The challenge of long-term tourism competitiveness in the age of innovation: Spain as a case study

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ABSTRACT: This article questions whether the innovation deficit observed in the tourism sector on a global scale also characterises the world's leading power in terms of tourism competitiveness and whether Spain is taking the right steps so as to guarantee the future leadership of its destinations. Spain's innovative framework will be analysed in its European context, placing emphasis on the innovative intensity of the most important tourist regions. Spanish tourism companies and their capacity for innovation will also be studied in relation to those operating in other sectors. Formulas for generating tourism industries capable of assimilating and creating innovation will be proposed as a way of tackling the transformations that the sector is currently experiencing with the emergence of smart tourism destinations, the sharing economy and other disruptive changes, such as artificial intelligence.
It is important to take a long-term perspective of competitiveness in which innovation and digital transformation have become the centre of political, social and corporate action in the sector. Meeting these challenges will mean the implementation of a series of more specific policies and strategies that will foster Smart Tourist Destinations and the development of a more digitalised and responsible economy in which the collaboration between citizens and tourists within the destination is the frame of reference.

JEL Classification: O32; L83; R1.

Keywords: competitiveness; sustainability; innovation; tourism intelligence; over-tourism; digital economy.

El reto de la competitividad turística a largo plazo en la era de la innovación: España como caso de estudio

RESUMEN: Este artículo cuestiona si el déficit de innovación observado en el sector turístico a escala global también caracteriza la capacidad de liderazgo en lo que respecta a competitividad turística, y también si España está dando los pasos

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adecuados para garantizar el liderazgo futuro de sus destinos. El marco de referencia de la innovación española será analizado en su contexto europeo, haciendo énfasis en la intensidad de innovación de las regiones turísticas más importantes. Las empresas turísticas españolas y su capacidad innovadora también serán analizadas, en relación a otras que operan en sectores distintos. Se harán propuestas para estimular la generación de industrias turísticas capaces de asimilar y crear innovación, como una manera de abordar las transformaciones que el sector está experimentando en la actualidad con la emergencia de los destinos turísticos inteligentes, la economía colaborativa y otros cambios disruptivos, como la inteligencia artificial. Es importante adoptar una perspectiva de largo plazo de la competitividad en la cual la innovación y la transformación digital se conviertan en el eje de las acciones tanto políticas como sociales y corporativas del sector. Enfrentar este desafío supondrá la implementación de una serie de políticas y estrategias más específicas que, a su vez, fomentarán los Destinos Turísticos Inteligentes y el desarrollo de una economía más digitalizada pero también más responsable en la que la colaboración entre ciudadanos y turistas dentro del destino sea el marco de referencia.

Clasificación JEL: O32; L83; R1.

Palabras clave: competitividad; sostenibilidad; innovación; inteligencia turística; masificación turística; economía digital.

1. Long-term tourism competitiveness, leadership and innovation

There is no doubt that today tourism has become consolidated as one of the largest and most rapidly growing economic sectors in the world. International tourist arrivals broke records in 2016 with a total of 1,322 million people, according to the UNWTO World Tourism Barometer, 7% higher than in 2015 (WTO, 2018). According to the same organisation, tourism now accounts for 10% of GDP on a global level, 7% of total international trade and 30% of world service exports, exceeding the value of exchanges of oil or cars, for example. But, going beyond the figures, the impact of tourism generates a series of benefits for the development of the destinations, thanks to its capacity to create employment and reduce poverty (Samini and Sadeghi, 2011; Schubert, Brida and Risso, 2011. It also provides an alternative for diversifying the economic base of a region (Gibson, 1993; Porto, 1999, Perles-Ribes *et al.*, 2017), and it serves as a mechanism for converging developing countries, where tourism constitutes one of their main sources of income.

The distribution of the tourism impact is not equal on a global level and the indicators of tourism competitiveness can be used to explain both the movement of people and the economic performance of the sector. Generally speaking, the increase or decrease in the market share of exports —in this case, the volume of tourists— is used as the indicator par excellence to explain the competitive variations in the great majority of sectors in terms of the national and international trade of most industrial goods and services (Perles, Ramón and Sevilla, 2014). We can intuitively understand

competitiveness as a relative and multidimensional concept in which countries, companies or destinations seek to improve their products to position themselves above their rivals. It is a zero-sum game in which there is a limited distribution of the market and all players fight for the largest possible volume of customers and profits.

However, there are some issues that prevent the perfect application of the business concept of competitiveness to the reality of tourism territories (Perles-Ribes, 2016). For example, the emergence of new exotic destinations (particularly in developing countries) which, with small investments, can experience a rapid convergence in the early stages of growth (which slows down as the destinations mature). Or the tourism carrying capacity due to physical or sustainability reasons, preventing an infinite maintenance of market share while the number of tourists increases on a global scale.

Tourism competitiveness, therefore, should be addressed from several different perspectives (Spence and Hazard, 1998). Consequently, there is a broad and productive academic debate (Dwyer and Kim, 2003; Crouch and Ritchie, 2003; D'Hauteserre, 2000; Hassan, 2000; Heathe, 2003; Croes, 2011, among others). These studies seek to apply the knowledge on the holistic competitiveness of industries (Porter, 1990) to the case of tourist destinations, searching for the parameters that are best able to explain the movements and profitability of the destinations. Accordingly, the definition of tourism competitiveness is associated to concepts such as «well-being» or «sustainability» (Crouch and Ritchie, 1999), and does not represent an end in itself but an intermediate objective for reaching economic prosperity and well-being in the territory as a whole, as illustrated in the integrated model proposed by Dwyer and Kim (2003). In this concept of competitiveness, as well as attracting visitors, a satisfactory service is required with memorable experiences and a clear profitability for the destination and its residents from a sustainable point of view. Therefore, human resources and knowledge constitute two key elements of competitiveness.

