, and a comfortable trip. The results suggest that operators may be able to take advantage by focusing on the ecological compatibility of the attributes, as well as investing in education, awarenessraising, and innovation. Moreover, there are opportunities to focus on segments with strong ecological preferences by diverting resources away from tourist segments which do not place such high value on environmental conservation and the welfare of whales.

Keywords: Whale watching; Macaronesia; Cluster analysis; IPA analysis; Management reconciliation.

4.1. Introduction

Whale-watching experiences are becoming increasingly popular around the world, attracting tourists who are particularly interested in having recreational experiences but have less interest in nature (Bentz, Lopes, Calado & Dearden, 2016b; Duffus & Dearden, 1990). The recreational attraction is often promoted by tour operators by including the activity in the traditional tourist package holiday (Curtin & Kragh, 2014). In addition, service quality is often reduced because of increased competition among operators to offer lower prices and attend larger numbers of tourists (International Whaling Commission- IWC, 2020). Furthermore, not all operators comply with sound regulations or guidelines. Examples of this include excessive boat speed to get up close when whales are sighted, protracted interactions with animals, and poor tour design (Amerson & Parsons, 2018; Burnham, Duffus & Malcolm, 2021).

The sustainability of the activity depends on sound practices and management by operators, with the aim of achieving high standards in terms of both whale welfare and the tourist experience (Burnham et al., 2021; Higham, Bejder & Lusseau, 2009; Moorhouse, Dahlsjö, Baker, D'Cruze & Macdonald, 2015). Moreover, unsustainable practices may lead to a steady decline in tourist satisfaction that in turn diminishes tourist destination competitiveness (Bentz et al., 2016b; Curtin, 2010). Therefore, sustainable whale-watching management has to address the following challenges: i) reconcile the preferences of individuals with different aims and interests, ii) make the conservation of the marine environments and whales compatible with human interaction, and iii) satisfy tourists while simultaneously protecting wildlife (Curtin, 2010).

Some scholars have pointed out that interpretative and educational tools should be utilised to develop a sense of caring towards nature and to increase tourist satisfaction (García-Cegarra & Pacheco, 2017; Jacobs & Harms, 2014; La Manna et al., 2020; Orams, 2000). Furthermore, it has also been noted that these tools are valuable for managing inappropriate behaviours whilst viewing wildlife in natural settings (Stamation, Croft, Shaughnessy, Waples & Briggs, 2007), and could also contribute to financing conservation initiatives that protect whales and sustain the growth of the industry in the long-term (Wilson & Tisdell, 2003). The development of special interests compatible with good whale watching practices is a challenge necessary for steering the industry towards sustainability. Thus, there is need to understand and distinguish the specific demands of the different types of tourists that the whale-watching industry is currently serving in order to focus on those segments which may lead to and foment more sustainable practices and behaviours.

The present paper contributes towards answering some of the aforementioned whale-watching tourism management challenges. The study area is the Macaronesian Region that includes some of the most important European whale-watching tourist destinations. Specifically, this study demonstrates that cluster analysis in combination with Importance-Performance Analysis lead to empirical results that allow for a better understanding of i) the extent to which the different tourist segments are environmentally careful and interested in learning about wildlife, ii) the attributes of the whale-watching activity to be considered in order to satisfy varied tourist interests, iii) whether the interests of tourists regarding the whale-watching experience are ecologically compatible with whale protection, and iv) the extent of tourists' willingness to substitute environmentally incompatible desires and needs for more interpretative experiences. Understanding these aspects is useful for designing effective management strategies that reconcile a satisfying experience for tourists with whale welfare and the social viability of the whale-watching activity (Finkler & Higham, 2020).

4.2. Literature review

4.2.1. Towards sustainable management in whale watching

Few animals arouse emotions and compassion as much as whales do (Blok, 2007). Hence, whale watching has emerged as an alternative to whaling in order to protect these charismatic animals (Mallard, 2019; Suárez-Rojas & Lam-González, 2022). As a tourist attraction, whale watching provides tourists with the opportunity to encounter whales in the wild, while meeting their cognitive, psychological, and emotional desires and needs (López & Pearson, 2017; Orams, 2000; Valentine, Birtles, Curnock, Arnold & Dunstan, 2004). In addition, whale watching enhances tourists' awareness regarding marine wildlife (García-Cegarra & Pacheco, 2017; Jacobs & Harms, 2014; Lück, 2015; Lück & Porter, 2019; Orams, 1997; Stamation et al., 2007).

Thus, whale watching has become an important recreational tourist segment (Cisneros-Montemayor, Sumaila, Kaschner & Pauly, 2010) and a significant source of income for coastal destinations and regional economies (Bentz et al., 2016b; Tkaczynski & Rundle-Thiele, 2018; Wilson & Tisdell, 2003). However, like any other

human activity, whale watching generates ecological and environmental impacts - principally when the activity is not appropriately managed. Scholars have found that some of the direct impacts of whale watching, such as vessel crowding and the proximity of whale-watching boats to animals, provoke changes in the animals' behaviour (New et al., 2015; Parsons, 2012; Senigaglia et al., 2016).

Therefore, there is a large discussion in the literature about the best practices for whale-watching management (Finkler & Higham, 2020), such as approach manoeuvres and speed, distance from the animals, duration of contact with the whales, the number of operator licenses or daily tours, boat design, and zoning, among others (Amerson & Parsons, 2018; Arias et al., 2018; Higham et al., 2009; Mallard, 2019). However, to design integrated and adaptive management strategies, it is necessary to explore the complexity of human-environmental relations (Duffus & Dearden 1990; Higham et al., 2009; Neves, 2004; Simpson, Patroni, Teo, Chan, & Newsome, 2019; Ziegler et al., 2012).

Most research on whale-watching tourism demand has focused on tourist satisfaction because it is assumed that satisfied tourists could 'make experiences more ecologically, economically and socially sustainable' (Simpson et al., 2019). Thus, scholars have analysed sociodemographic, behavioural, and psychographic characteristics determining whale-watching tourist satisfaction (Finkler & Higham, 2004; Orams, 2000; Valentine et al., 2004; Vieira, Santos, Silva & Lopes, 2018). Academics have also focused on the attributes of the whale-watching activity and their influence on tourist satisfaction, such as the educational components of the tour (García-Cegarra & Pacheco, 2017; Lück, 2003, 2015; Orams, 2000; Stamation et al., 2007), the number of whales sighted and their behaviour, the cruise duration or the kind of boat, the distance from the whales, and the weather conditions, among others (Orams, 2000; Valentine et al., 2004). On the other hand, vessel crowding has been widely studied as a factor explaining tourist satisfaction (Ávila-Foucat, Vargas, Jordan & Flores, 2013; Bentz, Rodrigues, Dearden, Calado & Lopes, 2015; Torres-Matovelle & Molina-Molina, 2019), or customers' willingness to return to the whale watching destination (Ávila-Foucat, Gendron, Revollo-Fernandez, Popoca & Ramírez, 2017).

In addition, operators are keen to know which whale-watching attributes drive and satisfy demand, with the aim of working towards the sustainability of the activity (Lück, 2003). While they usually have information about customers' perceptions regarding the performance of the activity, they often ignore which attributes are essential for tourists (Lück, 2003; Lück & Porter, 2019). As Filby, Stockin & Scarpaci (2015) pointed out, sometimes what customers consider most important is not what operators expected. Therefore, more research is needed about tourist interests and management objectives to reconcile demand pulses with whale welfare (Lück & Porter, 2019).

4.2.2. Importance-Performance Analysis in whale watching

In this regard, Importance-Performance Analysis (IPA) has been applied in marine wildlife-watching studies to ascertain the attributes of the tours that influence tourist satisfaction, aimed at identifying management areas for improving firm performance (Bentz, Lopes, Calado & Dearden, 2016a; Lück & Porter, 2019; Ziegler, Dearden & Rollins, 2012). IPA is a simple, effective, and useful analysis tool that assesses the importance and performance of services (activities) or experiences from the perspective of customer responses in order to assist practical management decision-making (Martilla & James, 1977; Oh, 2001). *Importance* is defined as the salience of an attribute in the decision to engage in an activity (Lück & Porter, 2019; Oh, 2001) while *performance* is a measure of operator output (Baker & Crompton, 2000; Tonge & Moore, 2007). Whenever the performance that is offered is lower than importance, the management does not meet consumers' objectives and interests. If performance exceeds importance, the management may be wasting valuable resources (Martilla & James, 1977).

To deliver comprehensive information about the performance of the experience, the definition of the attributes is one of the most important steps in IPA. Table 4.1 summarises the IPA attributes utilised in the wildlife watching studies (Bentz et al., 2016a; Cornejo-Ortega, Chavez-Dagostino & Malcolm, 2018; Lück & Porter, 2019; Ziegler et al., 2012). Previous results show that the attributes with higher performance and contributing most to customer satisfaction are those related to watching performance, followed by the cost of the activity and other service features (Bentz et al., 2016a; Ziegler et al., 2012). On the other hand, the less important attributes are those concerned with environmental education (Cornejo-Ortega et al., 2018; Lück & Porter, 2019). In general, there is consensus on the need to improve eco-friendly practices and enforce existing regulations (Bentz et al., 2016a; Cornejo-Ortega et al., 2018; Lück & Porter, 2019) argue that tourism management studies have underutilised the potential of IPA for improving the industry's practices, specifically in the context of marine wildlife tourism.

Attributes	Bentz et al. 2016a	Cornejo-Ortega et al. 2018*	Lück & Porter 2019	Ziegler et al. 2012
	Whale watching	Whale watching	Dolphin watching	Shark watching
Watching performance				
See whales even if it is only one	Х	Х	Х	
See a lot of whales	Х	Х		
See whales up close to the boat	Х	Х	Х	Х
See spectacular behaviours of whales		Х		
Good photo opportunities	Х	Х	Х	
Trip and service features				
Length of trips				Х
Absence of or few boats during the trip	Х			Х
Cost of the trip	Х			Х
To be comfortable at the boat	Х		Х	
To feel safe with the boat	Х			Х
To have a gift shop			Х	
Learning experience				
Information from a specialised guide	Х		Х	Х
Learn about whales' biology & behaviour		Х	Х	
Learn about wildlife protection		Х	Х	
Learn about how to identify different speci	es	Х		
Learn about regulation and good practices	i	Х	Х	
Learn about whales in local culture		Х		
Learn about climate change			Х	
Eco-friendly tour actions				
Operator's environmental commitment	Х		Х	Х
See whales in a respectful manner		Х		
Environmental features				
Good weather and sea conditions	Х		Х	
See a variety of different wildlife	Х	Х	Х	Х
Other interests				
To seek adventure	Х			
To be with family/friends	Х			

Table 4.1. Literature review of the main wildlife-watching attributes analysed in IPA.

4.2.3. Market segmentation in whale watching

Studies have discovered that tourists exhibit different levels of interest concerning the wildlife experience or respond differently to the same stimuli (Duffus & Dearden, 1990; Malcolm & Duffus, 2008). These differences are frequently unpredictable and may be based on social characteristics, previous experience, or psychographic factors, among others (Duffus & Dearden, 1990; Tkaczynski & Rundle-Thiele, 2018). In this regard, market segmentation has been employed as a strategic tool to capture the heterogeneity among tourists by grouping them according to their similarities (Dolnicar, 2008). Market segmentation enables effective planning for competitive management strategy design. This provides tailored tourism experiences and contributes to sustainable tourism development (Dolnicar, 2008; Kruger, van der Merwe & Saayman, 2018; Mancini, Leyshon, Manson, Coghill & Lusseau, 2020; Tkaczynski & Rundle-Thiele, 2018).

In the case of whale-watching market segmentation research, Malcolm and Duffus (2008) classified tourists in order to develop education programmes, concluding that the degree of customer specialisation should dictate the level at which education is delivered. Bentz et al. (2016b) assessed specialisation to identify differences in perceptions and behaviours, noting that the whale watchers in the Azores are mainly generalist tourists with no previous experience and weak motivation towards marine tourism. On the other hand, Kruger et al. (2018) analysed the factors that customers consider essential for a memorable whale-watching experience, enabling them to get a clear whale-watcher profile to provide strategic insights into managing the experience. Tkaczynski and Rundle-Thiele (2018) segmented tourists according to their profiles and interests to maximise return on investment, concluding that the industry in Hervey Bay (Australia) would ensure both return on investment and environmental conservation if it focuses on the wealthy domestic family segment - the largest and most reachable group.

Nevertheless, in IPA approaches, it has usually been assumed that tourists are a homogenous group (Koh, Yoo & Boger, 2009; Vaske, Beaman, Stanley & Grenier, 1996). According to Bruyere, Rodríguez and Vaske (2002), this is of minimal practical value. The perceived value of the average customer could be a result of two extreme values or could be representing the results of the group with a larger sample size (Bruyere et al. 2002; Wade & Eagles, 2003). Consequently, market segmentation is a necessary component to implement before IPA to design more effective management strategies, according to the different levels of importance customers give to the attributes (Bruyere et al., 2002; Caber, Albayrak, & Matzler, 2012; Lai & Hitchcock, 2015; Phan & Schott, 2019; Vaske et al., 1996).

Despite the potential advantages of combining market segmentation and IPA, this mixed methods approach has been widely ignored in research on wildlife watching (Bentz et al., 2016a; Lück & Porter, 2019; Ziegler et al., 2012). Only the study of Cornejo-Ortega et al. (2018), which applied a similar analysis to IPA, divided the sample based on the company with which whale watchers carried out the activity. Therefore, the present study shows how market segmentation

analysis, in combination with IPA, can produce more sound conclusions for informing sustainable policies at the firm management level. The results allow researchers to prioritise whale-watching attributes according to tourists' interests, thereby ensuring the satisfaction of different groups of customers. It will also enable greater compatibility between the interests of different market segments and the sustainability of the activity.

4.3. Research Design

4.3.1. Study area

The application focuses on the Macaronesian Region, a group of five archipelagos located in the North-East Atlantic Ocean, off the coasts of Europe and Africa. Specifically, the research area comprises the Canary Islands (Spain), and the archipelagos of the Azores and Madeira (Portugal). The three archipelagos have built up a significant profile in the worldwide and European industry of whale-watching destinations because of the feasibility of observing more than 30 different species of whales and dolphins, the proximity of the animals to the coasts, and the vigorous promotion of the activity (Carrillo, 2007; Hoyt, 2003; O'Connor, Campbell, Cortez & Knowles, 2009).

Whale-watching tourists in the Macaronesian Region represent approximately 13.4% of total tourists, and the activity generates more than 35 million euros in direct revenue (Bentz et al., 2016b; IWC, 2020; Krasovskaya, 2017). In particular, the Canary Islands stands out as the most important European destination according to the number of people watching whales in their natural habitat due to the high number of days available for this activity - approximately 300 days/year - (Hoyt, 2003; Turismo de Canarias, 2015). In 2017, 850,000 tourists undertook the activity, 10.63% more than the total number of whale-watchers registered in 2008 at all other European destinations (IWC, 2020; O'Connor et al., 2009). In the Azores, a successful case of how whale watching can replace commercial whaling as a viable source of income for the local population, 12.5% of tourists reported that whale-watching was their main reason for visiting the archipelago (Bentz et al., 2016b). In Madeira, 130,000 tourists sighted whales in 2015, with an annual growth rate of 73% (Krasovskaya, 2017; O'Connor et al., 2009).

4.3.2. Research instrument and Fieldwork

The main research instrument was the questionnaire, which contained both closed-ended and open-ended question formats. See in Supplementary Material the questionnaire employed (SM.3. Questionnaire 3). The survey covered measures of importance and performance relative to the whale-watching experience, using a unidirectional 5-point Likert scale. The importance attached to each attribute was measured on a scale from not at all important (1) to very important (5). In contrast, for performance, the fulfilment or development of those attributes during the experience ranged from strongly disagree (1), to strongly agree (5). Attributes are defined to capture the following aspects of whale watching: (i) observational experience, (ii) interpretative and educational aspects, (iii) service elements of the activity, and (iv) environmental conditions.

Attribute selection was based on the whale-watching attributes analysed by Bentz et al. (2016a), Lück and Porter (2019), and in other studies (Cornejo-Ortega et al., 2018; Orams, 2000; Simpson et al., 2019; Tonge & Moore, 2007; Ziegler et al., 2012). This enhances the reliability of the chosen approach and the comparison of results with other evidence. Nevertheless, qualitative studies were also applied to validate the attributes. A pre-test study with in-depth interviews was conducted prior to the final survey, and two focus groups were organised with tourists that were on holiday in Gran Canaria (Canary Islands).

