TOURISM CARTOGRAPHY IN SANTIAGO DE COMPOSTELA, SPAIN[1]

CARTOGRAFÍA DEL TURISMO EN SANTIAGO DE COMPOSTELA, ESPAÑA

CARTOGRAFIA DO TURISMO EM SANTIAGO DE COMPOSTELA, ESPANHA

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Abstract

Santiago de Compostela, the capital of the Autonomous Community of Galicia, is one of the main tourist centers of Spain. It attracts millions of visitor every year because of its cultural and architectonic heritage. The religious legacy, in particular, attracts thousands of pilgrims to walk the so-called Way of St. James. As a result, the city of Santiago de Compostela has developed a notable tourism infrastructure. This paper precisely aims to analyze both tourism supply and demand in Santiago. It was based on the use of cartographic methods fit for representing qualitative data, such as typologies of attractions and existing tourist facilities. The study was also based on quantitative data, like the number of visitors and offers of accommodations. Research results show that cartographic representation of tourist information allows aggregating an extremely useful geographic variable to planning and spatial planning of tourism. The comparative analysis of the geographic distribution of tourism demand and supply demonstrates the existence of preferred spaces for tourism, plus a strong seasonality, which represent a challenge to government actions and policies. On the other hand, the maps also reveal problems related to the spatial variability of certain types of information. For instance, the kind of accommodation or demand for certain tourist attractions, which, in turn, allow establishing a hypothesis for a particular investigation.
Keywords: cartography, tourism, geographic analysis, cartographic method.

Resumo

Santiago de Compostela, capital da Comunidade Autônoma da Galícia, é um dos principais polos turísticos da Espanha, atraindo milhões de visitantes todos os anos, em função de seu conjunto cultural-arquitetônico e, principalmente, por seu legado religioso, que leva milhares de peregrinos a percorrer os chamados "Caminhos de Santiago". Como consequência, a cidade de Santiago de Compostela desenvolveu uma estrutura turística considerável. O objetivo deste trabalho é justamente analisar tanto os dados da demanda, quanto da oferta turística em Santiago, com base no emprego dos métodos cartográficos apropriados para a representação de dados qualitativos, como as tipologias dos atrativos e dos equipamentos turísticos existentes; e dos dados quantitativos, a exemplo da quantidade de visitantes e oferta de hospedagem. Os resultados demonstram que, a representação cartográfica das informações turísticas, permite agregar uma variável geográfica extremamente útil ao planejamento e ordenamento territorial da atividade turística. A análise comparativa da distribuição geográfica da demanda e da oferta turística indica a existência de espaços preferenciais para a prática do turismo, além de uma forte sazonalidade, o que constitui um desafio às políticas e ações

governamentais. Por outro lado, os mapas também revelam problemas relacionados à variabilidade espacial de certas informações, como os tipos de hospedagem ou a demanda por certos atrativos turísticos, o que por sua vez permite estabelecer hipóteses para uma investigação específica.

Palavras-chave: cartografia, turismo, análise geográfica, método cartográfico.

Resumen

Santiago de Compostela, capital de la Comunidad Autónoma de Galicia, es uno de los principales polos turísticos de España, que atrae a millones de visitantes todos los años, debido a su conjunto cultural-arquitectónico y, principalmente, por su legado religioso, lo que motiva a miles de peregrinos a recorrer el "Camino de Santiago". Como consecuencia, la ciudad de Santiago de Compostela desarrolló una considerable infraestructura turística. El objetivo de este trabajo es analizar los datos de la demanda y de la oferta turística en Santiago, con base en el empleo de los métodos cartográficos adecuados para la representación de los datos cualitativos, tales como tipos de atracciones e del equipajes turísticas existentes; y de los datos cuantitativos, como la cantidad de visitantes y la oferta de alojamiento. Los resultados muestran que la representación cartográfica de informaciones turísticas, permite añadir una variable geográfica de gran utilidad para la planificación y el ordenamiento territorial del turismo. El análisis comparativo de la distribución geográfica de la oferta y de la demanda turística indica la existencia de espacios preferidos para la práctica del turismo, y una fuerte estacionalidad, que es un desafío para las políticas y acciones del gobierno. Por otro lado, los mapas también revelan problemas relacionados con la variabilidad espacial de ciertas informaciones, como el tipo de alojamiento o la demanda de ciertos lugares de interés turístico, que a su vez nos permite establecer hipótesis para una investigación específica.