The case of Spain is fairly paradigmatic in this double way of measuring competitiveness. With more than 82 million tourists in 2017, it is the second country in terms of international arrivals from all over the world, with total international tourism receipts of almost 90,000 million euros. The direct and indirect impacts together account for more than 14% of the wealth generated in Spain and the job positions in the economy (WTTC, 2018)[1]. These statistics have broken the country's record. However, with sufficient historical perspective it can be observed that the evolution of Spain's tourism competitiveness, measured through its participation in the global market, is characterised by a decreasing trend which can be explained by new competing destinations and the mature state of the country's principal tourism product (Perles-Ribes, J. F., Ramón-Rodríguez, A. Moreno-Izquierdo, L., and Torregrosa-Martí, M. T., 2016).

But this natural negative evolution associated to mature destinations such as Spain should also be reflected when we examining tourism competitiveness from a multidisciplinary perspective. Thus, the Travel and Tourism Competitiveness Index

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[1] *https://www.wttc.org/-/media/files/reports/economic-impact-research/countries-2018/spain 2018.pdf.*

(TTCI) of the World Economic Forum (WEF, 2017), the most widely accepted indicator in an international level, considers Spain as the country with the highest tourism competitiveness in the world. In order to reach these conclusions, aspects related to culture and the environment and policies aimed at the sector and the tourism infrastructures are considered; aspects in which Spain is clearly a global leader. However, other areas related to the generation of companies, innovation or the training of human capital are also taken as elements of the competitiveness of destinations, in which Spain is not so strong.

Over the next few years, Spain will need new products to revitalise itself and increase its profitability and maintain its competitive indexes in the face of the emergence of new destinations. This will require an innovative ecosystem that fosters the development of tourist knowledge as an unlimited resource and its transfer between the agents involved (Ramón and Pedreño, 2009). The different debates reveal that innovation seems to be the only response to aspects such as the changes in tourist preferences, the digitalisation of our society, the emergence of the sharing economy or the impact of the sector on the residents (Perles-Ribes, Ramón-Rodríguez, Vera-Rebollo and Ivars-Baidal, 2017).

This need for innovation is evident in any sector of the current knowledge society. In the tourism industry, for many years, authors such as Hjalager (2002), Ottenbacher (2007), Shanker (2008) or Baggio and Cooper (2010) have highlighted the competitive improvements of the new technologies: the increase in information in terms of both supply and demand, an increase in communication between agents, greater transparency or the possibilities of delocalising and controlling production and services, etc. According to many authors, such as Inkpen (1998), Buhalis (2003), Sevki and Rifat (2006), Liao and others (2010) or Werthner and Klein (2005), innovation is a key aspect for understanding the growth in tourism over the last few decades and its adaptation to the new needs of the demand, thanks to e-commerce or the greater global visibility of companies and destinations, among other factors. However, technology has also improved the processes of tourism companies in terms of management or distribution (Longhi, 2009), or the interaction between users (B2C) and companies (B2B) Hojeghan and Esfangareh (2010).

Nonetheless, it should be noted that this question relating to tourism and innovation is not new. More than two decades ago, Poon (1993) identified the difference between traditional demand and new tourists (subsequently called 2.0, referring to the millennial generation). Since then, even though digital technologies have constituted a transforming kingpin in destinations, with a total impact on the sector accounting for billions of dollars, the tourism industry has not fully exploited its capacity to innovate (Stamboulis and Skayannis, 2003). Based on an extensive literature review, Cooper (2006) highlights some of the causes of this insufficient management of knowledge in tourism:

— Stagnation in terms of incorporating academic research into the sector, which includes a failure to adapt studies to the reality of the sector and the recommendations for their application to the industry.

— The average size of the tourism companies (mainly small and medium-sized firms), with a low capacity for innovation. Although small companies are also capable of innovating, as noted by Hjalager (2002) or Camisón and Monfort-Mir (2012), only large companies or franchises have been able to generate their own innovation and develop new products. According to Williams and Shaw (2011), large hotels are best at absorbing and applying innovation, while King and others (2012) also refer to the greater ease with which large tourism companies innovate with respect to the deficit observed in the small and medium-sized firms.

— A very traditional and family-based sector, far-removed from the idea of development and innovation in the design of their business model. While in other sectors —particularly technological sectors— companies usually cooperate and support one another, in tourism they operate very independently. According to Aldebert and others (2011), tourism is made up of a series of activities that are highly dispersed, not only in nature, but also in terms of time and space, and they need to be dynamically combined so as to obtain a greater profitability.

— Professionals in the sector are not highly knowledgeable in the technological aspects, having studied vocational degrees (tourism-based) which do not include subjects that are essential for the future of the companies, such as computing or statistics. This hinders the generation of new tourism business models based on innovative ideas.

The question addressed in this article is whether this innovation deficit that characterises the tourism sector on a global scale is also prominent in the world's leading power in terms of tourism competitiveness, and whether Spain is taking the necessary steps to guarantee the future leadership of its destinations. To do this, first, Spain's innovative framework will be analysed in its European context, placing an emphasis on the innovative intensity of the most important tourist regions. Subsequently, Spanish tourism companies and their capacity for innovation will be studied in relation to those operating in other sectors. Finally, formulas for generating tourism industries capable of assimilating and creating innovation will be proposed as a way of tackling the transformations that the sector is currently experiencing with the emergence of smart tourism destinations, the sharing economy and other disruptive changes, such as artificial intelligence.

2. The innovative framework of Spain within the European context and the deficit in the tourism sector

One of the principal problems of the Spanish economy resides in its low capacity for innovation which not only affects the emergence of new leading sectors in the digital economy, but also the renovation of traditional industries, such as tourism. The European Innovation Scoreboard, created by the European Commission (2018), places Spain in the 16th position of 28, with no variations with respect to 2017. As we

can see in Figure 1, this position is a long way behind the leading countries in terms of innovation. Sweden (SE), Denmark (DK), Finland (FI), the Netherlands (NL), United Kingdom (UK) and Luxembourg (LU). Spain (ES), meanwhile has a middle-low position, together with other moderately innovative countries, such as Portugal (PT), Malta (MT), Estonia (EE), Czech Republic (CZ), or Cyprus (CY). In order to determine these values, different indicators have been used which have been gathered from different sources ranging from the formation of human resources or the attraction of international researchers to a country, including business investment in R&D, financing capacity or the international trade of technological products, among many others.