A random sample of 489 tourists was taken from the objective population of tourists that had enjoyed a whale watching trip in the islands of study in the Macaronesian region (Canary Islands, Madeira, or Azores). Tourists were intercepted by random enumeration after they had completed their trip. The interview method was in person face-to-face by means of trained interviewers. The fieldwork was carried out continuously without interruption over three months between July and September 2019. The questionnaire was distributed in Spanish, Portuguese, English, German, and French, i.e., the languages of the main outbound markets of tourists at the research destinations.

4.3.3. Data analysis

4.3.3.1. Factor Analysis

Factor Analysis was undertaken in order to reduce the number of variables and define the constructs to be introduced in Cluster and IP analyses. The 13 initial attributes of the whale-watching activity were factor analysed utilising Principal Component Analysis with Varimax rotation in order to identify whale-watching tourism importance dimensions (Deng & Li, 2019; Meng, Tepanon & Uysal, 2008). The Kaiser-Meyer-Olkin (KMO) measure of sampling of adequacy and Bartlett's test of sphericity were employed to determine the appropriateness of the analysis. Cut-off points in factor loadings of 0.50, and in communalities of 0.30 were used to determine the items of a factor. The reliability of each factor was assessed using the Cronbach's alpha coefficients, where a value of 0.60, or even somewhat lower, is considered acceptable for exploratory studies in social sciences, as Deng and Li (2019) suggested.

4.3.3.2. Cluster Analysis

Market segmentation was done through a two-step cluster analysis to classify respondents into different groups. The derived factors of importance were utilised as grouping variables (Frochot & Morrison, 2000; Phan & Schott, 2019). A dendrogram derived from hierarchical cluster analysis was first performed to understand the underlying structure of whale-watching tourists. A *K*-means clustering algorithm was then applied to establish more homogeneous importance-based groups (Phan & Schott, 2019). Cluster centres (means of the variables) were used to determine the level of importance given by each group to each factor.

4.3.3.3. Importance-Performance Analysis

An Importance-Performance Analysis was conducted to establish which attributes whale-watching tourists considered to be most important, to what extent these were appropriately performed, and to determine whether the perceptions of importance and performance varied among the clusters of tourists. The means of importance and performance of each attribute were calculated to analyse individuals' responses. Analysis of Variance (ANOVA) (Phan & Schott, 2019) was utilised to test for significant differences between groups regarding importance and performance ratings.

The importance and performance results of tourist clusters were plotted in the alternative I-P grid (Ábalo, Varela & Rial, 2006; Rial, Varela & Real, 2008), which combines the traditional IP-quadrants with diagonal approach, separating the graph into two areas of high and low (management) priority. The data-centred method was also used, i.e., the cross-points of the quadrants were placed for the means of importance and performance (Bacon, 2003; Tonge & More, 2007). This

method is considered to offer a higher discriminative power (Deng & Li, 2019; Lai & Hitchcock, 2015). In addition, for each cluster and factor, a discrepancy analysis (the distance to the diagonal of the attributes) was also carried out to identify the attributes to be prioritised. The higher the discrepancy between an attribute's importance-performance, the greater efforts needed to improve its performance (Ábalo et al., 2006; Ábalo, Varela & Manzano, 2007; Rial et al., 2008).

Frequency analysis and Chi-square test were implemented for the descriptive analysis of the results, i.e., to characterise the sample and trip characteristics, as well as to identify differences between clusters and whale-watching destinations. The different analysis developed in the study were all run with the SPSS 26.0 statistical package. Table 4.2 presents a review of the different methods utilised in the empirical analysis.

Method	Description								
Factor Analysis (PCA)	Groups the variables that measure the importance of the whale- watching attributes into different constructs (CUL, OBS, COM).								
Cluster Analysis	Classifies respondents into different clusters (Passionate, Committed, Amateurs, Recreationists).								
IP-Analysis	Estimates attributes' mean ratings of importance and performance and represents them in an alternative IP-grid in order to establish which attributes are considered most important, to what extent they are performed, and to identify differences in perceptions among clusters.								
ANOVA	Identifies differences between clusters regarding importance- performance ratings.								
Discrepancy Analysis	Identifies the attributes to be prioritise.								
Frequency analysis & <i>Chi</i> -square test	Characterises respondents and analyses differences between clusters.								

Table	4.2.	Descri	ntion	of the	methods	for	data	analy	vsis
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4.4. Results

4.4.1. Factor Analysis

The results of the factor analysis are presented in Table 4.3 The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO= 0.789) showed that the sample was factorable. Bartlett's test of sphericity indicated a statistically significant (p< 0.001) correlation matrix, confirming the adequacy of the analysis. Three attributes were removed (good photo opportunities; see a variety of different marine animals and birds besides whales; cost of the trip) due to their low communality (< 0.3) and because their factor loadings were below 0.5. Factor analysis extracted three latent factors from the remaining ten whale-watching attributes, which explained 59.0% of the total variance. Cronbach's alpha coefficients of the three factors indicate acceptable scale reliability for each factor. The first factor, *whale culture and preservation* (CUL) includes the five attributes related to learning about whales from different disciplines: ecology, physiognomy, culture, protection, and conservation. This factor obtained an eigenvalue of 2.91 and explained 29.10% of the total variance. The second factor included the following attributes: see whales, even if it is only one; see whales close to the boat and see whales for a long time. It obtained an eigenvalue of 1.73 and explained 17.53% of the total variance. This factor was called *whale observation* (OBS). The last factor achieved an eigenvalue of 1.15 and explained 11.51% of the total variance. This two-attribute factor was labelled *comfortable trip* (COM) and refers to conditions on the boat during the trip related to comfort and weather.

Factors/ Attributes	Factor loading	Communality	Eigenvalue	Variance explained (%)	Cronbach's alpha
CUL - Whale culture and preservatio	n		2.91	29.10	0.80
Learn about					
Regulation and good practices of the whale-watching activity	0.78	0.60			
How to identify species of whales	0.76	0.59			
Protection and conservation of whales and other marine wildlife	0.74	0.56			
Whales in local culture	0.72	0.52			
Whales' biology and behaviour	0.71	0.51			
OBS - Whale observation			1.75	17.53	0.60
See whales even if it is only one	0.77	0.60			
See whales up close to the boat	0.76	0.59			
See whales for a long duration	0.68	0.52			
COM - Comfortable trip			1.15	11.51	0.51
To be comfortable on the boat	0.83	0.69			
Good weather conditions for navigation	0.78	0.64			

 Table 4.3. Factor Analysis of the attributes of the whale-watching activity.

Note: Kaiser-Meyer-Olkin (KMO)= 0.789; Total Variance= 59.0%; Bartlett's test *Chi*-2= 918.222, p=0.000.

4.4.2. Cluster Analysis

The two-step cluster analysis generated four different groups of individuals (see Appendix 4.1. Dendrogram using Ward linkage). Table 4.4 shows that whale-watching tourists are homogeneously distributed according to their expertise

level. The most specialised whale watchers are committed whale watchers (n= 116). This group gave the lowest importance (the highest cluster centre in absolute terms) to *whale observation* (OBS). The second more specialised tourists are passionate (n= 122) because they gave the lowest importance to comfortable trip (COM). Then, recreationist whale watchers (n= 84) are considered less specialised because they gave the lowest rate of importance to the CUL factor. Finally, the generalist whale-watching tourists, the amateurs (n= 167), represent the larger cluster within the sample. For this group *whale culture and preservation* (CUL) is as important as *whale observation* (OBS) and *comfortable trip* (COM).

	Cluster										
	Cluster 1	Cluster 2	Cluster 3	Cluster 4							
	Passionate	Committed	Amateurs	Recreationists							
Factor	n= 122	n= 116	n= 167	n= 84	<i>F</i> -test						
CUL	0.12	0.39	0.43	-1.57	179.23**						
OBS	0.16	-1.26	0.63	0.25	179.77**						
СОМ	-1.31	0.34	0.54	0.36	223.14**						

Table	4.4.	K-means	Ana	lysis.
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***p*<0.01; **p*<0.05

Table 4.5 shows that there are significant differences (*Chi*-2= 75.301; p<0.01) regarding the groups of tourists which carry out the whale-watching activity in the archipelagos of the Macaronesian Region. The Canary Islands receive a majority of generalist whale watchers, i.e., amateurs (40.8%) and recreationists (27.6%). On the other hand, more specialised tourists undertake the activity in Madeira (committed= 40.0%; passionate= 26.3%). Regarding the Azores, 37.1% of whale watchers are grouped as passionate, whereas only 5.0% were considered recreationist whale watchers.

 Table 4.5. Distribution of the whale-watchers by cluster and destination (%).

	Arc	hipelago		
	Canary Islands	Madeira	Azores	
Cluster	n= 250	n= 80	n= 159	
Passionate	16.8	26.3	37 1	
n= 122	10.0	20.5	57.1	
Committed	14.8	40.0	29.6	
n= 116	14.0	-0.0	29.0	
Amateurs	40.8	25.0	28.5	
n= 167	40.0	23.0	28.3	
Recreationists	27.6	0 0	5.0	
n= 84	27.0	0.0	5.0	

Chi²-test= 75.301; *p*=0.000

4.4.3. Importance-Performance Analysis

Table 4.6 displays the mean and the standardised deviation regarding the levels of importance and performance that the four whale-watcher groups give to the three principal factors of the whale-watching activity. The IPA analysis is conducted based on the identified factors, rather than on the individual attributes, in order to provide more useful insights from the management perspective. Appendix 4.2. shows the importance and performance scores for the specific attributes.

Comfortable trip (COM) was the factor that obtained the highest importance and performance scores by the different clusters, with no significant differences (F=0.58). Whereas the *whale culture and preservation* (CUL) factor was the second factor in importance, recreationist whale watchers gave the lowest importance scores of the total sample (mean= 2.69), specifically to the attribute regarding *learning about the regulations and good practices of the whale-watching activity* (2.56). In response to the perceived performance, this group also assigned the lowest rating to the CUL factor (3.03). The OBS factor was the least important factor for the total sample. Nevertheless, the importance value that the recreationists gave to this factor corresponds to the highest value of the different factors and clusters.

	Passi	onate	Comn	nitted	Ama	teurs	Recreat	ionists	То	tal		
_	n=	122	n=	116	n=	167	n= 84		n= 489		<i>F-</i> test	
	Ι	Р	Ι	Р	Ι	Р	Ι	Р	Ι	Р	т	Ρ
Factor	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	1	
	4.01	3.77	4.27	3.68	4.19	3.77	2.69	3.03	3.91	3.62	180 7**	16.5**
COL	0.52	0.85	0.52	0.87	0.47	0.74	0.62	1.02	0.77	0.89	109.7	
OPS	3.83	3.74	2.90	3.77	4.33	3.94	4.19	4.14	3.84	3.88	170 //**	2.6*
UB3	0.60	1.14	0.55	0.91	0.42	0.96	0.65	0.71	0.78	0.97	172.4***	5.0"
СОМ	2.91	4.27	4.12	4.28	4.47	4.35	4.32	4.25	3.97	4.30	212 /**	
	0.57	0.68	0.64	0.67	0.41	0.64	0.59	0.67	0.83	0.66	۲۱۵.4**	0.58

Table 4.6. Importance-Performance Analysis and ANOVA by cluster.

Note: I= Importance; P= Performance; SD= Standard Deviation.

***p<*0.01; **p<*0.05

Table 4.7 shows the corresponding values for the discrepancy analysis by each whale-watcher cluster, and Figure 4.1 illustrates the IP-graph proposed by Ábalo et al. (2006) and adapted by Rial et al. (2008). For committed (discr= -0.59), amateur (discr= -0.42), and also for passionate whale-watchers (-0.24) there is a moderate negative discrepancy concerning the CUL factor, i.e., point 1 on the IP-graph appears above the diagonal (concentrate here). These results show that if

operators do not strengthen their whale education and interpretation programmes, they would be constraining the provision of an enriching whalewatching experience. Conversely, *whale culture and preservation* is a factor of low priority for recreationist whale watchers (moderate positive discrepancy). Performance scores do not meet the service standards, nor did respondents place a high level of importance on the factor.

Concerning the OBS factor (point 2), discrepancy ratings for amateur whalewatchers resulted in a moderate negative value (discr = -0.39). For passionate whale watchers and recreationists, the factor obtained a negligible negative score (discr < -0.1). These results reveal that operators need to outperform to meet customers' interests. Notwithstanding, the OBS factor is not ecologically compatible with whale welfare because actions such as being up close to the whales for a lengthy duration negatively impact on the animals' behavioural patterns. In this sense, the high positive value of discrepancy from committed whale-watchers (discr = +0.87) is considered a good performance result for *whale observation*.

On the other hand, if the COM factor (point 3) were analysed considering the total sample, it would result in a factor to keep up the good work, thus representing a competitive advantage for the operator. However, this factor is shown in different quadrants of the IP-graph, when assessed by clusters. First, only for the committed whale watchers should the *comfortable trip* (COM factor) keep up the good work (moderate positive rate in the discrepancy analysis). For amateurs (moderate negative discrepancy), the COM factor was considered a highly important factor. Still, it did not obtain a high positive performance, so it is located above the diagonal (operators must concentrate here). For recreationist whale watchers, the discrepancy rating was negligible (discr= -0.07). That is, the performance of the COM factor seems to be a waste of resources for passionate whale-watching tourists (discr= +1.36). That is, whereas operators performed well or exceeded the quality standards of a *comfortable boat trip*, it is not important for passionate whale-watchers (possible overkill).

	Pa	Passionate Committed		ed	Amateurs			Recreationists			Total					
	n= 122				n= 116			n= 167			n= 84			n= 489		
Factor	Р	Ι	Discr	Р	Ι	Discr	Р	Ι	Discr	Р	Ι	Discr	Р	Ι	Discr	
CUL	3.77	4.01	-0.24	3.68	4.27	-0.59	3.77	4.19	-0.42	3.03	2.69	+0.34	3.62	3.91	-0.29	
OBS	3.74	3.83	-0.09	3.77	2.90	+0.87	3.94	4.33	-0.39	4.14	4.19	-0.05	3.88	3.84	+0.04	
СОМ	4.27	2.91	+1.36	4.28	4.12	+0.16	4.35	4.47	-0.12	4.25	4.32	-0.07	4.30	3.97	+0.33	

Table 4.7. Discrepancy (gap) analysis of the factors by cluster.







Figure 4.1. Importance-Performance graphs by cluster and for the total sample. **1**= CUL- Whale culture and preservation; **2**= OBS- Whale observation; **3**= COM-Comfortable trip.

Performance

4.00

4,50

5,00

3,50

2.50

3,00

4.4.4. Sociodemographic profile and trip characteristics

Table 4.8 shows the sociodemographic profile and trip characteristics of the whale-watcher groups. There were significant differences among the four clusters in terms of gender (Chi-2= 8.1163; p<0.05), nationality (Chi-2= 54.164; p<0.01) and individual income (Chi-2= 27.791; p<0.05). Thus, committed, and passionate whale-watchers are mainly from Spain and Portugal (committed= 29.3%; passionate= 23.8%), whereas recreationists and amateurs are mainly British or Irish (35.7 and 28.7%, respectively). Chi-2 test showed no significant differences according to age (medium-age adults), cultural level (bachelor's degree), and occupation (employed for wages).

Concerning trip characteristics, significant differences were identified in the following variables: travel organisation (Chi-2= 53.849; p<0.01), travel group (Chi-2= 42.099; p<0.01), accommodation, and previous whale-watching experience (Chi-2= 8.1163; p<0.05). As Table 4.8 shows, committed and passionate whale-watchers prefer to organise their trip on their own (61.5, 61.2%, respectively). On the other hand, more than 60% of recreationists and amateurs stay at hotels. 57.8% of the committed tourists declared they had done the activity previously, in contrast to recreationists (37.7%). Whale-watchers, with no significant differences, spent on average between 900€ and 1,000€ during their seven-nights holidays (mean of nights that tourists stay at whale-watching destinations).

	Passionate	Committed	Amateurs	Recreationists	
	n= 122	n= 116	n= 167	n= 84	Chi2-test
Sociodemographics					
Gender (<i>% female</i>)	37.7	53.4	49.1	54.8	8.163*
Age (<i>median years</i>)	40.50	41	37	38	20.516
Nationality					54.164**
Spanish & Portuguese (%)	23.8	29.3	22.8	11.9	
British & Irish (%)	13.9	21.6	28.7	35.7	
Germans (%)	16.4	19.0	10.8	10.7	
Cultural level (<i>median study years</i>)	16	16	16	16	17.555
Occupation (employed for wages %)	76.2	75.0	71.3	67.9	20.963
Economic level <i>(median annual income €)</i>	30,000	18,000	30,000	30,000	27.791*
Trip characteristics					
Travel organisation					53.849**
Organised by myself (%)	61.5	61.2	44.3	27.4	
Travel agency (%)	20.5	13.8	34.1	48.8	
Travel group					42.099**

 Table 4.8. Frequency Analysis and Chi-2 test of sociodemographic and trip characteristics.