Palabras clave: cartografía, turismo, análisis geográfico, método cartográfico.

Introduction

Santiago de Compostela, a World Heritage site (1985), is a small peripheral city in northwest Spain, located near the geographical center of Galicia. It is also an important tourist destination in Europe. The capital of Galicia and host to the executive (*Xunta de Galicia*) and legislative (Parliament) powers of the Autonomous Community, Santiago is as a medium-size city among the Galego cities. It holds a population of approximately 95,800 inhabitants (INE, 2014). However, it has a much larger seasonal population, made up of college students, tourists, and many workers who regularly commute to the capital city.

The city of Santiago is structured around its historic site, which is also known as "the almond" (*la almendra*) due to the shape of the perimeter of its medieval wall. Inside it we find a unique patrimonial wealth, made up of several monuments that reflect the historical importance of the city. We cannot forget the religious aspect of this region, characterized by a large number of churches and convents, which for centuries were built around the cathedral. These constructions have turned the city into one of the main religious destinations in Europe. This factor gives to Santiago de Compostela a cultural uniqueness, both regarding its material and

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immaterial heritage. Furthermore, it has allowed the development of a growing flow of visitors along the last decades, consolidating the city as a destination for cultural and religious tourism.

The city has good infrastructures and large patrimonial, cultural, and landscape resources. It finds itself well-prepared to accommodate visitors, relying on a broad range of hotels, hostels, bars, restaurants, and coffee shops. The long university tradition has also contributed to strengthening its position as a tourist destination and consolidating an educational offer of international quality (Taboada-de-Zúñiga, 2014).

At last, government institutions related to tourism, such as Santiago Tourism - *Información y Comunicación Local SA* (*Incolsa*) and Galicia Tourism –*Turgalicia,* as well as the *Centro de Estudios e Investigaciones Turísticas* (CETUR) of the University of Santiago de Compostela (USC), provide a good basis for data collection and systematization of tourism demand and supply. These resources have contributed to the writing of this paper.

Theoretical Framework

Although maps often serve as tools for the promotion of tourism, there is, however, a gap related to the theoretical reflection on the relationship between cartography and tourism.

Most works address what is known as "touristic cartography," what, in fact, is a branch of thematic cartography. Its primary concern is to define the best way to represent the tourist space, especially regarding the symbols used on maps. Gerber's et al. (1990) texts belong to this group that proposes the standardization of tourist signs. Plus, the works by Ostrowski and Ostrowski (1975), Forrest and Castner (1985), Clarke (1989), Morrison and Forrest (1995), and Forrest (1998), which present the test results about the efficiency of tourist symbols on maps.

Another common approach is the use of cartography as a marketing tool for tourist areas, as shown by the work of Domínguez Mújica (2007), on tourism promotion of the Canary Islands; of Almirón et al. (2007), on tourism promotion on the maps produced by Argentina's Secretariat of Tourism; of Barreiro and Gonzales (2010), on the Galicia'sofficial tourist maps; and of Tujaka (2011), on the use of cartographic products for the promotion of tourism on the Internet.

Certain exceptions are in the works of Kokkonen and Peltonen (1999), which make an analysis of the phases when the tourism sector uses maps. Also, de Oliveira (2007) and Alonso-Monastery (2013) address the importance of maps for the interpretation of heritage spaces already incorporated by tourism. According to Menezes and Fernandes (2003), tourism information is essentially geographic. It can be viewed through two distinct lenses: one that is applied to tourism planning as a support to the tourism development of a place; and another as a visitor's guide to a tourist site.

Despite many possible approaches, the theoretical production on tourism cartography indicates an underutilization of maps to support tourism planning or geographical analysis of tourism. Pearce (2003) represents one of the few exceptions. He makes use of maps to demonstrate quantitative and qualitative analysis of patterns and models of international and domestic tourist flows, and of spatial structures of tourism.