Figure 1.   Value in the innovation index of the European Innovation Scoreboard (EU28 in 2017 = 100)
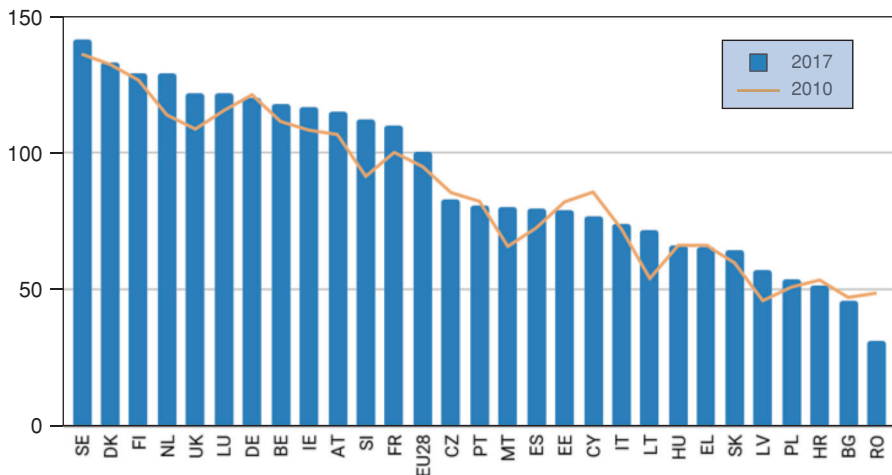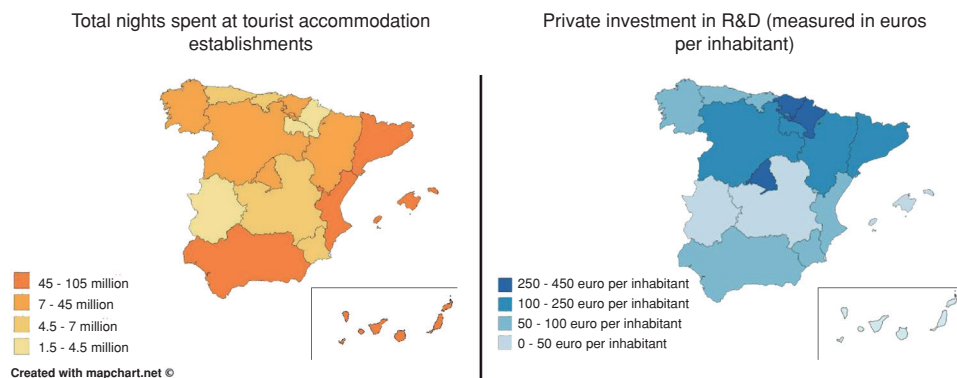

Source: Eurostat.

Relatively speaking, according to the afore-mentioned index, Spain has only closed the gap with the European average by 3% in recent years from 76% to 79%, with a series of elements that are clearly lagging behind, such as the attraction of foreign researchers, collaboration between companies to create innovative projects, the number of patent applications, technological exports or employment in highly innovative areas. But, undoubtedly, the greatest problem of the Spanish economy with respect to innovation is the lack of innovation in companies, with an absolute absence of new product design, a very low percentage of public and private expenditure in R&D and a very low incidence of the creation of new companies and entrepreneurial activity.

During the period called the «Spanish economic miracle», a great opportunity was lost to revitalise strategic sectors such as tourism, highly focused on the development of its property dimension. So while in Spain second residences multiplied, the

companies that had reinvented the relationships between tourism supply and demand (Booking, Airbnb, TripAdvisor, Ryanair,...) emerged in innovative environments (the United Kingdom, the Netherlands, Ireland, the United States,...) (Moreno-Izquierdo and Pedreño-Muñoz, 2017). This was not the case in other countries, such as Sweden, which had known how to maintain its specialisation in sectors such as construction or automobiles, while promoting any area related to science or technological production (ICTs, energies, new materials,...). Germany also combined its traditional industries, such as pharmaceuticals or cars with other eminently innovative sectors, such as new materials, aeronautics or energy (see the Report on Innovation and Research by the European Commission 2017).

Spain, meanwhile, seemed to be enjoying a clear comparative advantage in the tourism sector due to its climate and beaches. Despite the efforts made by the government, the policies for innovative development are insufficient or very slow and the tourist regions are not advancing in the right direction, as we can see in Figure 2, which shows how the principal Spanish tourist regions, in terms of regulated overnight stays (Catalonia, the Region of Valencia, Andalusia and the Balearic Islands), have a lower level of private investment in R&D than other regions less specialised in tourism, such as the Region of Madrid, the Basque Country or Navarre.

Figure 2. Impact of tourism and investment on innovation in the Spanish regions

Source: Eurostat.

In the European context, the situation is similar. In 13 of the 20 most important tourist regions of Europe, private investment in R&D is below the national average. In the case of countries with a low level of innovation, such as those in southern Europe, the lack of innovation with respect to the European average is even more concerning, as we can see in Figure 3. However, there are different nuances which should be highlighted.