	Cluster				
	Passionate	Committed	Amateurs	Recreationists	
	n= 122	n= 116	n= 167	n= 84	Chi2-test
Friends/ work mates (%)	39.3	36.2	34.7	31.0	
My child/ children (%)	9.8	16.4	10.2	9.5	
Relatives (%)	9.8	12.1	18.6	27.4	
Organised group (%)	28.7	16.4	21.0	15.5	
Accommodation (% hotel)	55.7	47.4	63.5	69.0	36.756*
Holiday expenditure (<i>median €)</i>	1000,00	1000,00	900,00	935,00	7.563
Previous whale-watching (%)	43.4	57.8	46.1	35.7	10.308*

***p<*0.01; **p<*0.05

4.5. Discussion

4.5.1. Operationalising segmented-IPA approaches

IPA analysis provides firms and decision-makers with general insights about the attributes of the whale-watching experience relevant to consumers, making it possible to assess operators' performances. In general, our average results are consistent with previous research in highlighting the most important attributes as those concerned with whale observation, conditions on the boat (comfort), and whale culture and preservation (Bentz et al., 2016a; Cornejo-Ortega et al., 2018; Lück and Porter 2019). Notwithstanding, the IPA application in earlier studies refer to average customers and do not consider the heterogeneity of individual interests. This constrains the design of tailored experiences to meet the different consumer demands.

Following up on previous research about market segmentation in marine wildlife tourism, the results of this study confirm that there are tourists with a specialised interest in wildlife, as well as tourists with more recreational interests (Bentz et al., 2016b; Duffus & Dearden, 1990; Moscardo, 2000; Tkaczynski & Rundle-Thiele, 2018). However, there is scarce research to date on how tourist segmentation might contribute to more meaningful management guidelines (Bentz et al., 2016b; Bruyere et al., 2002; Caber et al., 2012; Kruger et al., 2018; Lai & Hitchcock, 2015; Malcolm & Duffus, 2008; Mancini, Leyshon, Manson, Coghill & Lusseau, 2020; Phan & Schott, 2019). The results of the present paper show that market segmentation could provide useful insights into the sustainability of whale-watching tourism.

As pointed out earlier, the segmented-IPA allows researchers to show the heterogeneity of whale-watching demand though the IP-results. For instance,

average results conclude that whale-watching operators should keep up the good work regarding the conditions of the boat in terms of comfort. However, the consideration of market segmentation suggests that for passionate whalewatchers, operators are overinvesting in comfort, while for the most generalist segments (amateurs and recreationists) operators should focus on enhancing them.

4.5.2. Reconciling ecological attributes within whale watching

The segmented-IPA utilised in this research highlights that whale-watching operators have a dual challenge to lead whale-watching tourism towards sustainability. First, they have to consider the various interests of the different whale-watching tourist segments for practical decision-making purposes. Secondly, operators have to take into account the ecological compatibility of the attributes and factors, so that the activity does not compromise animal and ecosystem welfare.

According to Curtin (2010), whales can enter into a state of alert in a tiny temporal and spatial moment. Therefore, it is crucial to adopt sound management practices in order to guarantee the whales' welfare and preservation. To achieve this, and according to IP-results, ecologically compatible management of whale-watching concerning *whale observation* (OBS) should get closer to the results of the committed whale watchers, who give little importance to watching whales close up for protracted periods. However, the question must be asked: how can operators provide an activity that is ecologically compatible with animal welfare for those tourists who seek more recreational experiences and are less interested in nature? The answer comes from investing in education, awareness-raising, and innovation. Designing effective management strategies based on these tools could make the conservation of the marine environment compatible with whalewatching.

If visitors are well informed about the impacts of close proximity and protracted engagement in whale encounters, it could lead to behavioural changes involving more willingness to enjoy whale-watching from a greater distance and for a shorter duration (Finkler, Higham, León & Aitken, 2019; Kessler, Harcourt & Bradford, 2014; La Manna et al., 2020; Lück, 2003; Orams, 2000; Sneddon, Lee, Ballantyne & Packer, 2016). Moreover, clear cut education messages regarding a more responsible experience would enable whale-watching tourists to recognise
irregular practices, report bad conduct or make decisions about their consumption choices (Finkler & Higham, 2020). In this regard, a pro-active education could be more powerful than the effort of designing more punitive norms or to strictly monitor the compliance of good practices (Mallard, 2019; Orams, 2000).

Additionally, Jacobs and Harms (2014) demonstrated that if interpretation tools emphasise the importance of whales through emotions, this will have a more significant effect on conservation intentions and tourist satisfaction. In response, Finkler et al. (2019) suggested that science communication videos can manage customers' expectations and contribute to more responsible behaviour. Likewise, listening to whales through a hydrophone on-board (Shapiro, 2006) could build up a special connection with the animals while learning about them (López & Pearson, 2017; Orams, 2000; Valentine et al., 2004). As Moscardo (2008) pointed out, innovation leads to solving problems in a more creative way.

On the other hand, the segmentation analysis is useful for deciding upon the most advantageous market segments in terms of sustainability (Mancini et al., 2020). That is, operators could find scope for detracting resources from those segments that are outperforming in some attributes and dedicate them to those in higher demand and underperforming. This reallocation of objectives from the recreational segments to the more ecologically conscious tourists could be a useful tool for moving the whale-watching activity towards sustainability. For instance, in the case of the results of the present study, it is shown that in the Azores and Madeira, because the most important segment is based on passionate and committed tourists, there is scope for substituting the less in-demand attributes, such as boat comfort, for increased concern over whale culture and preservation. However, in the Canary Islands, since the most important segment is characterised by amateur tourists, there is much more interest in whale observation performance. Thus, in the latter case, there is opportunity for enhancing educational programmes that reduce this interest in favour of a more environmentally and ecologically conscious tourist behaviour.

4.6. Conclusions

The present study is the first within the wildlife-watching tourism research that has combined cluster analysis and IP-analysis based on the alternative I-P grid of Ábalo et al. (2006) and Rial et al. (2008). The conjunction of both approaches

brings about more informative results, enabling operators to make better informed management decisions for the sustainability of whale-watching tourism.

The results highlight that whale-watching tourists in the Macaronesian Region are a heterogeneous group, i.e., not all tourists are as interested in learning about whales and their preservation, nor are their interests always compatible with the animals' protection. Moreover, these findings confirm those of previous studies in that i) the increasing popularity of marine wildlife tourism attracts new and less specialised customers (Bentz et al., 2016b; Duffus & Dearden, 1990, 1993), and ii) tourism specialisation pertains to specific destinations and according to the overall number of tourists at the destination (Bentz et al., 2016b; Neves, 2010; Malcolm, 2003).

The segmented-IPA allows researchers to show that the sustainable management of whale watching entails a dual challenge. First, it has to respond to the weaknesses and underperforming attributes of the activity while taking into account the diverse perceptions of different whale-watcher clusters in order to develop efficient, practical solutions. It also has to ensure the ecological and social compatibility of the factors and attributes defining the experience, so that their satisfactory performance does not compromise animal welfare and the existence and legacy of the activity in the long term.

The results of this study also highlight a lack of utilisation of assets pertaining to education and interpretation in the whale-watching industry as it does not differentiate and support the interests of the committed, passionate, and amateur whale watchers concerning whale learning and preservation. In addition, the whale-watching industry does not make learning about whales attractive for recreationist whale watchers, nor does it attempt to raise generalist tourists' awareness on the importance of protecting whales. Thus, and following previous research (Bentz et al., 2016a; Curtin, 2009; García-Cegarra & Pacheco, 2017; Jacobs & Harms, 2014; Lück, 2015; Lück & Porter, 2019; Orams, 1997; Stamation et al., 2007), whale-watching management needs to focus on providing interpretative information about whale ecosystems in order to deliver an ecologically and socially friendly experience.

On the other hand, encouraging whale-watching operators to reallocate the investment in some factors, such as the comfort of the trip, towards whale learning and preservation will also work in favour of reconciling the sustainable management of whale watching. However, there is a need to further explore these

potential substitution relationships in order to efficiently reallocate investments between factors or attributes, highlighting a limitation in the present study.

More in-depth research would be necessary concerning the management adjustments required to obtain more accurate results. How much should operators invest in reconciling ecological attributes within whale watching? How much of the investment in certain factors should be reduced in favour of other factors in order to operationally manage and steer whale watching towards sustainability? Would this be enough to achieve a balance between the conservation and social development of whale watching? Future research should focus on how to achieve a committed and innovative whale-watching activity that simultaneously increases whale welfare, tourist satisfaction and business profitability.

4.7. Appendices





Appendix 4.2. Importance-Performance Analysis and ANOVA of all attributes

	Passi	onate	Com	mitted	Ama	teurs	Recrea	tionists	То	tal		
	n=	122	n=	116	n=	167	n=	- 84	n=	489	<i>F</i> -te	est
	Ι	Р	Ι	Р	Ι	Р	Ι	Р	Ι	Р	т	Р
Factor / Attributes	SD	SD	SD	SD	SD	SD	SD	SD	SD	SD	•	•
CUL - Whale culture and prese	rvatior	۱										
Learn about												
Regulation and good practices	3.97	3.84	4.13	3.70	4.17	3.86	2.56	2.87	3.83	3.65	70 42++	10 6 /++
of the whale-watching activity	0.92	1.09	0.95	1.14	0.83	0.96	0.90	1.13	1.07	1.12	70.45***	10.04
	3.85	3.69	4.25	3.61	4.02	3.72	2.58	3.06	3.79	3.57		C 21++
How to identify species of whales	0.91	1.29	0.81	1.16	0.90	1.15	0.82	1.26	1.04	1.23	68.85**	6.31**
Protection and conservation of	4.22	3.86	4.49	3.85	4.28	3.86	2.79	3.14	4.06	3.73	76 02**	0.04**
whales and other marine wildlife	0.84	1.07	0.74	1.27	0.88	1.07	0.98	1.19	1.04	1.17	10.02	9.04***
	3.93	3.78	4.19	3.44	4.21	3.54	2.67	2.88	3.87	3.46	65.06.1	0.0011
Whales in local culture	0.86	1.15	0.96	1.27	0.79	1.18	0.99	1.30	1.04	1.25	65.26**	9.39**
	4.09	3.68	4.29	3.79	4.27	3.84	2.85	3.19	3.99	3.68	68.22** 6.70	6 70
Whales' biology and behaviour	0.86	1.22	0.73	1.15	0.75	1.06	0.95	1.16	0.97	1.16		6.70**
OBS - Whale observation												
	4.63	4.20	3.59	4.44	4.86	4.44	4.67	4.70	4.47	4.43		
See whales even if it is only one	0.55	1.34	1.06	1.12	0.36	1.11	0.59	0.72	0.83	1.13	90.18**	3.30*
	3.71	3.80	2.80	3.82	4.25	3.75	4.02	3.99	3.73	3.82		
See whales up close to the boat	0.95	1.43	1.06	1.28	0.70	1.28	0.85	0.84	1.04	1.25	64.80**	0.69
	3.13	3.21	2.31	3.06	3.89	3.62	3.87	3.74	3.32	3.40	50 54	6.01.1
See whales during a long time	1.21	1.42	1.03	1.37	0.99	1.26	1.03	1.10	1.24	1.32	59.51**	6.91**
COM - Comfortable trip												
	2.84	4.28	4.16	4.28	4.39	4.37	4.29	4.15	3.93	4.29	100 00++	1.00
To be comfortable at the boat	0.90	0.89	0.83	0.89	0.68	0.76	0.74	1.02	1.01	0.88	106.05^^	1.09
Good weather conditions for	2.99	4.27	4.08	4.28	4.54	4.34	4.36	4.35	4.01	4.31	04 60**	0.27
navigation	1.01	0.83	0.88	0.81	0.57	0.85	0.79	0.70	1.01	0.81	94.00^^	0.27

Note: I= Importance; P= Performance; SD= Standard Deviation.

***p*<0.01; **p*<0.05

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CHAPTER THE ECONOMIC VALUE OF SUSTAINABLE CORPORATE SOCIAL RESPONSIBILITY IN WHALE-WATCHING TOURISM

THE ECONOMIC VALUE OF SUSTAINABLE CORPORATE SOCIAL RESPONSIBILITY IN WHALE-WATCHING TOURISM

Abstract

Whale watching has been long marketed as a whale conservation-oriented form of sustainable tourism. However, inappropriate management practices are endangering whales, the marine environment, and the tourist experience. This situation highlights the need for more responsible, sustainable actions to reconcile whales' protection with the various tourists' demands. This paper analyses consumers' preferences for socially responsible and green solutions for sustainable whale-watching tourism management. A latent class discrete choice experiment is utilised to evaluate heterogeneity in tourists' preferences regarding the various measures of responsible sustainability by the whalewatching firm. Results show two groups of tourists with different preferences and economic values for sustainable policies: sustainable and consumption tourists. The group of sustainable tourists have higher preferences for corporate social responsibility and technological innovation solutions for monitoring whale populations, thereby reducing the ecological and environmental impacts. The consumption tourist group is more in line with traditional preferences, focusing on enjoying the whale-watching experience by managing crowding effects. Although the sustainable tourist segment has a smaller market share, the results suggest that there is market potential for increasing the responsible sustainability practices in the whale-watching activity.

Keywords: Whale watching; Corporate Social Responsibility; Sustainability; Consumer preferences; Discrete Choice Experiment; Latent Class model.

5.1. Introduction

Sustainable tourism aims to reconcile the economic dimension linked to competitiveness, the social component related to the wellbeing of employees and local communities, and the environmental dimension connected to the efficient management of natural resources while addressing tourists' needs (Higham, Bejder, Allen, Corkeron & Lusseau, 2016; Perles-Ribes & Ivars-Baidal, 2018; UNEP & UNWTO, 2005). Traditionally, whale watching has been considered a sustainable tourism activity since it provides a conservation alternative to extractive whaling (Lissner & Mayer, 2020; Pendleton, 2006; Richards, Meyneckle & Sahin, 2021). In addition, whale watching generates both non-market - intangible- benefits to the millions of people lucky enough to watch this charismatic megafauna in their natural environments (Cook, Malinauskaite, Davíðsdóttir & Ögmundardóttir, 2020; Lissner & Mayer, 2020; Pendleton, 2006) and economic benefits to many coastal tourist destinations (Bentz, Lopes, Calado & Dearden, 2016; Lambert et al., 2010; Wilson & Tisdell, 2003).

However, it has also been recognised whale-watching tourism as a clear example of sustainability failure, particularly when it comes to managing the environmental impacts caused by the activity (see Cunningham, Huijbens & Wearing, 2012). Inappropriate practices affect animal behavioural patterns both in the short and long terms, such as resting, socialising, and feeding, which ends up affecting species' welfare (see Arias et al., 2018; IWC, 2020a; Lammers, Pack, Lyman, & Espiritu, 2013; Schuler et al., 2019). To counteract these impacts, some whale-watching management approaches have been suggested aimed at caring for the biological and behavioural aspects of whales (Cunningham et al., 2012). Despite this, some operators continue to utilise impacting practices such as cruising at high speeds or approaching too close to animals, with the aim of either making more tours per day, carrying on more customers or meet their expectations (Amerson & Parsons, 2018; Corkeron, 2006; Curtin, 2010; Finkler & Higham, 2020; Finkler, Higham, León & Aitken, 2019).

Therefore, achieving a higher level of sustainability in wildlife tourism in general, particularly in whale-watching tourism, faces the challenge of reconciling the complex relationships between ecosystems welfare and socio-economic systems (Farrell & Twining-Ward, 2004; Lambert et al., 2010; Richards et al., 2021). Duffus and Dearden (1993) argued that both human and environmental aspects must be balanced in all management stages of whale watching to avoid downside effects

on the resource and recreational experience by taking advantage of innovative, integrated, and adapted solutions (Higham, Bejder & Lusseau, 2009).

In this regard, responsible behaviour of firms in whale watching can lead to successful private and social returns (Hoarau, 2012) by adopting new and innovative measures to face the impacts and reach an optimal sustainable performance (Bertella, 2019b; Forés, Puig-Denia & Fernández-Yáñez, 2020; Hoarau & Eide, 2019; Moscardo, 2008; Richards et al., 2021). It has been recently noted that some tourists' make purchasing decisions based on operators' sound environmental practices, in addition to service quality or safety, that could firms make visible through the adoption of corporate socially responsible eco-labels and certifications (Karlsson & Dolnicar, 2016; Lissner & Mayer, 2020). That is, tourists' preferences may be changing in favour of investment decisions that will make sustainable practices economically viable (Forés et al., 2020; Hoarau, 2012). However, Lissner and Mayer (2020) indicated that there is scarce research on consumers' preferences for a 'full-blown' Corporate Social Responsibility approach going beyond environmental issues and including, among others, signposts to ensure employee wellbeing.