Ribera (2008), in his turn, refers to the features of cartography and the Geographic Information Systems (GIS) for tourism. He puts an emphasis on the tourist maps, route maps or tourist routes, territorial analysis and tourist planning, as well as GeoMarketing. In the end, he presents a cartography proposal for a tourist functionality index to measure the ratio between the amount of spaces for hosting a tourist destination and the permanent population of the place.

On the other hand, Oliveira (2005) states that the cartography applied to tourism planning can include three distinct focuses: 1) the maps for tourism, when an initial research effort is carried out for the implementation of a tourist activity, such as a diagnosis of tourism potential; 2) the maps on tourism, when using the cartography to analyze and evaluate the already existing tourist activity; and 3) the maps for tourists that imply the conception of cartography to guide the visitors and for the interpretation of landscapes or heritage (Figure 1).

Godinho and Oliveira (2010) give an example of using the maps on tourism to analyze and evaluate the distribution of accommodations and restaurants in a historical city. Then, they compare it to the geographical distribution of tourist attractions to understand their contribution to the development of tourism.

We understand tourism cartography as part of thematic cartography. It thus follows the same rules of visual communication performed through

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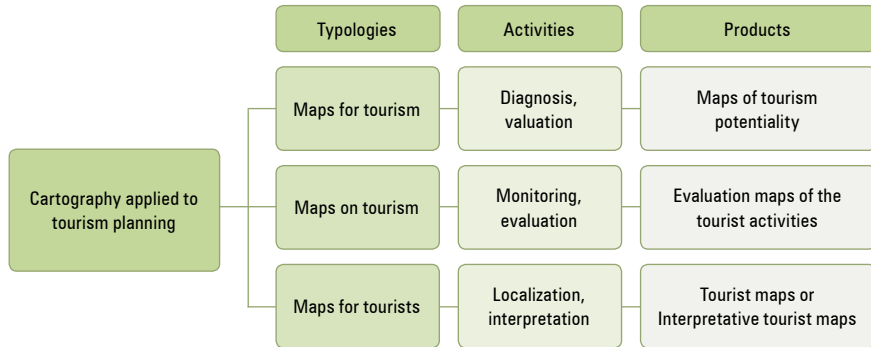graphical representations, such as maps, graphs and visual networks (flowcharts, dendrograms, charts etc.).

Typologies	Activities	Products
Maps for tourism	Diagnosis, valuation	Maps of tourism potentiality
Maps on tourism	Monitoring, evaluation	Evaluation maps of the tourist activities
Maps for tourists	Localization, interpretation	Tourist maps or Interpretative tourist maps

Cartography applied to tourism planning

Figure 1 – The possibilities of cartography applications in tourism analysis

Elaborated by the authors, based on Oliveira (2005).

Thematic Cartography

Thematic focus — Scale definition, cartographic projection, coordinate system, geographic orientation

Sources of information and data (primary, secondary)

Spatial scale

Temporal scale

Information processing

Nature of the relations among data — Quantitative / Ordered / Qualitative

Visual Variables: Size, Value, Color, Form, Orientation, Texture

Visualization Mode: Point, Line, Area

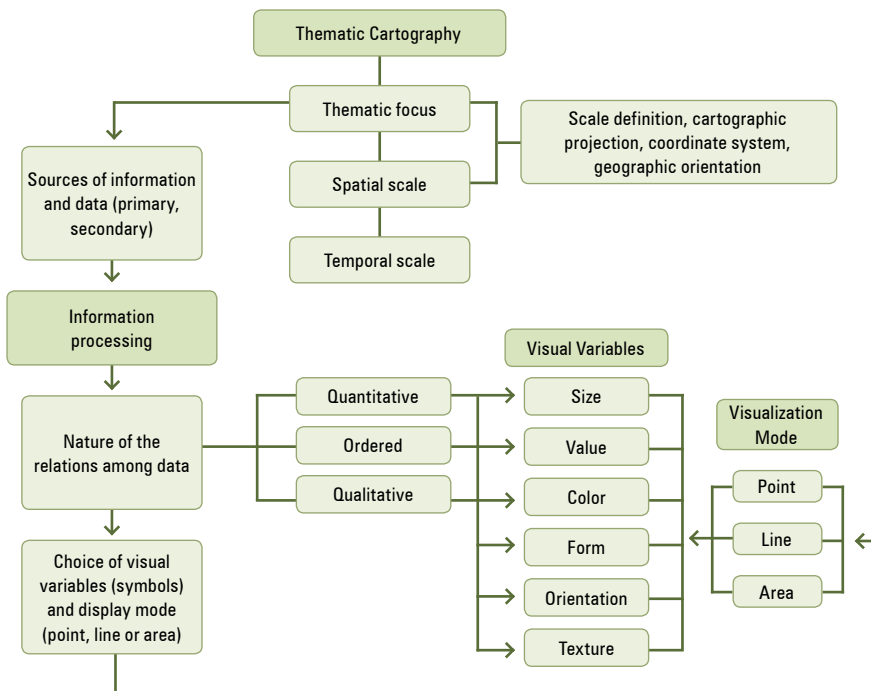Choice of visual variables (symbols) and display mode (point, line or area)