Figure 3. Investment in R&D of the most important tourist regions in Europe

Region	Total nights spent by tourists in the region (millions)	Private R&D investment in the region measured in euros per inhabitant	% of private investment in R&D with respect to the national average (indicated in parentheses)	% of private investment in R&D with respect to the EU28 average (EU28 average=381.7)
Canary Islands (ES)	102.7	16.9	11.34% (149)	4.42%
Catalonia (ES)	79.8	239.7	160.87% (149)	62.79%
Jadranska Hrvatska (HR)	74.2	16.8	37.00% (45.4)	4.40%
Île de France	71.2	1,067.5	223.5% (477.6)	279.6%
Balearic Islands (ES)	69.9	11.6	7.78% (149)	3.03%
Andalusia (ES)	66.2	60.2	40.40% (149)	15.77%
Veneto (IT)	65.4	229.2	108.11% (212)	60.04%
Prov-Alpes-Côte d'Azur (FR)	51.8	460.1	96.33% (477.6)	120.5%
Rhône-Alpes (FR)	49.1	586	122.7% (477.6)	153.2%
Region of Valencia (ES)	47.4	83.8	56.24% (149)	21.94%
Tuscany (IT)	44.2	210	99.05% (212)	55.01%
Emilia-Romagna (IT)	37.8	427.8	201.8% (212)	112.1%
Lombardia (IT)	37.2	323.2	152.45% (212)	84.67%
Tyrol (AT)	36.5	842.2	96.32% (874.3)	220.6%
Oberbayern (DE)	35.1	1,787.6	238.1% (750.7)	468.3%
Languedoc-Roussillon (FR)	34.1	181	37.96% (477.6)	47.41%
Aquitaine (FR)	32.9	283.8	59.42% (477.6)	74.35%
Lazio (IT)	32.1	187.4	88.39% (212)	49.09%
Provincia Aut. di Bolzano (IT)	31.3	196.7	92.78% (212)	51.53%
Berlin (DE)	30.9	524.2	69.82% (750.7)	137.33%

Source: Eurostat.

First, of the regions observed, there are three which are particularly noteworthy with a higher R&D deficit than the rest: The Balearic Islands, the Canary Islands and the Adriatic Coast of Croatia. When compared with the surrounding countries, none of these regions reach even 5% of the average private investment in R&D of the European Union of the 28 countries (EU). These are followed by Andalusia, (16% of investment with respect to the EU28 average) and the Region of Valencia (22%), with a more diverse production fabric. Of the Spanish tourist regions, only Catalonia

—thanks to the boost from Barcelona— exceeds 50% of the average investment in R&D of the EU, although it is still a long way behind the leading countries. Although there are tourist regions with an innovation deficit in other countries, such as Italy and France, the data are much higher than the average of the Spanish tourist regions, which shows that the Spanish tourism sector is lagging behind due to the innovation deficit of the country as a whole.

At the other extreme, regions such as Bavaria, the Austrian Tyrol, the Île de France (region of Paris) or the Côte d'Azur are highly specialised in tourism but this has not prevented a business diversification reflected in private investment in R&D. These regions should constitute models of best practice for the Spanish destinations.

3. Explaining the innovation deficit of the Spanish tourist regions

Among the principal barriers preventing tourism companies from adopting innovations and technology, in the literature we can find certain elements such as the small size of many of these companies —mainly microenterprises—, a low level of professionalisation of the entrepreneurs and the doubts regarding the profitability of the investments (see Perles-Ribes, Rodríguez-Sánchez and Ramón-Rodríguez, 2015). But this fact does not affect all of the regions equally, and the context in which the tourism activity is developed will ultimately determine the commitment of the tourism companies to the renovation of the development.

With respect to the types of innovation, Aldebert and others (2011), identify three different types: innovation in the product or service; innovation in the process; innovation in the marketing. This study determines that 70% of total innovation in tourism occurs in the first category (introducing a new product or service onto the market), although with certain nuances: only 21% of product innovation effectively refers to a new product on the market; 79% implies the creation of a good or service in a company but which already exists on the market, or «minor innovations» to improve an existing product (in terms of design, usability, accessibility, adaptability to mobile phones, etc), according to the classification of the authors.

Innovation in processes (implementation of new production, distribution, sales techniques, etc.), represents 20% of innovation in tourism and includes proposals such as the creation of new online distribution systems, tools for hotel management, systems for working in the cloud to save costs and the generation of more information, etc. According to Ubierna and Pérez (2016), organisational innovations are more important than product or process innovations. Finally, innovation in marketing (implementation of new marketing techniques, including communication, user management or the visual redesign of the product) represents the remaining 10% of innovation for tourism companies.

This classification of innovation helps us to understand two things: first, that innovation and competitiveness in tourist destinations not only require the efforts of

the companies in the sector (of any size) but also those of new start-ups and entre-preneurs who contribute a new vision of solutions and improvements; and second, the need for a specialised innovative environment that enables tourism companies to employ professionals and experts in technologies, marketing or design among other fields. In the case of Spain, and based on the Innovation Survey of companies (INE, 2017), once again, we can see the relationship between the Spanish tour-ist regions and sectors and innovation. First, as shown in Figure 4, of the regions with the highest tourism impact (Andalusia, Catalonia, the Balearic Islands, the Canary Islands and the Region of Valencia), only Catalonia displays an innovation intensity higher than the national average, with the Balearic Islands and Canary Islands in last place. The same result can also be observed when analysing the total expenditure on innovation by companies per wage earner. Figure 5 shows how tourism-related sectors included in the above-mentioned survey (transport and hotel and restaurants) have an investment ratio that is lower than the average of ser-vice companies and much lower than the national average. In other words, Spanish tourism companies usually have a lower average degree of innovation than the rest of the economic sectors, which seems to be penalising the regions most specialised in this industry.

Figure 4.   Regional differences with respect to the intensity of investment in innovation
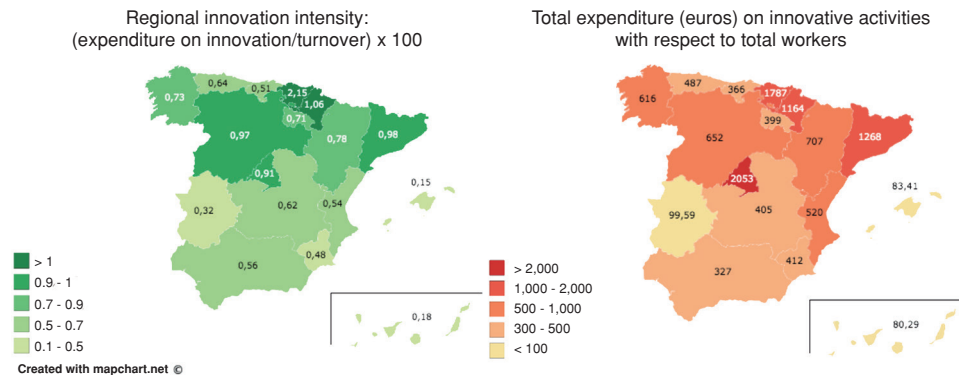

Source: own elaboration based on the Survey on Innovation in Companies 2016 (INE).