Thus, this paper investigates tourists' preferences for sustainable firms' behaviour in the whale-watching industry, involving different measures to improve the relationships between tourism and the marine environment. Tourists are posed with an integral responsible, sustainable program including a set of measures beyond traditional corporate social responsibility (CSR), such as new technological advances capable of providing a higher level of welfare for the whale species and reducing greenhouse gas emissions. The methodology utilises a discrete choice experiment (DCE) (Louviere, Flynn & Carson, 2010; McFadden, 1986; McFadden & Train, 2000) which presents tourists potential trade-offs between firms' socially responsible behaviours and other attributes related to the consumption experience and the environmental management of the activity, to face the following question: Do tourists really value responsible, sustainable practices in wildlife encounters, as expected? This paper contributes to the literature on whale watching and wildlife-based tourism by jointly assessing tourists' preferences and values for CSR and green solutions in operational management. Further, the heterogeneity analysis shows that tourists may be significantly different across market segments of whale watchers and that there is a need to reconcile firms' operational practices with the evolving preferences of tourists. The study area constitutes the Canary Islands, the Azores, and Madeira,

some of the most important European whale-watching tourist destinations of the North Atlantic.

5.2. Literature review

5.2.1. Responsible sustainability in whale watching

In general, the experience of whale-watching tourism over the last decade indicates that it has largely failed to match what O'Connor et al. (2009, p. 8) defined as the 'most sustainable, environmentally-friendly and economically beneficial use of whales.' Businesses stubbornly label whale-watching tourism as sustainable or an ecotourism activity (Rocha et al., 2020) while whale-watching tourists are not more ecotourists or have greener values than other general tourists (Higham, Bejder & Williams, 2014).

Whales' harassing by operators, sometimes motivated by tourists' expectations for a close, unconstrained, and prolonged whale encounter (Orams, 2000), induce direct and visible impacts on animals -e.g., changes in swimming speed, as well as less visible ones -increases in stress levels (see Christiansen & Lusseau, 2014; IWC, 2020a; New et al., 2015; Parsons, 2012). Many whale-watching vessels also generate other indirect effects, such as CO₂ emissions, amplifying the damage to the health of both the marine environment and whales. As pointed Hoarau and Eide (2019), changing boat engines may reduce 60% petrol consumption. On the other hand, the presence of non-authorised boats carrying out the activity, or the inept licencing in terms of numbers, duration, and conditions i) raises mistrust and rivalry atmosphere between operators, ii) fosters a decline in the tour prices, and iii) leads to lower service quality, intensifying the impacts on whales (Higham et al., 2009; IWC, 2020b).

Thereby, whale-watching requires a sounder responsible behaviour, especially from operators, to reconcile the tour management practices with sustainability and ensure marine ecosystems' preservation (Clark et al., 2019; García- Cegarra & Pacheco, 2017). However, how responsibly the tourism industry translates the rhetoric of sustainability into reliable and practical actions remains a challenge (Ali & Frew, 2014; Garrod & Fyall, 1998; Higham et al., 2009; Mihalic, 2016). Hereof, scholars suggest that the management of the consumer experience of tourists that hang out with whales and their varied motivations, as well as their perceptions about the impacts associated with the activity, must be prioritised in whale-based tourism (Curtin, 2010; Finkler & Higham 2004; Orams, 2000).

The quality of the experience influences consumer behaviour and satisfaction (Bertella, 2019b; Lück, 2015; Stamation, Croft, Shaughnessy, Waples & Briggs, 2007) and consumer purchasing choices. Recent studies have shown a growing consumer demand for tourism firms involved in sustainable actions and concerned about ethical and environmental aspects (Dolnicar, 2015; Iraldo, Testa, Lanzini & Battaglia, 2017; Moeller, Dolnicar & Leisch, 2011). As Tkaczynski and Rundle-Thiele (2018) argue, this would enable firms to optimise their investment return while contributing to protecting the marine environment.

Thus, firms should adapt to the more environmentally friendly growing consumer demands and adjust their management decisions towards sustainable solutions (Halme, 2001; Hoarau, 2012). However, existing approaches signalling tourism firms' efforts about sustainability -such as eco-labelling or voluntary codes of conduct-, are still considered theoretically limited and ineffective (Ali & Frew, 2014; Moscardo, 2008). Therefore, the sustainable whale watching industry requires innovations and changes to i) enhance the current whale protection measures, ii) differentiate against other (non-authorised) operators, iii) make visible firms' environmental and social awareness-raising, and iv) reconcile with pro-sustainable consumer demand (Burgin & Hardiman, 2010; Hoarau, 2012; Hoarau & Hjalager, 2020; Karlsson & Dolnicar, 2016; Lissner & Mayer, 2020).

In response, Corporate Social Responsibility (CSR) has been invoked as a voluntary approach that leads firms to engage in ethical issues to care natural resources, protect employee wellbeing and enhance consumer satisfaction while overcoming the more traditional issues of profitability and other business concerns (Coles, Fenclova & Dinan, 2013; Font, Garay & Jones, 2016; Font, Bonilla-Priego & Kantenbache, 2019). Besides, CSR is understood as the responsibility firms have to undertake with the varied stakeholders that interact in their business and with society as a whole. Thus, responsible firms aim to produce a positive impact on society and the environment and influence consumers' awareness concerning their business environmental, social, and governance efforts (see Bertella, 2019a; Bickford, Smith, Bickford & Bice, 2017; Blinova et al., 2018; Coles et al., 2013; Moneva, Bonilla-Priego & Ortas, 2020).

Along with this, the application of green technologies in operational management is seen as part of CSR and sustainable innovation (Bacinello, Tontini & Alberton, 2019; Chung, Tyan & Lee, 2019; Tuan, 2018). This involves the incorporation of efficient ways of environmental management beyond traditional practices, enabling firms to reduce negative environmental impacts and reach their maximum economic performance (Forés, Puig-Denia & Fernández-Yáñez, 2020; Perles-Ribes & Ivars-Baidal, 2018). For instance, Hays et al. (2019) pointed out that advanced technology to track marine animals helps inform conservation policies and management strategies successfully.

Notwithstanding, scholars have argued that CSR initiatives have had little effect on whale-watching practices because there is a general lack of business understanding about tourist demands for sustainable experiences (Bertella, 2019a; Hoarau, 2012; Parsons & Brown, 2017). In addition, there is little evidence about the socioeconomic impacts of these pro-active approaches in whalewatching tourism (Hoarau, 2012; Bertella, 2019a; Font et al., 2016; Font et al., 2019; Lissner & Mayer, 2020). Thus, there is a need to ascertain how sustainable innovations influence consumers' preferences in order to push out tailored management solutions for the management of whale-watching tourism.

5.2.2. Discrete Choice Experiments in whale watching

In order to develop sustainable management strategies in whale-watching tourism, there is a need to understand tourists' preferences for the pleasurable characteristics involved in nature-based experiences (Hausmann, Slotow, Fraser & Minin, 2017). To this aim, the Discrete Choice Experiment (DCE) is an increasingly popular method to assess the economic benefits of the consumption of natural resources in tourism, which is based on the evidence that the value of non-market goods and services goes beyond the price tourists pay for them (Pendleton, 2006). DCE is utilised to estimate individuals' willingness to pay (WTP) for the multiple attributes involved in tourism by eliciting their preferences about the goods and services entangled in the experience with the natural environment (Larson, Shaikh & Layton, 2004). This information has been utilised for developing management strategies to improve the quality of the tourism services and experiences, thereby contributing to sustainable wildlife tourism management (Cook et al., 2020; Chen & Chen, 2019; Cheung et al., 2019; Lew et al., 2015; Liu et al., 2019; Schwoerer, Knowler & García-Martínez, 2016).

In the whale (and dolphin) watching research arena, several studies have employed the DCE method to analyse individuals' preferences for some sustainable whale-watching attributes and the economic values associated with the tour (Table 5.1). Results from previous studies show that whale watchers' WTP is positive if there is a guarantee of watching a significantly high number of whales (Lee et al., 2019; Shapiro, 2006; Warren, 2012), or at least one dolphin (Hu, Boehle, Cox & Pan, 2009). It has also been found that tourists have positive WTP values for on-board education (Lee et al., 2019; Shapiro, 2006; Kessler, Harcourt & Bradford, 2014; Warren, 2012), specifically for diversified and robust educational experiences (Lee et al., 2019; Shapiro, 2006). Education enhances tourists' awareness-raising about caring animals and responsible behaviour, thereby encouraging whale-watching operators' sound environmental operations (Bertella, 2019b; Curtin, 2010; Lück, 2015; Orams, 2000; Stamation et al., 2007).

On the other hand, boat features like boat type and size are not always significant characteristics raising tourists' values (Hu et al., 2009) and are not prioritised over other aspects such as the potential adverse effects on whales' welfare (Kessler et al., 2014). Individuals have been shown to endow strong preferences for minimising whales' impacts due to boat collision (Kessler et al., 2014; Shapiro, 2006). According to Bach and Burton (2017), whale-watchers would also be willing to pay significantly higher fees for a tour that ensures safe distances with dolphins or even to only watch dolphins offshore in lieu of closer sightings. Further, findings also demonstrate that customers support a more regulated activity, specifically boat speed limits (Shapiro, 2006) or boat licences (Warren, 2012). For instance, Kessler et al. (2014) found that participants preferred a 50 m approach distance over the existing regulated distance of 100 m. However, when they were informed about the potential impacts on whales' welfare, they informed that they would be willing to watch whales from a longer distance. Hence, these findings show that whale-watchers are willing to support restrictive measures about the development of the activity if they contribute to whale protection.

Nevertheless, previous studies have not addressed tourists' preferences for fullblown CSR sustainable practices available for the whale-watching tourism industry. For instance, in addition to the above-mentioned environmental measures, there is a need to evaluate tourists' preferences for innovative, efficient ways to reduce CO₂ emissions and mitigate the effects on the marine environments (Perles-Ribes & Ivars-Baidal, 2018), and for the full commitment of operators to responsible corporate relationships with all stakeholders involved (Font et al., 2016).

		Reference							
Attributes	Shapiro, 2006	Hu et al., 2009	Warren, 2012	Kessler et al., 2014	Bach & Burton, 2017	Lee et al., 2019			
Whales (dolphins) sighting									
Number of animals sighted	Х		Х						
Guarantee to see at least one		Х							
Animal observability						Х			
Education									
On-board education	Х		Х	Х					
Science centre					Х				
Additional interpretative services						Х			
Boat features									
Type of boat		Х		Х					
Size of boat		Х		Х					
Impacts									
Pollution by tour boats	Х								
Reported incidences of boat hitting	Х								
Negative effects on animal (welfare)				Х					
Animal interaction					Х				
Regulations									
Speed regulations	Х								
Enforcement of boat regulations	Х								
Max. number of other tour boats			Х						
Closest distance to animals				Х					
Feeding location					Х				
Protection									
Support conservation fund	Х								
Donation						Х			
Tour price									
Tour price		Х	Х	Х					
Tour price including fuel & tax					Х				
Admission fee						Х			

Table 5.1. Literature review of the whale (dolphin)-watching attributes assessed in DCEs.

5.3. Research Design

5.3.1. Data collection and Questionnaire design

A discrete choice experiment was designed to assess tourists' preferences for sustainable responsibility attributes of the whale-watching activity, explicitly focusing on CSR management and technological monitoring to enhance the management of the trip. Data were collected in the Macaronesian Region, i.e., in the Canary Islands (Spain) and the archipelagos of Azores and Madeira (Portugal). In the archipelagos of study, the whale-watching activity represents

approximately 13.4% of the total tourism industry and generates more than 35 million euros on direct income to the region (Bentz et al., 2016; IWC, 2020b; Krasovskaya, 2017). For example, in 2017, the Canary Islands reported 850.000 whale-watchers, providing direct revenues of over 26 million euros (International Whaling Commission, 2020).

A random sample of 492 adult tourists (+18 years old) was taken from the objective population of tourists that had not yet carried out the whale-watching activity at the islands of study in the Macaronesian region (Canary Islands, Madeira, and the Azores), but they had the intention to engage in it or had earlier done it. Tourists were intercepted by random enumeration at hotels and surrounding the marinas in Gran Canaria, Tenerife (Canary Islands), Faial, Pico (Azores), and Madeira's island. The interview method was in-person face-to-face by means of trained interviewers. The fieldwork was carried out continuously without interruption over three months between July and September 2019. The questionnaire was distributed in Spanish, Portuguese, English, German, and French, i.e., the languages of the main outbound markets of tourists at the research destinations.

The DCE questionnaire was designed with a market situation in which tourists were asked for different sustainability management options in the whalewatching firm. Three focus groups and a pre-test sample were carried out to define the precise wordings of the questions and the definitions of the attributes to be investigated, aimed to be understandable by the average potential respondents (Araña & León, 2013; Hu et al., 2009; Lee, Lee, Kim & Mjelde, 2010). The first one was carried out with a group of whale-watching operators, managers, and scientists and was explicitly aimed at checking on the technical and economic feasibility of the proposed attributes. The second and third focus groups were developed with potential whale-watching tourists. The pre-test sample involved 80 in-depth interviews with tourists on holidays in Gran Canaria (the Canary Islands). In Supplementary Material, a model of the questionnaire employed is enclosed (SM.4. Questionnaire 4).

Table 5.2 presents the whale-watching attributes and their corresponding levels. The attributes included in the choice sets are the following: i) a distinction label of CSR, ii) whale protection measures, iii) maritime traffic crowding management, iv) instrumental tracking of whales' populations, v) whale visitor centre, vi) app for sharing whale-watching experiences, and vii) the cost of the whale-watching trip experience. All attributes were defined in two levels, i.e., whether or not the measure was implemented except the attributes of traffic crowding management and the instrumental tracking, which were defined in three levels. The cost of the activity was defined in four levels (≤ 40 , ≤ 60 , ≤ 80 , and ≤ 120).

Since there are seven different attributes (four with two levels, two with three levels and one with four levels), there are 4x32x24 potential combinations to choose for respondents in the DCE questions. This number was scaled down utilising a Bayesian optimal design obtained by running the program Ngene that led to 12 choice sets with two alternatives plus the no-choice option –or status quo (Bach & Burton, 2017; Hu et al., 2009). Figure 5.1 presents an example of a choice set question card. These choice sets were randomly distributed in three subsamples, each containing just four choice sets for each respondent. Respondents were asked which options they would choose, considering they were the only available in each choice task. Before choice questions, a detailed description of attributes and the differences between attribute levels were presented to respondents.

Attribute	Description	Levels
Corporate Social Responsibility Distinction	This attribute represents a high level of achievement and recognised distinction of the actions undertaken in the whale-watching firm for the responsibility with the environment, employees, customers, society, and the local community. This distinction makes visible the good practices of the whale-watching firm. It credits the firm for its ethical, responsible, and transparent behaviour in caring for the different stakeholders.	 The firm holds a social responsibility distinction. The firm does not hold the CSR distinction.
Whale Protection Measures	This attribute represents a strong commitment of the firm towards whales and the marine environment. It involves financially supporting protection measures aimed to reduce the impacts that negatively affect whales, such as plastic ingestion, sea pollution, illegal hunting, whale stranding, etc.	 The firm financially supports whale protection measures. The firm does not financially support whale protection measures.
Maritime Traffic- Crowding Management	This attribute reflects the number of vessels in the whale sighting area. Management of the traffic- crowdedness aims to reduce the visual impacts that affect tourist satisfaction with the whale-watching experience.	 Low congestion: During the activity there are 3 or less than 3 boats around whales. Average congestion: There are between 4 and 6 boats around whales. High congestion: There are 7 or more than 7 boats around whales.
Instrumental Tracking of Whale Populations	Instrumental Tracking reduces the fuel consumption invested on cruising for searching and finding the animal species, and therefore reduces both CO ₂	1. Hydroacoustic tracking: The firm employs hydrophones to locate

 Table 5.2. Attribute description and levels for the whale-watching choice experiment.