Figure 2 - The sequence for developing a thematic map

Elaborated by the authors, based on Bertin (1967), Martinelli (1991), Oliveira and Romao (2013).

The cartographic representation begins with the definition of the theme to be charted (thematic focus) as well as the spatial and temporal boundaries. They indicate the area to be represented (spatial scale) and time period (temporal scale) that are relevant to the work (Figure 2). This definition is essential to the pursuit of data and information sources or to understand the need to work not only with secondary data but also to produce its information (primary data).

The map theme and spatial area, in turn, influence the definition of the most appropriate scale, depending on the level of detail needed. On the other hand, the scale and the theme indicate what are the cartographic projection and the coordinate system most appropriate for the map. The form of representing data such as points, lines or areas is also a decision associated with the theme. Sometimes it is also associated with the scale since some themes change from one form to another (from one area to a point or vice versa) when it reduces or enlarges the scale. Finally, the theme and the spatial area are decisive in the election of a geographical orientation of the map. Contrary to what most people think, it does not necessarily need to be with the North at the top of the map.

With the theme's data already at hand, it is necessary to process the information, which consists of identifying the nature of the relationship between the data (quantitative, ordered, or qualitative). When working with a great deal of information, particularly quantitative data, it is often necessary to employ a statistical treatment. For example, a grouping of class intervals (regular or not), or grouping types when working with qualitative information. The next step is to choose the most suitable visual variables (symbols). In other words, in fact, the map must start with the design of its legends.

Methodology

To carry out the work of mapping tourism in the city of Santiago de Compostela, we selected some variables of tourism demand and supply as our thematic focus. We worked mainly with secondary data (Table 1). We also made several excursions around the city, over the months from

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September to December 2014, to register some of the tourist spots, with photos and their respective geographical locations. The year 2013 is the temporal scale to collect secondary data, due to the possibility of accessing information from the available sources. Plus, the spatial scale was defined as a rectangle surrounding the old town of the city. It concentrates most tourist attractions and the largest part of the tourist facilities (hotels, restaurants, bars and coffee shops).

Table 1 – Variables of research thematic focus

Type		Variables	Sources
Tourism Supply	Tourist Attractions	Churches and convents: location, age, architectural style	Internet research and fieldwork
		Historic buildings: location, age, architectural style	Internet research and fieldwork
		Museums: location, category	Internet research and fieldwork
		Parks, gardens and fountains: location, description	Internet research and fieldwork
	Tourist Facilities	Hotels, hostels: address, category, number of rooms and beds	Galícia Tourism – Turgalícia
		Restaurants, bars and coffee shops: address, category	Galícia Tourism – Turgalícia
		Tourist information centers: address	Internet research and fieldwork
Tourism Demand		Origin and number of museum visitors	Information provided by museum directors
		Origin and number of pilgrims	Pilgrims information centers- Xacobeo
		Origin and number of visitors in tourist information centers	Santiago Tourism– Incolsa Galícia Tourism– Turgalícia

Elaborated by the authors (2015).

In this work, we used the official cartographic database, in shapefile format, which is available for download at the Internet portal of the *Diputación de A Coruña*, *Encuesta sobre Infraestructuras y Equipamentos Locales* (webEIEL). The themes were: streets, buildings, parks, and hydrography. They are all available in 1:5,000, originally prepared between 2004 and 2006, and associated with the European Petroleum Survey Group reference system - EPSG, UTM Zone 29 N.