Moreover, the average Spanish investment in innovation is also lower than the European Union average. If this situation is not reversed, the above-mentioned Span-ish tourist regions, and also the Region of Murcia which also has a sizeable tourism industry, will widen the distance that separates them from the rest of the European territories that understand investment in R&D as a key policy for explaining their growth.

With respect to the type of innovation that is taking place in the Spanish tourism sector, according to Camisón and Monfort-Mir (2012), the innovative focus is on the non-technological aspects, with special emphasis on retail and management innova-

tion. This can be seen in the graph that represents the low turnover derived from new or improved products in the hotel and restaurant and transport sectors. However, as indicated by Adebert and others (2011), it is foreseeable that with future innovations, as in the case of the emergence of the mobile terminal, the tourism industry will adapt its products to new opportunities, as although the tourism sector is not a technological industry, it does know how to update itself, adapting its business models to external innovations (Thomas and Wood, 2014).

Figure 5. Indicators of innovation in tourism sectors in the Spanish economy
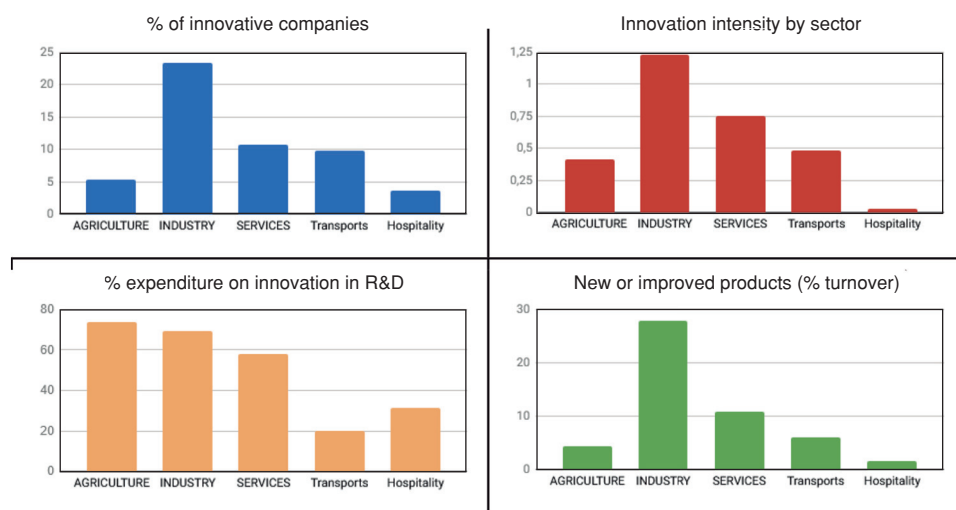
Source: Survey on Innovation in Companies 2016 (INE).

As previously mentioned, in Spain, according to the information provided by the companies themselves, there are many reasons to explain this lack of tourism innovation. Figure 6, also drawn from the Survey on Innovation in Companies, shows some aspects of the Spanish tourism structure dominated by family-run and small businesses that give cause for concern: first, the hotel and restaurant businesses are those that attach least importance to innovation, with more than 40% stating that it is not necessary; another of the main reasons given for the low incidence of innovation in hotel and restaurant businesses (36% of those surveyed) is that there is no demand for new products; followed by the fact that it is too costly (22%), the lack of own funds (17%) and the lack of qualified personnel (15%). In the case of transport companies, the problems reside in the non-existence of new demand (32%), the high costs (23%) and the absence of own funds (20%). This is surprising as it is precisely the accommodation and transport sectors that are most affected by the changes in the marketing of their services undertaken by foreign technological companies.