Attribute	Description	Levels		
	emissions and pollution impacts on the marine environment.	whales more efficiently from the sounds they emit.		
		2. Satellite tracking: The firm uses satellite telemetry to efficiently track whales.		
		 The company does not use any innovative technological tool. It is just based on previous sightings. 		
Whale Visitor Centre	The visit to an in-land visitor centre provides a whale nature and scientific exhibition, and promotes interactive and creative learning (audio-visual tools, education itineraries, etc.) which complements the on-board whale-watching experience.	 The whale-watching tour include a visit to the visitor centre. There is no visit included, nor a whale visitor centre available. 		
App for sharing whale-watching experiences	This App enables customers to share with other participants the whale-watching experience, by uploading photos, videos, comments of the experience, etc.	 The firm has an App available to customers' experience sharing. The firm does not have any App. 		
		1.40€		
Price	Price of the whale-watching activity	2.60€		
FILCE	The of the while watering detivity	3. 80€		
		4. 120€		

	Alternative A	Alternative B	Alternative C
Corporate Social Responsibility Distinction (CSR distinction)			
Whale Protection Measures	×		
Maritime Traffic-Crowding Management	High traffic	Average traffic	Do NOT do the
Instrumental Tracking of Whale Populations	Acoustic track	Satellite track	whale-watching activity
Whale Visitor Centre	\mathbf{X}		
App for sharing whale- watching experiences	X		
Price	40 €	80 €	
Please, select one option			

Figure 5.1. Example of choice question card.

5.3.2. Econometric analysis

The individual respondent is assumed to choose between the discrete choice alternatives by maximising her satisfaction or utility level. Let U_{ijt} be the utility level of an individual *i* choosing an alternative *j* in the choice set *t* (Lee et al., 2019; Xuan, Sandorf & Aanesen, 2017). U_{ijt} is explained by the attributes of the choice options that vary across alternatives and individuals X_{ij} , the respondents' characteristics that vary only across individuals W_{it} , and an unobservable or random error component ε_{ijt} . That is,

$$U_{ijt} (X_{ijt}, W_{it}) = X_{ijt} \delta + W_{it} \gamma + \varepsilon_{ijt} = V_{ijt} \beta + \varepsilon_{ijt}$$
(1)

where β , δ and γ are coefficient vectors. The random utility model assumes that the alternatives chosen by individuals derive larger utility levels than those not chosen, i.e., in a choice set *t*, the individual will choose the alternative *j* over *h* (Bach & Burton, 2017; Durán, Farizo & Vázquez, 2015; Lee et al., 2019; Nordén, Coria, Jönsson, Lagergren & Lehsten, 2017) whenever,

$$U_{iht} (V_{hit}) < U_{ijt} (V_{jit}), \forall h \neq j$$
(2)

The mixed logit model (ML) -or random parameter logit model- addresses unobservable heterogeneity in preferences among individuals, i.e., captures the natural heterogeneity of individual preferences (Alemu, Schuhmann & Agard, 2019; Bach & Burton, 2017; Chen, 2019; Durán et al., 2015; Lee et al., 2019; Nordén et al., 2017; Xuan et al., 2017). In practice, the ML model assumes the population distribution β as random, and that the coefficients vary between the individuals with a distribution of density denoted by (β/θ); where θ is the parameter of the distribution (Durán et al., 2015; Hole, 2007; Lee et al., 2019). If parameters vary across individuals with a density $f(\beta)$, the probability for the individual *i* of choosing alternative *j* is the integral of standard logit probability over the density of β , where the standard logit probability is given by:

$$P_{ij} = \frac{exp(V_{ij}\beta)}{\sum_{h} exp(V_{ih}\beta)}$$
(3)

and the random parameter logit probability is represented by:

$$P_{ij} = \int \frac{\exp(V_{ij}\beta)}{\sum_{h} \exp(V_{ih}\beta)} f(\beta) \, \mathrm{d}\beta \tag{4}$$

The latent class model (LC) identifies preference heterogeneity in choice behaviour by considering a finite mixture of distributions for the different groups

or classes of individuals in the sample. Hence, the LC model assumes that the overall distribution of preferences is generated by unobserved (latent) preference classes *C* of individuals, in which preferences are homogeneous in their attributes in a particular class, while heterogeneous between classes (Alemu et al., 2019; Chèze, David & Martinet, 2020). Thus, LC enables to represent preference heterogeneity and identify segments in the sample that present different degrees of precision in individuals' choices (Estifanos, Polyakov, Pandit, Hailu & Burton, 2020). In practice, the LC assumes the distribution of the parameters β as discrete (Wakamatsu, Shin, Wilson & Managi, 2018). The probability for the individual *i* to belong to class *c* and choose alternative *j* (over *h*) is the joint probability of belonging to class *c* (H_{ic}) and choosing alternative *j* (Z_{j/c}) (Kermagoret, Levrel, Carlier, Dachary-Bernard, 2016), i.e.,

$$P_{ij} = \sum_{c} H_{ic} P_{ij/c} \tag{5}$$

where the probability of belonging to the class *c* is denoted by:

$$H_{ic} = \frac{exp(S_i\beta_c)}{\sum_c exp(S_i\beta_c)}$$
(6)

and the probability of choosing the alternative *j* is:

$$P_{ij/c} = \frac{exp(V_{icj})}{\sum_{h} exp(V_{ich})}$$
(7)

The marginal WTP is the amount of money that individuals are willing to pay to maintain their current utility level when the level of an attribute changes by one unit (Huh, Kwak, Lee & Shin, 2014). Thus, the marginal willingness to pay (WTP) for a change in an attribute is given by the quotient between the (negative) marginal utility of a change in an attribute and the marginal utility of the price attribute ($\beta cost$). Since the cost coefficient is assumed to be constant, the mean WTP for a whale-watching attribute *n* is (Durán et al., 2015; Lee et al., 2019; McCartney, 2009; Xuan et al., 2017):

$$WTP_n = -\frac{\beta_n}{\beta_{cost}}$$
(8)

In the present study, whale-watching attributes were modelled as dummy-coded variables, except for the price attribute, which was assumed a continuous variable (Chèze et al., 2020). Maximum likelihood estimation produces coefficient estimates for β and an alternative specific constant corresponding to the no whale-watching alternative (opt-out alternative) (Alemu et al., 2019). The no whale-watching alternative (No-WW) captures the effects of factors not explained by the attributes and also any possible bias involved in individuals' choice of

alternatives (opt-out = 1; otherwise = 0) (Adamowicz et al., 1998; Estifanos et al., 2020). Estimation and probabilities were obtained utilising the *mixlogit* and *lclogitml2* (Yoo, 2020) commands in Stata16 for the ML and LC models, respectively. Both models enable users to constrain a subset of utility coefficient to be identical across all classes. In this study, variable Price was selected as an attribute with class-invariant utility coefficient, while the coefficients of the other whale-watching attributes were randomly distributed across individuals (Revelt & Train, 1998; Yoo, 2020). In order to select the statistically preferred number of classes in the LC model, a stepwise exploratory approach based on the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) was applied.

5.4. Results

Model fit of ML and LC were evaluated with the Akaike information criterion (AIC) and the Bayesian information criterion (BIC) (Table 5.3). These measures of fit indicated that according to AIC, the two-latent class model fits better than the three-class and the ML models, while the BIC criteria would select the three-class model. However, since the results of both latent class models did not differ substantially in terms of parameters significance levels and class membership interpretation, class 2 is selected based on model parsimony (Alemu et al., 2019; Estifanos et al., 2020; Scarpa & Thiene, 2005). Thus, the two-class model was chosen above the other models for data analysis.

Model	No. classes	LL	К	AIC	BIC
CL	1	-1884.95	9	3787.89	3848.04
ML	1	-1768.51	18	3573.02	3693.32
10	2	-1754.71	20	3549.42	3683.09
LC	3	-1655.20	28	3551.74	3678.73

Table 5.3. Statistical criteria. Comparing model fit.

Note: No. Respondents= 492; No. observations= 5,904.

LL= Log-Likelihood; K= No. parameters; AIC= Akaike Information Criterion; BIC= Bayesian Information Criterion.

Table 5.4 shows the model estimation results for both ML and LC analysis. In the LC model, the best specification was given by setting the price variable and the alternative specific constant fix across classes. In the ML model, the best specification was obtained by defining as random the parameters for the attributes about protection measures, low traffic, average traffic, satellite tracking and visitor centre. The price coefficient is negative and significant at the 0.001

level in both models, indicating that the higher the price, the lower the probability of choosing a whale-watching tour.

In the ML model, the attribute raising the highest utility across all tourists is the implementation of the protection measures for whales, followed by the adoption by whale-watching firms of a CSR distinction plan facing all dimensions of the responsibility towards stakeholders. All attributes considered in the DCE are positive and significant at the 0.001 level except for the visitor centre and the satellite tracking that are significant at the 0.05 and 0.10 levels respectively, and the implementation of an app for the virtual enhancement of the whale-watching activity, which is negative and significant at the 0.001 level. Thus, whereas all the measures are undertaken to increase the sustainability performance of the whale-watching firm has a positive contribution to tourists' utility or satisfaction, the app designed for socially sharing whale-watching experiences had a negative contribution and do not increase the satisfaction of tourists. The latter result may be explained because tourists have other popular means of sharing their experiences through social media (Lenzi, Speiran & Grasso, 2019).

In the LC model, there are two different classes of tourists that show different preferences for the sustainability measures of the whale-watching firm. For tourists in class 1, the attribute raising the largest utility is concerned with the implementation of acoustic tracking for monitoring the species, followed closely by the general protection measures, the satellite tracking, and the CSR distinction. In this class, the coefficients of all attributes are positive and significant at the 0.001 level, except for the average level of traffic congestion, which is not significant, and for the low level of traffic congestion and the social media app which have both negative contributions to utility but are significant at the 0.001 level.

For class 2, the most significant attributes are the low level and average levels of traffic congestion, the protection measures, and the adoption of a CSR distinction plan by the firm, which are positive and significant at the 0.001 level. In this class, the implementation of acoustic tracking innovations is not significant, while the satellite tracking is significant at the 0.05 level but with a negative sign. The visitor centre and the social sharing app are not significant for this class.

Therefore, class 1 shows a large preference for all corporate sustainability attributes in the whale-watching firm starting from those concerned with the adoption of technological innovations for species monitoring. However, tourists

in class 2 have higher preferences for those attributes focusing on enhancing the watching experience through managing congestion and limiting the number of boats, disregarding the implementation of technological solutions for monitoring the species, and thereby benefiting less than class 1 from the protection measures and the adoption of a CSR distinctive strategy. Tourists in class 1 also have a significant positive preference for a complementary in-land experience, i.e., they will have a high probability of choosing the activity if it would also include a visit to a whale visitor centre.

MIL n = 492 Class1 n = 172 Class1 n = 320 Main CSR distinction 1.45*** 2.49*** 0.74*** (0.16) (0.33) (0.16) (0.33) (0.16) Protection measures 2.33*** 3.26*** 1.66*** (0.24) (0.46) (0.18) Low traffic 1.11*** -4.33*** 2.46*** (0.31) (0.76) (0.31) Average traffic 0.76*** 0.47 1.07*** (0.17) (0.29) (0.19) Acoustic tracking 0.81*** 3.70*** 0.17 Acoustic tracking 0.27* 3.12*** -0.44*** (0.12) Satellite tracking 0.27 3.12*** -0.44*** (0.12) (0.21) (0.12) (0.21) (0.12) App -0.46*** -0.09 (0.12) (0.27) (0.13) Fix -0.21 (0.27) (0.13) Fix -0.03*** -0.03*** -0.03*** <th></th> <th>MI</th> <th>L</th> <th>.C</th>		MI	L	.C
Main n= 172 n= 320 Main (0.16) (0.33) (0.74** Protection measures 2.33*** 3.26*** 1.66*** (0.24) (0.46) (0.18) Low traffic 1.11*** -4.33*** 2.46**** (0.31) (0.76) (0.31) Average traffic 0.76*** 0.47 1.07**** (0.17) (0.29) (0.19) Acoustic tracking 0.81*** 3.70*** 0.17 Acoustic tracking 0.27* 3.12*** -0.44*** (0.14) (0.29) (0.13) Visitor centre 0.39** 1.85*** -0.09 (0.12) (0.21) (0.12) App -0.46*** (0.12) (0.27) (0.13) Fix -0.09 asc_c (No-WW) -0.91** -0.02 (0.13) Fix		n- 192	Class1	Class1
Main CSR distinction 1.45^{***} 2.49^{***} 0.74^{***} (0.16) (0.33) (0.16) Protection measures 2.33^{***} 3.26^{***} 1.66^{***} (0.24) (0.46) (0.18) Low traffic 1.11^{***} -4.33^{***} 2.46^{****} (0.31) (0.76) (0.31) Average traffic 0.76^{***} 0.47 1.07^{***} (0.17) (0.29) (0.19) Acoustic tracking 0.81^{***} 3.70^{***} 0.17 Acoustic tracking 0.27^{**} 3.12^{***} -0.44^{***} (0.14) (0.29) (0.13) Visitor centre 0.39^{**} 1.85^{***} -0.09 (0.12) (0.21) (0.12) (0.21) (0.12) App -0.46^{***} -1.19^{***} 0.09 (0.12) (0.21) (0.12) (0.22) App -0.46^{***} -1.19^{***} 0.09 (0.35) (0.28) (0.21) <td></td> <td>11- 492</td> <td>n= 172</td> <td>n= 320</td>		11- 492	n= 172	n= 320
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Protection measures 2.33^{***} 3.26^{***} 1.66^{***} (0.24) (0.46) (0.18) Low traffic 1.11^{***} -4.33^{***} 2.46^{***} (0.31) (0.76) (0.31) Average traffic 0.76^{***} 0.47 1.07^{***} (0.17) (0.29) (0.19) Acoustic tracking 0.81^{***} 0.17 (0.14) (0.36) (0.12) Satellite tracking 0.27^{*} 3.12^{**} -0.44^{**} (0.14) (0.29) (0.13) Visitor centre 0.39^{**} 1.85^{***} -0.09 (0.12) (0.21) (0.12) (0.27) (0.13) (0.12) App -0.46^{***} -1.19^{**} 0.09 (0.12) App -0.46^{***} -1.19^{**} 0.09 (0.12) App -0.46^{***} -1.19^{**} $(0.09^{**}$ (0.13) Fix (0.01) $(0.02)^{**}$ $(0.01)^{**}$ $(0.01)^{**}$ $(0.01)^{**}$ cons $(0.01)^{**}$ <td< td=""><td></td><td>(0.16)</td><td>(0.33)</td><td>(0.16)</td></td<>		(0.16)	(0.33)	(0.16)
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(0.31) (0.76) (0.31) Average traffic 0.76^{***} 0.47 1.07^{***} (0.17) (0.29) (0.19) Acoustic tracking 0.81^{***} 3.70^{***} 0.17 (0.14) (0.36) (0.12) Satellite tracking 0.27^{*} 3.12^{***} -0.44^{***} (0.14) (0.29) (0.13) Visitor centre 0.39^{**} 1.85^{***} -0.09 (0.12) (0.21) (0.12) App -0.46^{***} -1.19^{***} 0.09 (0.14) (0.27) (0.13) Fix (0.35) (0.28) Price -0.91^{**} -0.21 (0.01) (0.00) (0.01) (0.01) (0.00) (0.01) _cons -1.52^{***} (0.38) SD (0.19) (0.19) (0.25) Low traffic 1.47^{***} (0.25) (0.25) (0.29) (0.27)	Low traffic	1.11***	-4.33***	2.46***
Average traffic 0.76^{***} 0.47 1.07^{***} (0.17) (0.29) (0.19) Acoustic tracking 0.81^{***} 3.70^{***} 0.17 (0.14) (0.36) (0.12) Satellite tracking 0.27^{*} 3.12^{***} -0.44^{***} (0.14) (0.29) (0.13) Visitor centre 0.39^{**} 1.85^{***} -0.09 (0.12) (0.21) (0.12) App -0.46^{***} -1.19^{***} 0.09 (0.14) (0.27) (0.13) Fix $asc_c c (No-WW)$ -0.91^{**} -0.21 (0.35) (0.28) (0.27) (0.13) Price -0.04^{***} -0.03^{***} (0.01) (0.01) (0.00) (0.01) (0.01) (0.01) _cons -1.52^{***} (0.38) (0.38) (0.38) SD (0.19) (0.25) (0.25) (0.25) Average traffic 1.49^{**} (0.23) (0.23)		(0.31)	(0.76)	(0.31)
(0.17) (0.29) (0.19) Acoustic tracking 0.81^{***} 3.70^{***} 0.17 (0.14) (0.36) (0.12) Satellite tracking 0.27^{*} 3.12^{***} -0.44^{***} (0.14) (0.29) (0.13) Visitor centre 0.39^{**} 1.85^{***} -0.09 (0.12) (0.21) (0.12) App -0.46^{***} -1.19^{***} 0.09 (0.14) (0.27) (0.13) Fix $asc_c (No-WW)$ -0.91^{**} -0.21 (0.35) (0.28) (0.28) Price -0.04^{***} -0.03^{***} (0.01) (0.00) (0.00) Class membership (0.01) (0.00) _cons -1.52^{***} (0.38) SD $Protection measures$ 1.55^{***} (0.19) (0.25) (0.25) Average traffic 1.47^{***} (0.25) (0.23)	Average traffic	0.76***	0.47	1.07***
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Satellite tracking 0.27^* 3.12^{***} -0.44^{***} (0.14) (0.29) (0.13) Visitor centre 0.39^{**} 1.85^{***} -0.09 (0.12) (0.21) (0.12) App -0.46^{***} -1.19^{***} 0.09 (0.14) (0.27) (0.13) Fix 0.09 (0.14) (0.27) (0.13) Fix 0.27 (0.13) (0.27) (0.13) Fix 0.02^{**} -0.91^{**} -0.21 (0.28) Price -0.04^{***} -0.03^{***} (0.00) (0.00) Class membership (0.01) (0.00) (0.02^{**}) (0.38) SD (0.19) (0.25) (0.25) (0.25) Average traffic 1.49^{***} (0.20) (0.25) (0.20)		(0.14)	(0.36)	(0.12)
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Visitor centre 0.39^{**} 1.85^{***} -0.09 (0.12) (0.21) (0.12) App -0.46^{***} -1.19^{***} 0.09 (0.14) (0.27) (0.13) Fix -0.91** -0.21 asc_c (No-WW) -0.91^{**} -0.28 Price -0.04^{***} -0.03^{***} (0.01) (0.00) (0.00) Class membership		(0.14)	(0.29)	(0.13)
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asc_c (No-WW) -0.91^{**} -0.21 <i>(0.35) (0.28)</i> Price -0.04^{***} -0.03^{***} <i>(0.01) (0.00)</i> Class membership Age 0.02^{**} <i>(0.01) (0.01)</i> _cons -1.52^{***} <i>(0.38) (0.38)</i> SD Protection measures 1.55^{***} <i>(0.19)</i> Low traffic 1.47^{***} <i>(0.25)</i> Average traffic 1.49^{***}	Fix			
(0.35) (0.28) Price -0.04^{***} -0.03^{***} (0.01) (0.00) Class membership Age 0.02^{**} (0.01) (0.01) _cons -1.52^{***} (0.38) (0.38) SD Protection measures 1.55^{***} (0.19) (0.25) Average traffic 1.49^{***} (0.20) (0.20)	asc_c (No-WW)	-0.91**	-0.21	
Price -0.04^{***} -0.03^{***} <i>(0.01) (0.00)</i> Class membership Age 0.02^{**} (0.01) <i>(0.01)</i> cons -1.52^{***} (0.38) SD Protection measures 1.55^{***} (0.19) Low traffic 1.47^{***} Average traffic 1.49^{***}		(0.35)	(0.28)	
(0.01) (0.00) Class membership 0.02^{**} Age 0.02^{**} (0.01) (0.01) _cons -1.52^{***} (0.38) (0.38) SD (0.19) Low traffic 1.47^{***} (0.25) $Average traffic$ 1.49^{***}	Price	-0.04***	-0.03***	
Class membership Age 0.02^{**} (0.01) (0.01) _cons -1.52^{***} (0.38) (0.38) SD (0.19) Low traffic 1.47^{***} (0.25) (0.20)		(0.01)	(0.00)	
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(0.01) _cons -1.52*** (0.38) SD Protection measures 1.55*** (0.19) Low traffic 1.47*** (0.25) Average traffic 1.49*** (0.20)	Age		0.02**	
_cons -1.52*** (0.38) SD Protection measures 1.55*** (0.19) Low traffic 1.47*** (0.25) Average traffic 1.49*** (0.20)	5		(0.01)	
(0.38) SD (0.19) Low traffic 1.47*** (0.25) (0.25) Average traffic 1.49***	cons		-1.52***	
SD 1.55*** Protection measures 1.55*** (0.19)			(0.38)	
Protection measures 1.55*** (0.19)	SD			
(0.19) Low traffic 1.47*** (0.25) Average traffic 1.49*** (0.20)	Protection measures	1.55***		
Low traffic 1.47*** (0.25) Average traffic 1.49*** (0.20)		(0.19)		
(0.25) Average traffic 1.49*** (0.20) (0.20)	Low traffic	1.47***		
Average traffic 1.49***		(0.25)		
(/) 2/)	Average traffic	1.49***		
(0.20)		(0.20)		