When necessary, the cartographic method used for qualitative data processing and representation included categorization and the resulting grouping by thematic affinity. The quantitative data, on the other hand, was processed by the method of proportional geometric figures, which consists of transcribing the numerical values into dimensional variations of the symbols, but keeping the proportionality among them. Another option was the choropleth method, in which the numerical values are grouped together in class intervals and transcribed into visual variations of color shades or ordered sequence of hues (Martinelli, 1991). For some quantitative variables, we chose representation by mean of a sector, bar, or line diagrams, depending on the nature of the relationships between the data.

Results and Discussions

Geographic Distribution of Tourism Supply: The Attractions of Santiago de Compostela

In all, the city of Santiago has 28 churches, convents, and monasteries; 23 museums, galleries, and cultural foundations; 19 major historic buildings; and 16 parks and gardens. It must be noted that not all sites were included in the mapping (like foundations and art galleries). In fact, they are not tourist attractions, given that many of them are not regularly open to visitors.

The mapping shows a high concentration of tourist attractions related to the cultural-architectural complex in the area of the old town of Santiago (*la almendra*). Whereas the parks and gardens, which represent a different modality of tourism attraction, are located mostly in the vicinity of the old town (Figure 3), although they are little explored by the local tourism marketing.

Since the majority of visitors concentrate in the old town area, the promotion of the parks would demand a distinct strategy, as a means to encourage tourists to venture beyond the boundaries of the historic site. On the other hand, the high concentration of historic and cultural attractions in the old town requires appropriate planning of access and the conditions of mobility, both for visitors and for residents of Santiago. That is something that at this time, judging from the prior assessment conducted during field excursions, does not seem to exist.

Santiago's tourism marketing also lacks tools for the interpretation of its architectural and cultural heritage. The city has buildings dating from the 9th century to the 18th century. It also has varied architectural styles such as Romanesque and Gothic, despite the vast majority is baroque. The same is true regarding the fountains, some of them dating centuries back, as well as statues and sculptures exhibited in public places, which lack promotion.
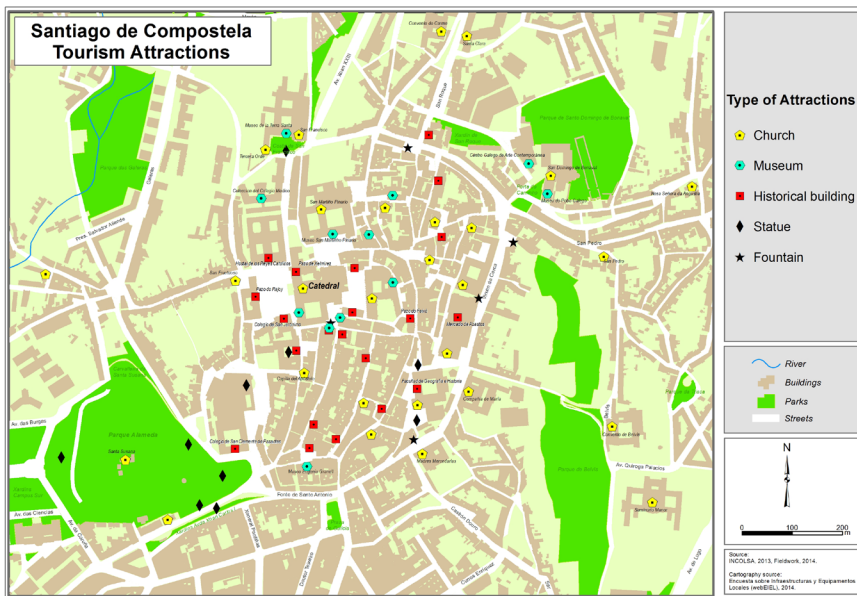

Figure 3 - Map of tourist attractions of Santiago de Compostela
Elaborated by the authors (2015).