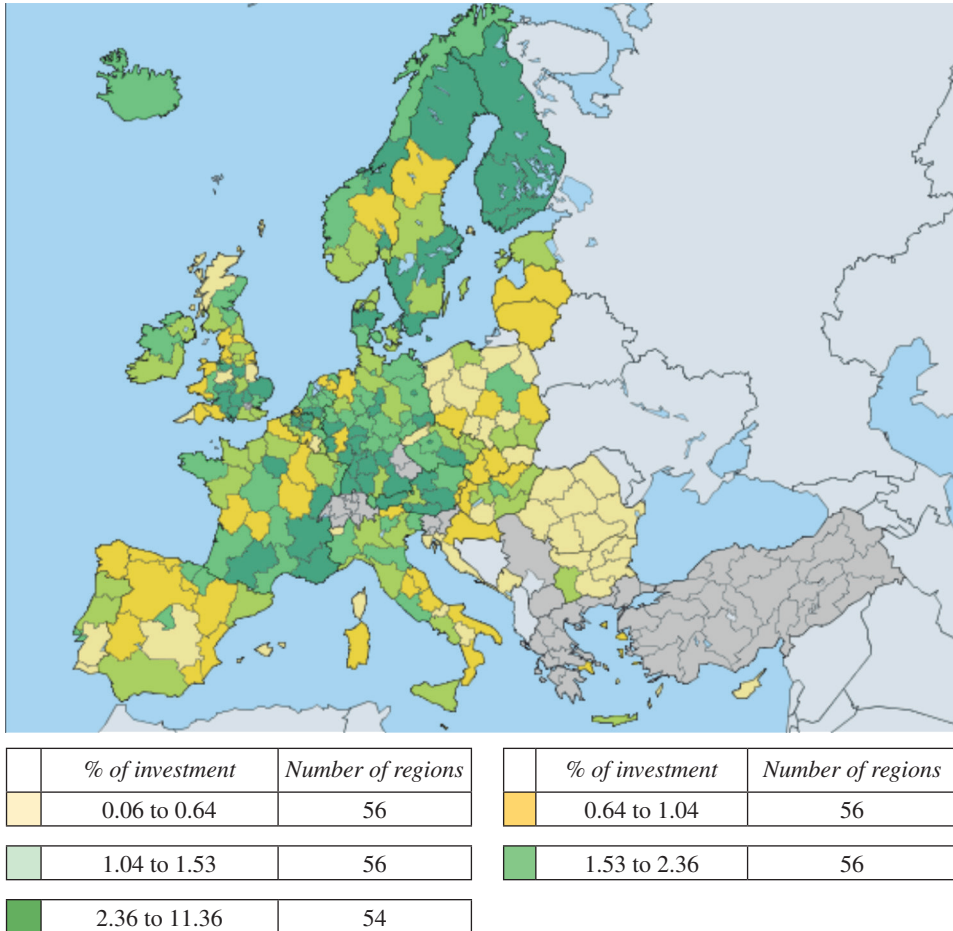**Figure 6.**   Reasons why companies do not innovate (% all of the companies)
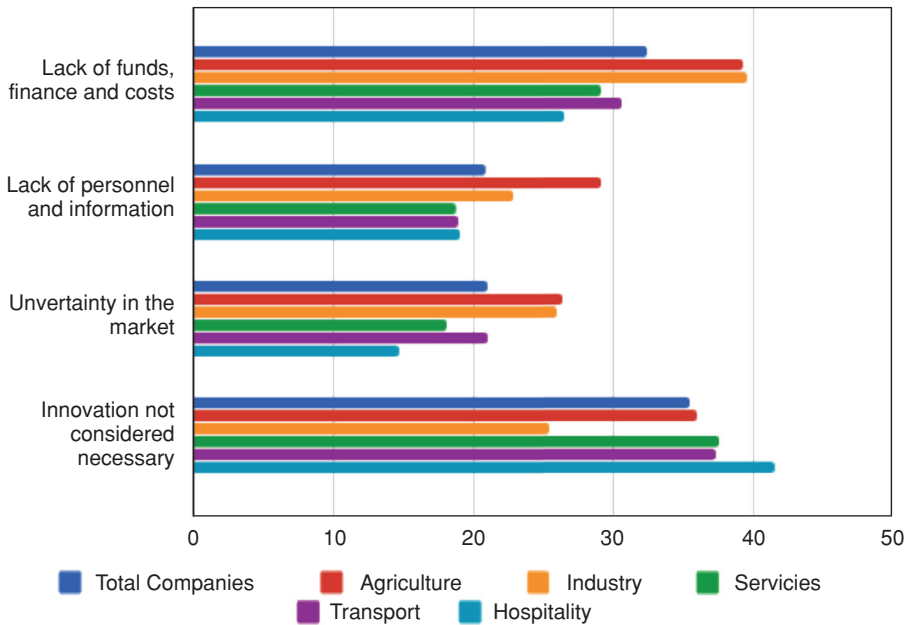
That said, the tourism sector is not an isolated case. The main reason given for not innovating by all Spanish companies (30% of the total) is, according to the firms, as in the case of tourism-related companies, due to an absence of demand and customers who are not very demanding. Although it is true that certain nuances may be made (mainly with respect to the industrial activity of the large companies, whose main difficulty for innovating resides in the lack of funds), it is necessary to point out that the tourism sector suffers from the same structural problems in the lack of innovation as Spain as a whole, although its specific structure aggravates them even more. Figure 7 illustrates this, showing how no Spanish region particularly stands out in the comparative map of innovation in the European Union, as previously pointed out.

The same map also reveals that, with the exception of the Côte Azur, the regions considered as being the most tourism oriented regions in Europe have an innovation deficit. Therefore, it is worth reflecting on the need for product diversification in regions highly specialised in tourism to ensure their sustainability over time in which innovation will be the key to their survival.

Figure 7. Percentage of private investment in R&D with respect to GDP

	% of investment	Number of regions		% of investment	Number of regions
	0.06 to 0.64	56		0.64 to 1.04	56
	1.04 to 1.53	56		1.53 to 2.36	56
	2.36 to 11.36	54			

Source: Eurostat.

4. Generating innovative ecosystems in tourism based on STDs

Precisely due to the highly consolidated state of tourism in Spain, and despite the non-innovative context of the Spanish economy and the early stages of the concept, the «smart tourist destination» has been received with a high level of interest in Spain and other countries (Gretzel, Sigala, Xiang and Koo, 2015). Spain is one of the countries in which the greatest efforts are being made with respect to the conceptualisation, research and development of STDs (Ivars-Baidal, Celdrán-Bernabeu, Mazón and Perles-Ivars, 2017). Institutions such as Segittur are promoting the theo-

retical development of the concept as well as its practical application, investing hope in it to foster the competitiveness and innovation of the national tourism sector and meet the different challenges —including sustainability— faced by Spanish tourist destinations (Ivars-Baidal, Solsona-Monzonís and Giner-Sánchez, 2016; Fernández-Alcantud, López-Morales and Perles-Ribes, 2016; Fernández-Alcantud, López-Morales, Moreno-Izquierdo, Perles-Ribes, Ramón-Rodríguez and Such-Devesa, 2017).

However, for now, efforts are still concentrated on pilot programmes, promoted by the public initiative, although without investment in R&D&I by private companies, it will be impossible to sustain the leadership in tourism competitiveness in the long term. But the innovation required of companies is not casual or isolated. The most innovative companies are, on the whole, immersed in a dense network of relationships that promote, generate and also limit the opportunities for innovating (Dogson, Gann and Salter, 2008, p. 128). These networks, led by the companies, will be necessary to modernise the tourism sector. We are therefore faced with the challenge of stimulating ecosystems on a global scale that combine companies that have tourism know-how with the technological sectors that provide the tools.

These business relationships should not be based solely on the exchange or adaptation of innovation, but on reinventing the tourism industry through hybridisation with future sectors and disruptive technologies, such as big data, artificial intelligence, nanotechnology, personalised education or blockchain. This reinterpretation based on technological avant-garde will contribute a high added value to destination management and the tourist experience, even more so if we consider the business genetics that the Spanish tourism sector has acquired over time. It would also give rise to a regenerating effect of all of the sub-sectors which depend on the tourism industry, helping to modernise their structures, as indicated by Moren and others (2017).