Table 5.4. Estimated results of the Mixlogit and the Latent Class Model.

	MI	L	.C		
	n= 492	Class1	Class1		
		n= 172	n= 320		
Satellite tracking	0.78***				
	(0.22)				
Visitor centre	1.30***				
	(0.15)				
Market share		34.96%	65.04%		
Statistical criteria					
Log-likelihood	-1768.51	-17	54.71		
AIC	3573.02	3549.42			
BIC	3693.32	3683.09			

Notes. Standard errors in parentheses

p*< 0.1; *p*< 0.05; ****p*< 0.001

AIC = Akaike Information Criterion; *BIC* = Bayesian Information Criterion.

The only socioeconomic variable explaining the choice of alternative profiles of sustainable whale-watching firm behaviour is the age of the respondent. As shown in Table 5.4, the age variable has a positive coefficient that is significant at the 0.05 level, indicating that those older individuals do have a higher probability of belonging to class 1 of tourists, thereby choosing an alternative involving the measures of corporate sustainable whale watching. Table 5.5 shows the sociodemographic characteristics and regional distributions of the alternative classes. Class 2 has a higher market share (65.04% over the total sample), showing large heterogeneity in tourists' preferences. Chi-2 test shows statistically significant differences among classes regarding annual income (Chi-2= 10,813; p<0.10). Thus, tourists in Class 1 have a higher mean annual income than tourists in class 2.

Characteristics	Class1	Class1
Characteristics	n= 172	n= 320
Female (%)	51.7	54.4
Spanish (%)	11.6	13.4
Portuguese (%)	13.4	10.9
British (%)	25.0	23.1
Germans (%)	11.6	14.4
Age (mean years)	43.26	39.58
Education (mean years)	15.28	15.50
Annual income (mean €) [*]	26,213.11	24,388.89
Survey Region		
Canary Islands (%)	49.4	51.2
Azores (%)	15.7	16.9
Madeira (%)	34.9	31.9

 Table 5.5.
 Latent Class sociodemographic characteristics and Regional distribution.

* *Note:* Chi-2Income= 10.813 (p < 0.1)

Table 5.6 presents the marginal willingness to pay (WTP) for the attributes of corporate sustainability of the whale-watching firm while their confidence intervals are depicted in Figure 5.2. For the ML model, the highest WTP is obtained with the protection measures (54.80 €), followed by the CSR distinction (34.09 €) and the congestion management (26 € for low traffic and 17.82 for average traffic). The implementation of technological innovations for tracking the species has moderate values of 19.97 € for hydroacoustic and 6.36 € for the satellite, while the value for the visit to the visitor centre is $9.15 \in$. Thus, the ML model concludes that the most valued attributes of corporate sustainability are those concerned with the protection measures and the implementation of a distinction action plan focusing on all dimensions of CSR.

However, the heterogeneity analysis coming out from the LC model shows that class 1 put higher economic values on implementing instrumental tracking technologies (111.78 \in for the hydroacoustic and 94.30 \in for the satellite), which is the highest valued policy decision of the whale-watching firm. This is followed by the whale protection measures (98.73 \in) and the CSR distinction (75.26 \in). The attribute with the lowest value for class 1 is the visit to the visitor centre, while the availability of an app for social network enhancement of the tourist experience has a negative value for this class of tourists.

Overall, the values of those attributes positively valued for individuals in class 1 are much higher than the values for the same attributes for individuals in class 2. The most valued attribute for individuals of class 2 is the traffic crowding management (74.37 \in for low traffic and 32.28 for average traffic) that is negatively valued for individuals in class 1. Thus, it is clear that individuals in class 1 show opposite preferences than individuals in class 2 when it comes to managing crowding to enhance tourist experience, while less strong preferences for the sustainability measures of whale protection and CSR distinction, and no interest in the measures of instrumental tracking of the whale species. Thus, individuals in class 1 clearly match the preferences of those subjects more concerned with the sustainable management of the whale species (sustainable tourists), while those in class 2 are more focused on enjoying the whale-watching activity at sea (consumption tourists).

		M	Mean WTP (€)			
Attribute	Level	ML	Class1	Class1		
		n= 492	n= 172	n= 320		
CSR distinction	Firm with a CSR action	24.00	75.26	22 /1		
CSR distillction	plan	54.09	75.20	22.41		
M/hale protection measures	Protection measures	E 4 00	00.72	EO 1E		
whate protection measures	implemented	54.60	90.75	50.15		
Traffic crowding	Low traffic	26.00	-131.12	74.37		
management	Average traffic	17.82		32.28		
Instrumental whale tracking	Hydroacoustic tracking	18.97	111.78			
	Satellite tracking	6.36	94.30	-13.22		
Whale visitor centre	Visitor centre available	9.15	55.83			
App for sharing whale- watching experiences	App available	-10.81	-36.02			

Table 5.6. Marginal WTP for the	whale-watching attributes (€).
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p*< 0.1; *p*< 0.05; ****p*< 0.001



Figure 5.2. Confidence Intervals of tourist marginal WTP (€).

5.5. Discussion

The latent class discrete choice experiment utilised in this research highlights two classes of tourists that show different preferences for the whale-watching firm's sustainability measures. Sustainable tourists define the first class. This group is more concerned with the sustainable corporate management of whales and the marine environment. They have significantly larger preferences for technological innovations to monitor whale populations, followed by adopting whale protection measures and a CSR strategy and the opportunity to visit an in-land visitor centre to complement the on-board experience. On the other hand, consumption tourists (class 2) have higher preferences for the attributes focusing on enhancing the frontline whale-watching experience, primarily through managing vessel congestion during the tour. This group is more focused on enjoying on-board services than implementing other innovative and complementary solutions for the responsible, sustainable management of the activity.

Duffus & Dearden (1990) argue that tourist preferences and consumer behaviour cannot be homogeneously treated, even when tourists share the same initial motivations. They found that wildlife users have a pre-knowledge about the experience and are more aware of their satisfaction-seeking demands, i.e., specialist users. At the same time, they noted that other more generalist consumers demand increased pressure on both the social system and the ecosystem of the host area (Duffus & Dearden, 1990). In line with this, other scholars argue that the least specialist or generalist individuals seek only the most apparent aspects of the experience, such as catching a fish during a fishing experience and give usually lesser support for management tools and regulations (Ditton, Loomis & Choi, 1992; Saltz Loomis & Finn, 2001). Further, Lemelin, Fennell & Smale (2008) found that generalist wildlife tourists do not exhibit such proenvironmental behaviour as those more specialist wildlife tourists. Concerning whale-watching tourism, Bentz et al. (2016) found that the less specialised whalewatching consumers attach less importance to the operators' commitment to the environment.

The results of this study are accordingly to the findings mentioned above. We found that consumption tourists (class 2) preferably seek the most apparent elements of the experience, i.e., they show high preferences for the full watching experience provided by the on-board activity, followed by less intense

preferences for whale conservation and regulatory strategies. These tourists have a high WTP for vessel congestion management. This is supported by Warren (2012), who found a larger class of whale-watchers preferring no other tour boats interfering with their experience. In addition, Bentz et al. (2016) argued that the uncrowded atmosphere also constitutes one of the most important tour features for the less specialised whale-watching tourists. Other researchers suggest that crowding influences customer perception about the quality of the experience and the decision to undertake the activity (Ávila-Foucat, Vargas, Jordan & Flores, 2013; Bentz, Rodrigues, Dearden, Calado & Lopes, 2015). On the other hand, consumption tourists are indifferent to the possibility of visiting a whale visitor centre. According to Bach and Burton (2017) and Lee et al. (2019), in-land complementary interpretation is a weaker substitute for the authentic frontline experience.

Previous findings have identified that individuals usually present a high empathy and affect toward whales and are usually more willing to support their protection (Shapiro, 2006; Wakamatsu et al., 2018; Warren, 2012; Wilson & Tisdell, 2003). According to Martín-López et al. (2008), positive willingness to pay for conservation policies are influenced by anthropomorphic (likeability and similarity of species to humans) and anthropocentric characteristics (the usefulness of species) that animals present, as well as their conservation status (level of endangerment). However, consistent with the findings mentioned earlier of the heterogeneity on consumer demand, this study ascertains that a class of tourists (sustainable tourists) shows a stronger preference for implementing whale protection measures than the other more consumptive tourists.

Alongside, sustainable tourists are willing to support a whale-watching experience beyond 'simplistic' recreational elements (Ditton et al., 1992), showing more reflective motives (Lemelin et al., 2008). Sustainable tourists' preferences are consistent with the findings of Hoarau and Eide (2019) that highlighted a group of tourists willing to support environmental concerns through innovative technologies targeting the reduction of CO₂ emissions (Hoarau & Eide, 2019). Further, sustainable tourists also have a stronger preference for adopting an integrated CSR management strategy that strengthens the responsible corporate development of the activity. Similarly, Karlsson and Dolnicar (2016) and Lissner and Mayer (2020) also underlined a group of whale-watching tourists who consider an environmental boat's certification status when making their purchasing choice decisions. However, Lissner and Mayer (2020) pointed out that

these tourists could also support some CSR management certificate that contains broader issues than just environmental ones, which was contrasted in this study.

The effects of the actions of a single consumer, or even of a firm, could determine the future of the whale-watching sector (Su & Swanson, 2017). Thus, as evidence shows, market segmentation can provide a more grounded understanding of the differences in tourists' preferences for adaptive management solutions (Ditton et al., 1992) and competitive advantages in the marketplace (Dolnicar, 2008). A better understanding of the consumer demands based on the different tourist preferences will lead to i) more effective management of environmental impacts; ii) an improvement in economic benefits, iii) an optimisation of the on-board experience; iv) and more efficient strategies to target potential markets (Lemelin et al., 2008). Thus, knowledge of the different market segments allows operators to unfold successful strategies for reconciling the opposing interests of conservation and tourist consumption by the different stakeholders in the whalewatching industry (Paskova & Zelenka, 2019; Hoarau & Eide, 2019).

5.6. Conclusions

The high rate of growth and geographical expansion of the whale-watching industry worldwide has negatively impacted whale populations' welfare. Scientific literature has widely reported the many effects on whale resting, socialising, or feeding, which endangers their existence value in the long term (see Arias et al., 2018; IWC, 2020a). For decades, this situation has been going on stimulated by profit-seeking operators implementing inappropriate behaviours, which have led some scholars to raise the question as to what extent this trend is sustainable or not (Finkler & Higham, 2020). In the pursuit of the highest profits rather than the social value of the activity (Bentz et al., 2016), operators are also reducing the quality of the whale-watching experience.

Tourists and society are becoming more informed and concerned about environmental issues and social wellbeing (León & Araña, 2014; Tigu, Popescu & Hornoiu, 2016). This implies new demand segments in the tourist market beyond the traditional consumptive motive, thereby interested in the social benefits raised by responsible, sustainable management. This is supported by evidence showing higher consumer demand for 'eco-labelled tourism firms (Karlsson & Dolnicar, 2016; Lissner & Mayer, 2020). To meet these demands, firms are undertaking some responsible actions, such as caring for whales and applying integrated waste management practices (Hoarau & Eide, 2019; Lissner & Mayer, 2020). However, sustainable corporate responsibility has not been fully implemented across the industry, and it is not much concern about greenhouse gas emissions (Lambert et al., 2010). Thus, there is a need to implement a more innovative and holistic approach that increases sustainable practices, thereby integrating tourists' demands with resource management (Bach & Burton, 2017).

This paper provides an understanding of the consumer's choice for whalewatching firms engaging in additional sustainable measures such as corporate social responsibility and technological innovations to track whale populations and improve the quality of human contact with the species. The results show that there are two groups of tourists with different preferences that raise challenges for the responsible sustainability of the industry. The largest group is formed by consumption tourists that have a profile of a more traditional approach to the whale watching activity, with higher preferences for lower congestion levels that lead to an improvement in the tourist experience (Bach and Burton, 2017; Lee et al., 2019; Shapiro, 2006; Warren, 2012). However, the smaller group of sustainable tourists focuses on a more integrated approach that combines innovative tools to improve the relationships of the activity with nature, with high economic values for preservation measures and corporate social responsibility.