Geographic Distribution of Tourism Supply: The Tourism Facilities

Santiago is a privileged city regarding the offer of accommodations and restaurants. The city has 65 hotels, 116 guesthouses and hostels, as well as bed and breakfasts, campsites and more recently tourist

apartments. It also has the remarkable number of 408 restaurants and 85 coffee shops (some of them are bars).

An evaluation of the data on accommodation related facilities shows a reversal of the situation seen among the tourist attractions, regarding the area of the old town and its vicinity (Figure 4). There is a clear predominance of the supply of vacancies outside the historic site. Somehow it is normal, given that the area of the old town has restrictions on new buildings or expansion and even adaptation of existing spaces to create hotels. For this reason, it concentrates hotels, guesthouses, and hostels with lower capacity, although there are many facilities (Figure 5).

Number of rooms

Inside the old town 34%

Outside the old own 66%

Number of beds

Inside the old town 33%

Outside the old own 67%
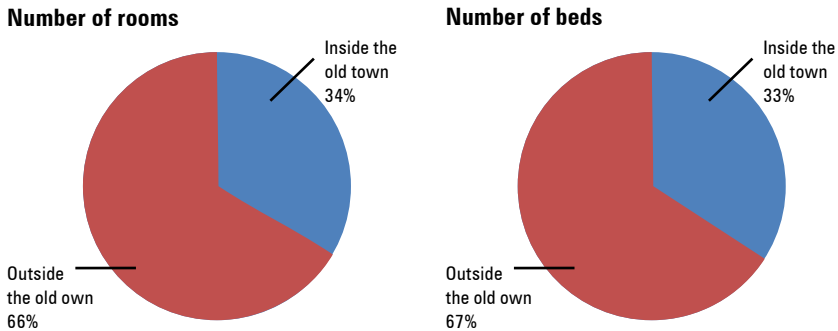
Figure 4 - Comparison between the number of hotels and beds outside and inside the old town of Santiago de Compostela

Source: Agencia Galega de Turismo (2014). Elaborated by the authors (2015).

The map below (Figure 6) shows a concentration of guesthouses and hotels of lower or intermediate categories in the old town while the upper class of businesses occupies the surrounding areas. This map also reveals the superiority of the number of hostels compared to hotels in the historic site of Santiago. This fact reflects a common trend in big cities, especially the European ones. It is due to lower demand for infrastructure and staff in this type of facility, which also adapt more easily to the few spaces available, generally requiring less intervention in the built areas.

The distribution of the number of rooms and beds among various classes of hotels (from 1 to 5 stars) also shows the superiority of supply among simpler categories in the old town area (Figure 7). The reverse occurs outside the historic site (Figure 8). However, the city is characterized by

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a supply of high-quality accommodation, since 21% of the hotel industry is concentrated in 4 and 5-star categories. Besides, the number of rooms of these categories represents more than half of the total supply (52%).
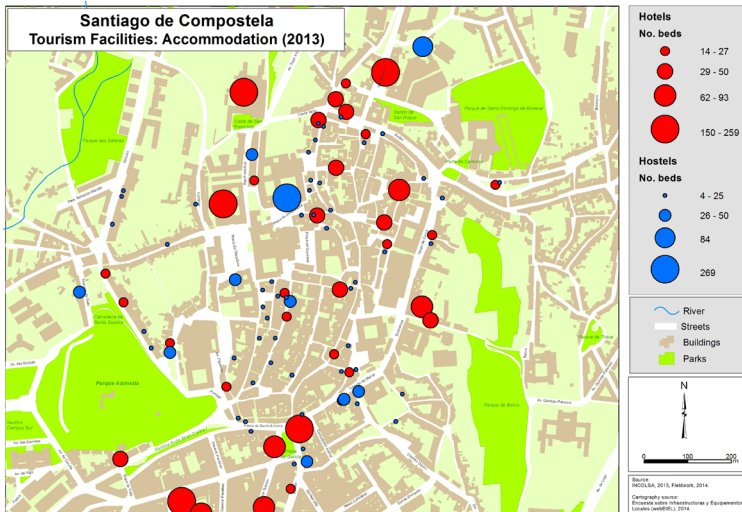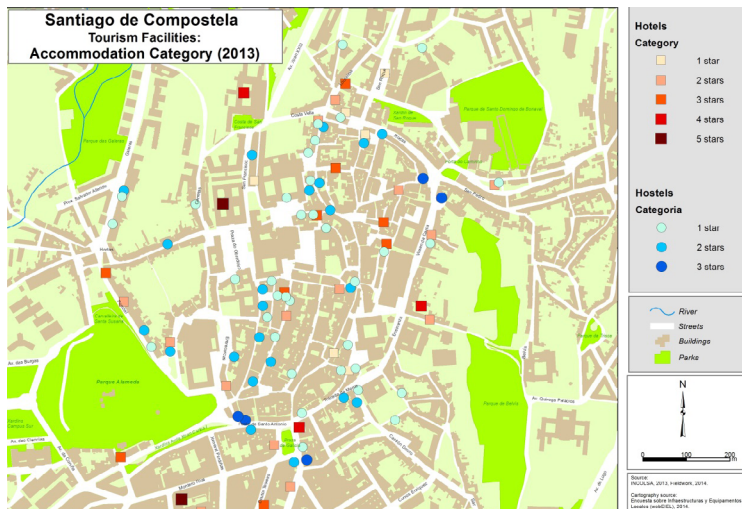