According to the same authors, maintaining the leadership of the international tourism scene requires three key elements: *a)* leading the export of know-how in STDs to Destination Management Organisations (DMOs) in the rest of the world; *b)* fostering an environment that will capture, promote and retain talent and digital entrepreneurialism in tourism (Rae, 2004); and *c)* hybridising the traditional tourism sector to transform it into an avant-garde sector, improving the profitability and external competitiveness of the tourism companies.

All of the previously mentioned elements would form part of the development of smart development, and these tourism innovation ecosystems would be consolidated within them. According to Perles-Ribes, Ramón-Rodríguez, Vera-Rebollo and Ivars-Baidal (2017), many consolidated destinations that are irreversibly confronted by the limits of their growth believe that the solution to their problems of competitiveness and sustainability can be found in the paradigm of these STDs. However, this will require these networks of companies to incorporate new perspectives which, to date, are, to say the least, problematic.

First, the so-called sharing economy should be a strategic element integrated into the structure of the STDs, promoting the efficient and sustainable use of goods and services between peers based on the use of the internet and blockchain. The demand

already understands that these types of services are essential, highlighting the need to regenerate certain tourism services which we believed were consolidated. In fact, the reaction of the Spanish tourism sector to the Airbnb or Uber models shows a worrying failure to adapt to the digital medium. However, we should not forget that both the concept of STDs and the sharing economy define the conversion of traditional destinations into a new concept of destination in which the relationship of the tourist with the environment is transformed. Therefore, they should go hand in hand.

Second, the management of open data will be necessary in the destinations to foster the advance towards big data and the Internet of things. These actions, however, would go against European and national data protection laws. But the Spanish tourism sector must also be disruptive in this field and foster a better interconnection between companies and users and promote new business models based on large volumes of data to which only large multinationals have had access until now.

As a world power in tourism, Spain cannot put up barriers to these types of phenomena if it wants to promote innovative tourism ecosystems. The destinations should learn how to respond effectively and intelligently to the challenge with which they are faced from a legal perspective and to their necessary integration into the digital economy. As indicated by Moreno-Izquierdo, Ramón-Rodríguez and Such-Devesa (2016), all of this alters the dominant organisational models and demand responses in terms of innovation, adaptation, specialisation or regulation.

5. A new challenge of tourism destinations: excess demand or overtourism

As pointed out at the beginning of this paper, measuring tourism competitiveness based on the relative volume of visitors clashes with the idea of sustainability and the fact that a destination receives many tourists is not always a cause for celebration. The massification of tourists without a sustainable management of the destination can lead to negative effects (Vera-Rebollo and Ivars-Baidal, 2011). These diseconomies have been addressed by many authors in recent decades and we can observe the impact from different perspectives, as summarised by Archer, Cooper and Ruhanen (2004): from an economic point of view (increase in prices in response to the pressure of new demand; reconversion of land for tourism services; temporariness of employment), a political point of view (decisions seeking to satisfy tourist companies or visitors and not residents), an environmental point of view (overexploitation of water resources and occupation of natural spaces) and a socio-cultural point of view (loss of cultural identity and problems arising from the cohabitation of residents and tourists).

But, although the problems surrounding the negative impact of tourism have been subject to abundant research for decades, concepts such as overtourism (also excess tourism or tourist saturation) are relatively new, particularly from a scientific research point of view. While studies of sustainability in tourism have traditionally focused on the environmental impacts (territory, fauna, water, landscape, etc.), today the negative effect can also be seen in the residents and their discontent with the loss of qual-

ity of life due to the arrival of an excessive volume of tourists. This tourismphobia is manifested in the classic theory of Doxey (1975) regarding the attitude of the residents towards tourism.

Currently, the growing state of the question (Novy and Comob, 2016; Goodwin, 2017; Milano, 2017; WTTC, 2017 or Pearce, 2018 among others), reveals that several international destinations, measured with similar parameters, are encountering serious problems derived from excessive tourism: Venice, Barcelona, Mallorca, Berlin, Amsterdam, Machu Picchu (Peru), Phi Phi (Thailand), Reykjavik (Iceland) or New York (United States) among many others. So much so that the term Venice syndrome has been coined (Milano, 2017) to refer to the phenomenon of tourist saturation and the exodus of local residents to peripheral urban centres.

Among other reasons, many observe a growing discontent of the residents, particularly due to the emergence of Airbnb and the use of traditionally residential properties for tourism, although there are many other issues that have been unresolved for decades, such as the saturation with a regulated supply of the most attractive tourism spaces, the lack of social housing rent policies, a disrespect for the laws of construction in coastal areas, excessive licences for bars and leisure facilities, the seasonality of the destinations, etc. Therefore, Airbnb is just one more element in a long list.

In short, the combination of competitiveness and tourist attraction, with a non-smart management over the course of many years can lead to problems of saturation and overtourism and, in the long run, dying from success. This problem is becoming increasingly urgent in the most visited destinations, and for those in which the implementation of strategies included in the framework of the STDs could be part of the solution, seeking a higher profitability based on a lower number of tourists, a better distribution of spaces, the geolocalisation of tourist attractions and their affluence, traffic management or promoting strategies to deseasonalise the demand. But achieving these goals requires a combined effort, with the raising of the awareness of the public and private agents and the tourists and residents as the problem of saturation and the loss of competitiveness of the destinations affects all of the actors in the tourism chain.

6.   Conclusions

The tourism sector is affected by the constant changes that affect and represent new challenges for the public and private agents and the new competing destinations on an international level, the emergence of digital platforms of tourism marketing or the problems derived from the saturation of tourist destinations. Even such consolidated concepts such as the principles of the sustainability of our destinations are affected by the digital economy and its impact on the sector or by a risk of mismanaging the competitive success of a destination in a globalised environment with falling transport costs. These continuous changes lead us to reflect on the need to advance in the study of tourism competitiveness, given the complexity of this concept.