Therefore, this paper shows that although the segment of consumption tourists is predominant in whale-watching, there is another emerging group of tourists with sustainable preferences favouring a more integrated approach. That is, the findings in this paper clearly highlight an alternative group of sustainable tourists who strongly support a whale-watching approach based on integrated greener solutions involving technological innovation and corporate social responsibility strategies.

Thus, there is market potential for embracing the sustainable tourist segment in order to enhance responsible sustainability solutions to whale-watching tourism, thereby adapting industrial practices to the preferences of the different tourist demands that contribute to i) support animal welfare and marine environmental protection; ii) ensure corporate ethical stewardship; iii) satisfy the different customers' preferences and; iv) make tourists understand the importance of adopting sustainable practices during the activity.

This study has some limitations. First, the study area is limited to the Macaronesian region, a significant whale-watching spot globally, but it is not
representative of all whale-watching destinations. Second, the sample size is relatively small for accurate inference from the population of whale-watching tourists in the region. Third, this cross-section study does not allow one to observe the trending evolution of the new sustainable market segment of whalewatching tourists. Thus, further research would be needed in more empirical studies in other areas of the world specialising in whale watching tourism, with larger sample sizes and time-series observations in order to prove the generalisability of the results of this study.

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CONCLUSIONS

'Whale watching has much to offer for education, science, conservation as well as commercial benefit, but utilising a responsible, sustainable approach is the only way that it will have a long-term future.'

(Erich Hoyt, 2021)

Concluding remarks

The present doctoral dissertation contributes to a better understanding of the nautical tourism sector and the whale-watching activity to reconcile the tourism industry with sustainability. It is emphasised consumer and firms' behaviour and how their relationship with the marine environment influences the development of the long-term industry. In addition, this thesis provides some valuable practical insights for adaptive management of the sectors aimed to promote competitiveness and ensure responsible corporate sustainability.

Nautical tourism demand was explored in chapter 1, providing a first approach about consumers' behavioural intentions in engaging in nautical activities, explained from their concerns towards animal rights, environmental attitudes, and the pursue of thrill and adventure experiences.

From the theoretical perspective, the results confirm that individuals interested in engaging in the 'harder' water sports (jet ski and kayak) are those seeking the higher risk, challenge and excitement, and who have the highest anthropocentric attitudes -or non-significant environmental concerns. On the contrary, individuals with higher pro-environmental and pro-animal attitudes are more likely to engage in marine wildlife-based nautical activities. However, two exceptions were found in this respect: i) snorkel activity attracts tourists both pursuing high thrilling and adventurous sensations and has high biocentric attitudes, and ii) underwater observation does not attract tourists greatly concerned with environmental or animal issues.

These findings are valuable from a practical perspective, as they may contribute to the sustainable management and competitive positioning of nautical tourism firms and destinations. In this regard, firms are encouraged to providing more tailored tourism activities based on exciting or even risky experiences while ensuring corporate responsible and ethical behaviour to favour environmental protection, and animal rights and welfare in all cases. This last is important for meeting some tourists' biocentric concerns and their interests in wildlife-based experiences, and crucial for the long-term success of the tourism industry. Operators are also encouraged to promoting the preservation of the marine environment and wildlife as an opportunity to enhance the market profile.

On the other hand, and considering that the success of nautical tourism development also depends on business performance, chapter 2 addressed the

potential of the Nautical tourism firms for internationalisation as a measure of competitiveness and resilience.

From the theoretical perspective, the results show that nautical tourism firms of competing island destinations share a common interest: improving their positioning within the global nautical tourism market. In this regard, it was confirmed the potential of nautical tourism firms of the Macaronesian region for international growth, explained by the following factors: i) owning an internationalisation plan, ii) managers' motivations for prestige and competitiveness and their sense of distinctiveness, and iii) the small number of employees, which supposed a novel finding in this context.

Concerning practical implications, nautical tourism firms are encouraged to design an appropriate internationalisation plan, promote distinctiveness to achieve international positioning, and foster coopetition and the co-creation of value and international tourism experiences. For instance, the existing differences in market structure and the seasonality on demand are presented as opportunities to co-create new international tourism products and services and broaden the tourist offer to new markets.

Up from here, the following conclusions focus on whale-watching tourism. It was conducted first A critical overview for sustainability in whale-watching tourism.

The overall conclusions derived from this study (chapter 3) confirm that assessing ecological impacts on whales due to human disturbance have significantly led the literature on whale-watching tourism. In contrast, there is still a need for further research focusing on understanding consumer behaviour. Wildlife welfare and conservation have strongly concerned academia and have shaped the evolution of the most meaningful research streams.

This study also underlines the need for more in-depth insights to reconcile the diverse interests of tourism with the preservation and enhancement of species welfare. In response, it provides future research recommendations for a comprehensive, tailored science engagement with management practices. The proposed framework places the pillar focus on four major research hotspots and how they relate to one another: i) ecological impacts (e.g., non-visible impacts, long term effects), ii) consumer demand (changing human attitudes and behaviour), iii) innovation (technology, social responsibility), and iv) external drivers (climate change).

The following two chapters contribute to a further understanding of the research hotspot about consumer demand. In this regard, chapter 4 focused on the Segmentation analysis of whale-watching tourism demand to reconcile tourists' interests with whale preservation.

Empirical findings demonstrate that whale-watching tourists of the Macaronesia are heterogeneous. They are grouped into four different clusters according to their different interests concerning whale observation, boat conditions (comfort), and whale culture and preservation. Passionate and committed whale watchers are the two groups of tourists more concerned with the responsible development of the activity. However, recreationist whale watchers are not interested in learning about whales and their preservation, whereas the interests of amateurs are not likely compatible with animals' protection.

From a practical point of view, this study shows that the sustainable management of whale watching entails a dual challenge to develop efficient solutions. On the one hand, whale-watching operators should respond to the weaknesses and underperforming attributes of the activity without neglecting the diverse perceptions of the whale-watcher groups. On the other hand, they have to ensure the ecological and social compatibility of the experience so that their satisfactory performance does not compromise animal welfare and the development of the activity in the long term.

In response, there is a need for more responsible, sustainable actions to reconcile whales' protection with the various tourists' demands and the economic dimension of firms linked to competitiveness. Thereby, chapter 5 assesses The economic value of sustainable corporate social responsibility in whale-watching tourism.

Results confirm market potential for embracing sustainable responsible practices, as empirical results show two groups of tourists; sustainable and consumption tourists. Sustainable tourists have larger preferences for technological innovation solutions (efficient whale monitoring), followed by adopting whale protection measures, a CSR strategy and visiting an in-land whale centre. Meanwhile, consumption tourists have higher preferences for enhancing the frontline experience (managing crowding effects), followed by less intense preferences for whale conservation and regulatory strategies.

From a practical approach, firms are encouraged to adapting their managerial practices to the preferences of the different tourist demands.

To sum up, the main research conclusions and managerial implications for the nautical tourism industry are highlighted in the following tables.

Table 1. Main research contributions.

The nautical tourism consumers are characterised by the following:
(1) Their different attitudes towards animal rights, environmental concerns and sensation-seeking determine their interest to engage in one or another nautical tourism activity.
(2) Their differences toward the importance of whale observation, boat conditions and whale culture and preservation explain the differences in experience performance assessment.
(3) They have heterogeneous preferences concerning the responsible sustainability measures of the whale-watching firm.
The nautical tourism firms are characterised by the following:
(1) They share a common interest: international expansion.
(2) They have the potential for international performance.
(3) They have the opportunity to cooperate and co-create new competitive products, services and experiences.

Table 2. Managerial implications.

The main implications of the results on consumer and firm analysis are that there is a need for the **nautical tourism industry** to:

- (1) Support animal welfare and marine environmental health.
- (2) Satisfy the different and heterogeneous customers.
- (3) Match tourists' awareness-raising about adopting sustainable practices.
- (4) Adopt corporate ethical stewardship.

Based on these implications, the **nautical tourism industry** would achieve the following managerial objectives:

- (1) Reconcile the tourism activity with the environmental constraints.
- (2) Achieve a sustainable development path.
- (3) Improve activity and destination image.
- (4) Increase competitiveness.

Research limitations and future prospects

This thesis presents certain limitations despite the above-highlighted research contributions and management implications concerning the nautical and whale-watching tourism sectors. As it is known, doctoral dissertations usually constitute the 'foundations of a larger building block'. This thesis is not the exception.

In this regard, considering the main limitations of the research of this doctoral dissertation, it should be mentioned the following:

- (1) The samples utilised have been median sized, thus there is a need for larger study samples (target population and research publications).
- (2) The geographical scope of the study is also limited, so there should be consideration of broader evidence from other alternative nautical tourism destinations beyond Macaronesia and the selected outbound markets.
- (3) The approach to the study of the nautical tourism problems has been based on a socio-economic insight; thus, there would be a need for a more interdisciplinary focus on the sustainability setting.

Future research direction should tackle the limitations of this thesis and move research forward towards the analysis and evaluation of other problems in nautical tourism and the application of more advanced and interdisciplinary perspectives. Table 3 outlines the main lines of research emanating from this thesis.

On the one hand, whale-watching tourism operators are usually encouraged by academia to adopt sustainable measures. However, research has not been able to provide them with reliable information and concrete measures on how much they should invest or how much investment in a particular factor or attribute they should reduce in favour of others. In this regard, a future research line should be directed to analyse the potential substitution relationships to efficiently reallocate the operator's investment in some factors to work towards sustainability.

On the other hand, it is proposed to bridge the gap concerning public organisations and private companies' relationship to promote comprehensive, tailored management solutions to the nautical tourism sector and whale watching. On this subject, a future research line should focus on the collaborative creation of transnational and sustainable nautical tourism experiences. In this line, future research could also aim to study the opportunities offered by the European

market to support the co-creation of the new tourism experiences and thus provide the private sector with updated information on potential consumers' preferences and interests and the most reliable promotional mechanisms.

Finally, and aimed to broaden the research scope, another future research line should be directed to understanding the social involvement of other stakeholders in nautical and whale-watching tourism development. In this regard, it is proposed to analyse the local community attitudes and perceptions concerning their sense of belonging and stewardship with the nautical tourism sector, the marine environment protection and wildlife welfare, and their willingness to support a sustainable, responsible tourism industry.

Table 3. Future research directions.

Future research lines should be directed to the following issues:

- The potential substitution relationships to efficiently reallocate whalewatching operator's investment in some factors to work towards sustainability.
- (2) The collaborative creation of transnational and sustainable nautical tourism products, services and experiences.
- (3) The European market's opportunities and interests to engage in these new tourism ideas and the more reliable promotional mechanisms to offer them.
- (4) The local community attitudes and perceptions concerning the nautical tourism sector, the marine environment protection and wildlife welfare, and their willingness to support a sustainable, responsible tourism industry.

SUPPLEMENTARY MATERIAL

SM.1. Questionnaire 1

Note: This questionnaire was distributed in English, German, and Portuguese, i.e., the languages of the target population of the study (UK, Germany and Portugal).

QUESTIONNAIRE ABOUT THE POTENTIAL OF TOURISM DEVELOPMENT

The aim of this questionnaire is to find out and understand your opinions and perceptions regarding the potential that tourism activities have in your holidays' decision-making.

Your participation is anonymous, and the information shall be used exclusively for the purposes of a research project coordinated by the University of Las Palmas of Gran Canaria, which is co-funded with ERDF funds of the European Union.

Please take your time and read the questions carefully. Completing this questionnaire will not take you more than 10 minutes. Thank you very much for taking part.





A Have you travelled (for holidays) during 20 (Filter question)	18 or 2019? Yes No
B What kind of destination have you been in? (<i>Filter question</i>)	Seaside /Beach /Island destination Mountain destination Urban destination Other destinations

1 From a general point of view, how interested are you in doing/practicing the following activities?

Please, indicate in each case, whether you are 1 = not interest at all; or 5 = very interested.

interested.	Λ	Not interested			Very		
	a	nt all			rested		
Jet-skiing		1	2	3	4	5	
Whale watching		1	2	3	4	5	
Sea-kayaking		1	2	3	4	5	
Underwater observation		1	2	3	4	5	
Snorkelling		1	2	3	4	5	

2 Regarding the following activities, which one have you done/ practiced before? How many times?

	Never	Once	Between 2-3	4- more
			unies	unan 4 unies
Jet-skiing				
Whale watching				
Sea-kayaking				
Underwater observation				
Snorkelling				

Totally

Totally

3 What is your opinion regarding the following statements?

Please, indicate in each case, whether you are 1 = totally disagree; or 5 = totally agree.

pree. Totally			Totally			
	disagree	,		agree		
I would like to explore strange places	1	2	3	4	5	
I would like to take off on a trip with no pre-planned routes or timetables	1	2	3	4	5	
I get restless when I spend too much time at home	1	2	3	4	5	
I prefer friends who are excitingly unpredictable	1	2	3	4	5	
I would like to do frightening things	1	2	3	4	5	
I would like to try activities that may involve in some physical risk	1	2	3	4	5	
I like to face unexpected situations that suppose a challenge for me	1	2	3	4	5	
I would love to have new and exciting experience	1	2	3	4	5	

4 What is your opinion regarding the following statements towards animals?

Please, indicate in each case, whether you are 1 = totally disagree; or 5 = totally agree.

	disagree				agree
It is morally wrong to fish/hunt just for sport	1	2	3	4	5
I do not think that there is anything wrong with using animals in scientific research	1	2	3	4	5
I think it is perfectly acceptable for animals to be raised in farms or fish-farms (aquaculture) for human consumption	1	2	3	4	5
The slaughter of whales should be immediately stopped even if it means some people will be put out of work	1	2	3	4	5
I sometimes get upset when I see animals in cages at zoos or in tanks/pools at aquariums	1	2	3	4	5

5 What is your opinion regarding the following statements towards animals? Please, indicate in each case, whether you are 1= totally disagree; or 5= totally

agree.	Totally				Totally
	disagree	ņ			agree
We are approaching the limit of the number of people the earth can support	1	2	3	4	5
Humans have the right to modify the natural environment to suit their needs	1	2	3	4	5
When humans interfere with nature it often produces disastrous consequences	1	2	3	4	5
Human ingenuity will insure that we do NOT make the earth unliveable	1	2	3	4	5
Humans are severely abusing the animals	1	2	3	4	5
The earth has plenty of natural resources if we just learn how to develop them	1	2	3	4	5
Animals have as much right as humans to exist	1	2	3	4	5
The adaptive capacity of animals is strong enough to cope with the expansion of modern industrial nations towards their habitats	1	2	3	4	5
Despite our special abilities humans are still subject to the laws of nature	1	2	3	4	5
The so-called "ecological crisis" facing humankind has been greatly exaggerated.	1	2	3	4	5
The earth is like a spaceship with very limited resources and room to make possible humans and other animal species living together	1	2	3	4	5
Humans were meant to rule over the rest of the animals	1	2	3	4	5
The balance of nature is very delicate and easily upset	1	2	3	4	5
Humans will eventually learn enough about how nature works to be able to control it	1	2	3	4	5
If things continue on the present course, we will soon experience the 6 th mass extinction	1	2	3	4	5

To complete the questionnaire, please answer the following sociodemographic questions.

Please remember that this questionnaire is **completely anonymous**, and your answers would not be in any conflict of interest.

6 Gender Male Female Other	
7 Year of birth 8 Nationality	12 Are you a member of yes Yes No any environmental/ conservation association? If yes, which one(s)?
9 Education level No schooling complete Bachelor's degree Nursery school Master or higher degree High school Other Technical/ vocational training	13 How many people live in your household?
10 Employment status Unemployed Employed for wages Student Retired Self-employed Other 11 How many people live in your household?	14 Net yearly income No income 24.001 – 36.000 € Less than 12.000 € 36.000 – 48.000 € 12.001 – 24.000 € More than 48.000 €

15 If you wish to add any comments or suggestions regarding your holidays or this survey, please indicate it below.

*** Thank you very much for your participation and collaboration ***

SM.2. Questionnaire 2

Note: This questionnaire was distributed in Spanish and Portuguese, the languages of the study population, i.e., the Canary Islands (Spain), Madeira (Portugal), and Cape Verde. In this regard, the present questionnaire is enclosed in Spanish.

CUESTIONARIO DE INTERNACIONALIZACIÓN PARA EMPRESAS DE TURISMO NÁUTICO

A continuación, se presentan una serie de preguntas relacionadas con el potencial de internacionalización de su empresa de actividades y servicios de turismo náutico.