In the age of globalisation and knowledge, the tourism system is broader and interrelated. Spain, a world power in tourism, and based on a considerable endowment of physical, human and technological capital, has to lead this change in its tourism product based on more R&D&I. Making the most of this opportunity may ensure a sustainable leadership in the long term, which, without question, will entail a new type of relationship between all the agents involved in the tourism sector based on the use of better technologies in keeping with the digital age. This new relational space, which is much more flexible and adaptable, should enable the local society to also substantially gain from the benefits and improve the well-being of its citizens. Becoming a leading agent in the field of tourism knowledge requires it to generate an innovative ecosystem based on the so-called Smart Tourist Destinations. However, their development, to date, has been based on public initiatives and not the real commitment of the Spanish tourism companies. In fact, this is, undoubtedly, one of the main problems of Spain's long-term tourism competitiveness: the tourism companies, which should play a relevant role in the new configuration of the destinations, do not consider innovation in the sector to be necessary, according to the survey on business innovation carried out by the Spanish government.

All of this calls for an urgent redressing of the foundations of the competitiveness of the Spanish tourism model in the digital and knowledge age. This is because the rhetoric that reaches the agents of the destinations uses elements such as the incorporation of innovation, strategies related with the knowledge society, the generation of knowledge and talent, or the impacts of the pressure of tourist demand and the cohabitation of tourists and residents, among others. It will therefore be necessary to propose new indicators and measuring systems and to adapt the term «tourism competitiveness» to the current digital age and equip policy makers with tools so that they are able to know when their destinations and attractions require specific actions.

This complex evolution of the tourism activity and its interrelations with the destinations raises relevant uncertainties for the immediate future: Maintaining tourism competitiveness in the long term without tourist intelligence can lead to saturation and overtourism. Does the tourism specialisation in certain products entail a risk of dying from success? Is the sharing economy a determining factor in the saturation of tourist destinations? What role do the technological advances play in this new context and this new challenge?

It is important to take a long-term perspective of competitiveness in which innovation and digital transformation are at the centre of political, social and corporate action in the sector. As we can see in Figure 8 and according to the arguments in this paper, over the next few decades, tourism competitiveness will face a challenge that other sectors have dealt with radically and which will entail a commitment to digitalisation and sustainability on all levels (cultural, economic, ecological...) and the creation of innovation systems that will enable these issues to be addressed. Meeting these challenges will mean the implementation of a series of more specific policies and strategies that will foster Smart Tourist Destinations and the development of a more digitalised and responsible economy based on the collaboration between citi-

zens and tourists. Finally, implementing these strategies will depend on specific actions, such as the commitment to open data, the training of human capital in STEM skills, a management of spaces and rents that fosters the integration of tourism into the normal life of the destinations, a commitment to mobility and clean energy or even the creation of new statistical indicators that help policy makers make the right decisions based on indicators of tourism pressure, the absence of innovation, digital reputation or any other aspect that affects the competitiveness of the destinations.

Figure 8. Framework of long-term competitiveness within the digital economy
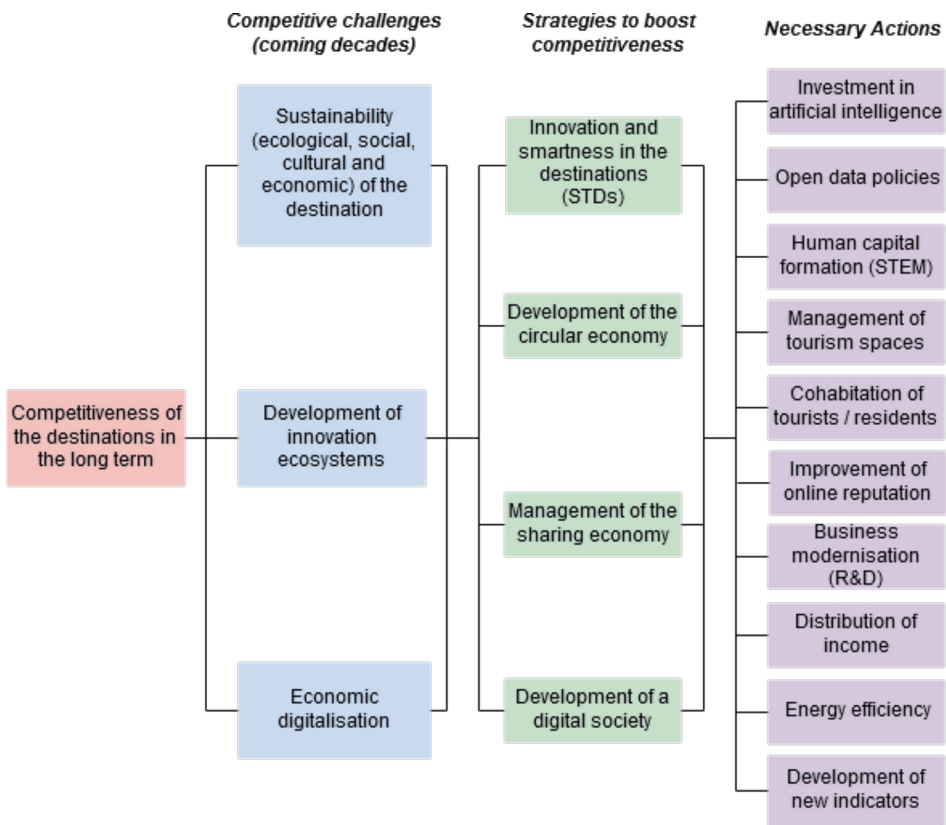
Of all of these, as previously mentioned, the controversy surrounding tourism saturation and the response of the residents is particularly concerning as it could lead to competitiveness problems in the short term; followed by the integration of the sharing economy, which could have partly fostered these saturation problems, but which also benefits the development of high-impact sectors, such as hotels or taxis, and finally, the need to consider the real impact of innovation on the more traditional destinations and whether the new tourism destinations are able to converge thanks to factors such as online reputation or the capture of more of the so-called 2.0 tourists.

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