Este cuestionario forma parte de un estudio más amplio sobre el Turismo Náutico en la Macaronesia, propiedad intelectual de la Unión Europea y la Universidad de Las Palmas de Gran Canaria, por lo que la información obtenida aquí no se utilizará más allá de los fines establecidos para el **Proyecto NAUTICOM**-*Red Náutica de Cooperación en la Macaronesia*.



Tides Alexandre States

MAC 2014-2020 Cooperação Territorial



Por favor, responda los siguientes aspectos relacionados con las características de su empresa:

1	Tipo de actividad/servicio (Ej. alq embarcaciones)	uiler de				
2	Modalidades o servicios específic chárter con/sin patrón, chárter en paseo en barco, etc.)	cos (Ej. Itre islas,				
3	Volumen anual estimado de clien	tes	No. clientes pror	nedio anual:		
4	Periodo (meses) de mayor deman actividades /servicios prestados	da de las				
5	Principales países de origen de lo	s usuarios				
6	Año de constitución de la empresa		10 Indique	si su empresa	a	Na
7	Número de empleados		a. Plan de Marke	ting	SI	NO
			b. Cuestionario s	atisfacción clien	tes	
8	Porcentaje de contratos	%	c. Plan de Interna	acionalización		
	temporales sobre el total de contratos fijos anuales					
9	Facturación anual de su	2013	2014	2015	201	6
	empresa (€)					-

11 Por favor, indique si su empresa:			
	Sí	No	En caso afirmativo, especifique
Cuenta con Plan/Programa de formación para personal contratado.			n ^o cursos en los últimos 3 años y temas
Ha participado en algún evento/concurso/feria internacional en los últimos 3 años.			n ^o y tipo de evento
Forma parte de alguna asociación/federación empresarial del sector de la náutica.			especifique
Ha sido beneficiario de algún tipo de subvención/proyecto (público o privado) en los últimos 5 años.			n ^o y tipo de licitación
Ha firmado algún contrato/convenio con otras empresas/instituciones internacionales en los últimos 5 años.			n ^o contratos y alcance
Recibe o ha recibido fondos/capital de inversores externos/accionistas en los últimos 5 años.			% capital y país inversor
Realiza o ha realizado actividades (prestación de servicios/alquiler-venta de material, etc.) para otras empresas en mi región en los últimos 3 años.			% que supone/n esa/s actividad/es respecto a los ingresos de ese año
Realiza o ha realizado actividades para otras empresas en el resto de país en los últimos 3 años.			% que supone/n esa/s actividad/es respecto a los ingresos de ese año
Realiza o ha realizado actividades para otras empresas en el extranjero en los últimos 3 años.			% que supone y país receptor
Ha realizado inversiones/compra de acciones/operaciones societarias a nivel regional/nacional/internacional.			tipo y alcance
Cuenta con alguna patente propia relacionada con el sector.			especifique

12 Valore los siguientes aspectos de su empresa.

Por favor, indique en cada caso, donde 1= es nada de acuerdo y 5= completamente de acuerdo

<i>5= completamente de acuerdo.</i>	Nada acuer	Nada de Completa acuerdo de a		mpleta de ac	mente suerdo
Los precios de mis productos/servicios son los más bajos de mi región.	1	2	3	4	5
Los precios de mis productos/servicios son competitivos con respecto a otras empresas de la región.	1	2	3	4	5
Los precios de mis productos/servicios son competitivos a nivel nacional.	1	2	3	4	5
Los precios de mis productos/servicios son competitivos a nivel internacional.	1	2	3	4	5
Los trabajadores de mi empresa tienen alto sentido de pertenencia y cultura náutica.	1	2	3	4	5
Mi empresa dispone de recursos humanos para prestar servicios de formación relacionada con mi actividad en otras empresas en el extranjero.	1	2	3	4	5
Mi empresa tiene capacidad financiera para contratar personal especializado en internacionalización, en caso necesario.	1	2	3	4	5
Mi empresa cuenta con liquidez para realizar inversiones de exportación del producto/servicio o de crecimiento empresarial en el extranjero.	1	2	3	4	5
Mi empresa cuenta con un modelo de gestión y/o de negocio de éxito u otros factores de éxito exportables a otros mercados/contextos.	1	2	3	4	5
Existen mercados accesibles para expandir mi modelo de negocio a nivel internacional.	1	2	3	4	5
Existe un alto riesgo en la expansión de mi empresa.	1	2	3	4	5
Considero que internacionalizarme podría fortalecer la situación económica de mi empresa (el mercado internacional es más rentable que el local).	1	2	3	4	5

13 Valore la importancia que concede a los siguientes aspectos, si como directivo se plantease la exportación de productos/ servicios o la expansión/ crecimiento de su empresa al mercado internacional.

importante.	Nada impor	Nada importante			Muy importante		
Los precios de mis productos/servicios son los más bajos de mi región.	1	2	3	4	5		
Los precios de mis productos/servicios son competitivos con respecto a otras empresas de la región.	1	2	3	4	5		
Los precios de mis productos/servicios son competitivos a nivel nacional.	1	2	3	4	5		
Los precios de mis productos/servicios son competitivos a nivel internacional.	1	2	3	4	5		
Los trabajadores de mi empresa tienen alto sentido de pertenencia y cultura náutica.	1	2	3	4	5		
Mi empresa dispone de recursos humanos para prestar servicios de formación relacionada con mi actividad en otras empresas en el extranjero.	1	2	3	4	5		
Mi empresa tiene capacidad financiera para contratar personal especializado en internacionalización, en caso necesario.	1	2	3	4	5		
Mi empresa cuenta con liquidez para realizar inversiones de exportación del producto/servicio o de crecimiento empresarial en el extranjero.	1	2	3	4	5		
Mi empresa cuenta con un modelo de gestión y/o de negocio de éxito u otros factores de éxito exportables a otros mercados/contextos.	1	2	3	4	5		
Existen mercados accesibles para expandir mi modelo de negocio a nivel internacional.	1	2	3	4	5		
Existe un alto riesgo en la expansión de mi empresa.	1	2	3	4	5		
Considero que internacionalizarme podría fortalecer la situación económica de mi empresa (el mercado internacional es más rentable que el local).	1	2	3	4	5		

Por favor, indique en cada caso. donde 1= es nada importante v 5= muv

14 Si desea añadir algún otro aspecto que considere respecto a sus capacidades y/o limitaciones (de tipo legal, económico o de mercado, social y ambiental), de cara a la posible internacionalización o expansión de su empresa, por favor, indíquelo a continuación.

*** Muchas gracias por su tiempo y cooperación ***

SM.3. Questionnaire 3

Note: This questionnaire was distributed in Spanish, Portuguese, English, German, and French, i.e., the languages of the main outbound markets of tourists at the research destinations of the Macaronesian Region.

QUESTIONNAIRE ABOUT THE POTENTIAL OF THE WHALE-WATCHING ACTIVITY

The aim of this questionnaire is to find out and understand your opinions and perceptions regarding the whale- watching activity. This questionnaire is part of a wider research related to the Valuation of Whale- Watching Tourism in the Macaronesia Region.

Your participation is anonymous, and the information shall be used exclusively for the purposes of the **MARCET Project** – *International and Multidisciplinary Network for the conservation of cetaceans and the promotion of a sustainable tourism associated with the whale- watching activity in Macaronesian waters*¹.

Please take your time and read the questions carefully Completing this questionnaire will not take you more than 10 minutes. Thank you very much for taking part.



¹ MARCET project is coordinated by the University of Las Palmas of Gran Canaria and co-funded with FEDER funds of the European Union.

1 How important are the following statements for you when considering to engage in the whale-watching activity?

Please, indicate the level of importance to you. Note that 1 indicates not important at all and 5 very important.

at all and 5 very important.	Not important		Very		
	at all			imp	ortant
See whales even if it is only one	1	2	3	4	5
See whales up close to the boat	1	2	3	4	5
See whales during a long time (more than 30 minutes)	1	2	3	4	5
Good photo opportunities	1	2	3	4	5
Good weather conditions for navigation (state of the sea and climate)	1	2	3	4	5
To be comfortable at the boat	1	2	3	4	5
Cost of the activity appropriate to the quality	1	2	3	4	5
See a variety of different marine animals and birds besides whales	1	2	3	4	5
Learn about whales' biology (feeding, reproduction) and behaviour	1	2	3	4	5
Learn about protection and conservation of whales and other marine wildlife	1	2	3	4	5
Learn about how to identify different species of whales	1	2	3	4	5
Learn about the regulation and good practices of the whale watching	1	2	3	4	5
Learn about whales in local culture	1	2	3	4	5

2	Have you done the whale- watching activity	Nev
	before?	Onc

er e

Between 2-3 times More than 3 times

If yes, where did you do the activity?

3 After your whale-watching experience, do you think these statemen	ts we	r e per	torm	ed?		
Please, consider the following scale: 1 = strongly disagree; 2 = disagree; 3 = neither						
disagree nor agree; 4= agree; 5= strongly agree.	Strongly			Strongly		
	disagree			agree		
Have seen whales even if it was only one	1	2	3	4	5	
Have seen whales up close to the boat	1	2	3	4	5	
Have seen whales during a long time (more than 30 minutes)	1	2	3	4	5	
Good photo opportunities	1	2	3	4	5	
Good weather conditions for navigation (state of the sea and climate)	1	2	3	4	5	
To have been comfortable at the boat	1	2	3	4	5	
Cost of the activity appropriate to the quality	1	2	3	4	5	
Have seen a variety of different marine animals and birds besides whales	1	2	3	4	5	
Have learnt about whales' biology (feeding, reproduction) and behaviour	1	2	3	4	5	
Have learnt about protection and conservation of whales and other marine wildlife	1	2	3	4	5	
Have learnt about how to identify different species of whales	1	2	3	4	5	
Have learnt about the regulation and good practices of the whale watching	1	2	3	4	5	
Have learnt about whales in local culture	1	2	3	4	5	

4 Overall, which was your satisfaction level after your whale- watching experience? Please, choose the best option. Note that 1 indicates not satisfied at all and 10 totally satisfied.

	1	2	3	4	5	6	7	8	9	10
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To complete the questionnaire, please answer the following sociodemographic questions.

Please remember that this questionnaire is **completely anonymous**, and your answers would not be in any conflict of interest.

6 Gender Male Female Other	
	14 Specify the option that best describes
7 Year of birth	the group you are travelling with
	Alone Relatives
8 Nationality	My partner Organized group
	Friends/ work mates Old-age group
9 Education level	My child/ children Others
No schooling complete Bachelor's degree	
Nursery school Master or higher degree	15 Number of people you are
High school Other	travelling with (also count yourself)
Technical/ vocational training	
	16 How did you organize your holidays?
10 Employment status	Organized by myself Tour operator
Unemployed Employed for wages	Travel agency Other
Student Retired	
Self-employed Other	17 Type of accommodation
	Hotel stars Rural hotel
11 How many people live in	Apartment Villa/ Bungalow
your household?	Rural accommodation Vacation rental
	Own house Family / Friends' house
12 Net yearly income	Other
No income 24.001 – 36.000 €	
Less than 12.000 € 36.000 – 48.000 €	18 Number of nights at destination
12.001 – 24.000 € More than 48.000 €	
	19 Approximately, how much €
	money have you spent on
13 Are you a member of Yes No	average on your holidays?
any environmental/	
conservation association?	
If yes, which one(s)?	

20 If you wish to add any comments or suggestions regarding your holidays or this survey, please indicate it below.

*** Thank you very much for your participation and collaboration ***

SM.4. Questionnaire 4

Note: This questionnaire was distributed in Spanish, Portuguese, English, German, and French, i.e., the languages of the main outbound markets of tourists at the research destinations of the Macaronesian Region.

QUESTIONNAIRE ABOUT THE POTENTIAL OF THE WHALE-WATCHING ACTIVITY

The aim of this questionnaire is to find out and understand your opinions and perceptions regarding the whale-watching activity. This questionnaire is part of a wider research related to the valuation of whale-watching tourism in the Macaronesian Region.

Your participation is anonymous, and the information shall be used exclusively for the purposes of the **MARCET Project** – International and Multidisciplinary Network for the conservation of cetaceans and the promotion of a sustainable tourism associated with the whale- watching activity in Macaronesian waters².

Please take your time and read the questions carefully Completing this questionnaire will not take you more than 10 minutes. Thank you very much for taking part.



² MARCET project is coordinated by the University of Las Palmas of Gran Canaria and co-funded with FEDER funds of the European Union.

1 Have you do before?	one the whale- watching activity	у N О	ever	Between 2- 3 times More than 3 times	
If yes, where	e did you do the activity?				

Please answer the following questions about trip characteristics.

				4	How di	id y	vou org	jan	ize your holidays?
2 Specify the option that best describes				Organized b	y n	nyself		Tour operator	
the group you are travelling with				Travel agen	су			Other	
	Alone		Relatives		-				
	My partner		Organized group						
	Friends/ work mates		Old-age group	5	Type of	ac	comm	oda	ation
	My child/ children		Others		Hotel		stars		Rural hotel
	-		1		Apartment				Villa/ Bungalow
					Rural accom	nmc	dation		Vacation rental
3 Number of people you are				Own house			Family / Friends' house		
travelling with (also count yourself)				Other			_		
	-				-				
				6	Numbe	er o	of nigh	ts a	at destination

Please, carefully read the FOLLOWING ATTRIBUTES and the possible options that we present next.

We believe that taking these aspects into consideration could improve the development of the whale-watching activity, to reduce the potential impact on these animals and the marine environment, as well as for the higher satisfaction during your experience.

CORPORATE SOCIAL RESPONSIBILITY DISTINCTION - CSR

This attribute represents a high level of achievement and recognised distinction of the actions undertaken in the whale-watching firm for the responsibility with the environment, employees, customers, society, and the local community. This distinction makes visible the good practices of the whale-watching firm. It credits the firm for its ethical, responsible, and transparent behaviour in caring for the different stakeholders.



The firm holds a social responsibility distinction.

The firm does not hold the CSR distinction.

WHALE PROTECTION MEASURES

This attribute represents a strong commitment of the firm towards whales and the marine environment. It involves financially supporting protection measures aimed to reduce the impacts that negatively affect whales, such as plastic ingestion, sea pollution, illegal hunting, whale stranding, etc.



The firm financially supports whale protection measures.

The firm does not financially support whale protection measures.

MARITIME TRAFFIC-CROWDING MANAGEMENT

This attribute reflects the number of vessels in the whale sighting area. Management of the traffic-crowdedness aims to reduce the visual impacts that affect tourist satisfaction with the whale-watching experience.

Low congestion: During the activity there are 3 or less than 3 boats around whales.



Average congestion: There are between 4 and 6 boats around whales.

High congestion: There are 7 or more than 7 boats around whales.

INSTRUMENTAL TRACKING OF WHALE POPULATIONS

Instrumental Tracking reduces the fuel consumption invested on cruising for searching and finding the animal species, and therefore reduces both CO2 emissions and pollution impacts on the marine environment.



Satellite tracking: The firm uses satellite telemetry to efficiently track whales.

The company does not use any innovative technological tool. It is just based on previous sightings.

Hydroacoustic tracking: The firm employs hydrophones to locate whales more efficiently from the

WHALE VISITOR CENTRE

sounds they emit.

The visit to an in-land visitor centre provides a whale nature and scientific exhibition, and promotes interactive and creative learning (audio-visual tools, education itineraries, etc.) which complements the on-board whalewatching experience.



The whale-watching tour include a visit to the visitor centre.



There is no visit included, nor a whale visitor centre available.

APP FOR SHARING WHALE-WATCHING EXPERIENCES

This App enables customers to share with other participants the whale-watching experience, by uploading photos, videos, comments of the experience, etc.



The firm has an App available to customers' experience sharing.

The firm does not have any App.

7 Please, now we would like you to choose, for each combination of attributes, ONE SINGLE OPTION of the following alternatives proposed, as if they were the only options available. WHICH ONE WOULD YOU CHOOSE?









To complete the questionnaire, please answer the following sociodemographic questions.

Please remember that this questionnaire is **completely anonymous**, and your answers would not be in any conflict of interest.

8 Gender Male Female Other 9 Year of birth	13 How many people live in your household?
10 Nationality	No income 24.001 – 36.000 € Less than 12.000 € 36.000 – 48.000 € 12.001 – 24.000 € More than 48.000 €
11 Education level No schooling complete Bachelor's degree Nursery school Master or higher degree High school Other Technical/ vocational training Other	15 Are you a member of yes No any environmental/ conservation association? If yes, which one(s)?
Image: Self-employed Employed for wages Retired Other	16 Approximately, how much money have you spent on average on your holidays?

17 If you wish to add any comments or suggestions regarding your holidays or this survey, please indicate it below.

*** Thank you very much for your participation and collaboration ***