Figure 5 - Map of the quantitative supply of accommodation in Santiago de Compostela

Source: Agencia Galega de Turismo (2014). Elaborated by the authors (2015).

Figure 6 - Map of the qualitative supply of accommodation in Santiago de Compostela

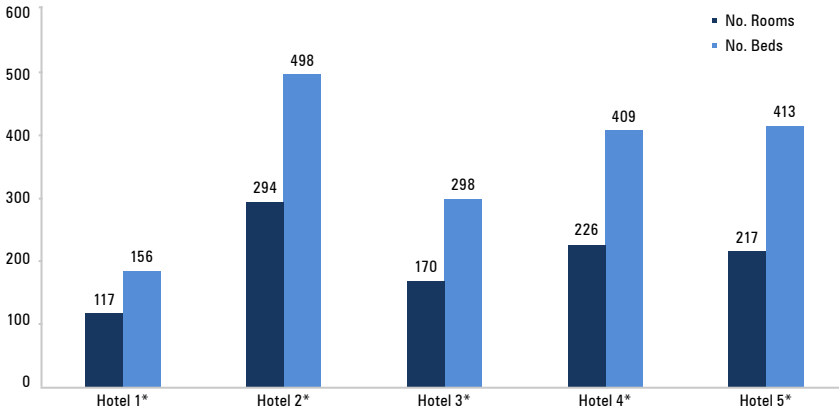Source: Agencia Galega de Turismo (2014). Elaborated by the authors (2015).

Figure 7 - Number of rooms and beds in hotels, by categories, inside the old town of Santiago

Source: Agencia Galega de Turismo (2014). Elaborated by the authors (2015).
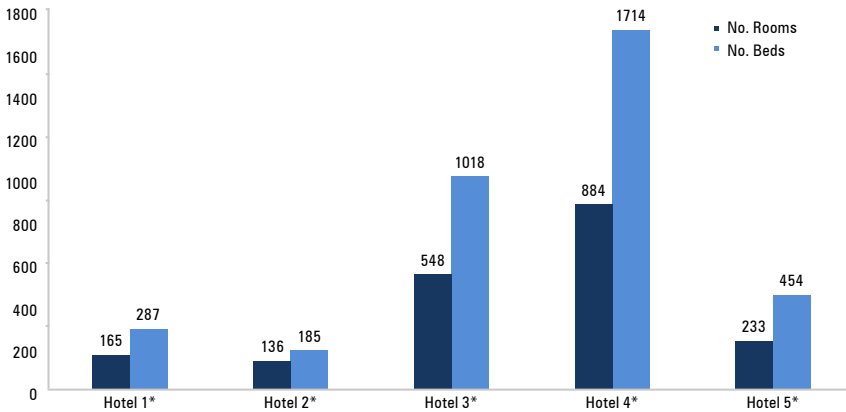

Figure 8 - Number of rooms and beds in hotels, by categories, outside the old town of Santiago

Source: Agencia Galega de Turismo (2014). Elaborated by the authors (2015).

Hostels also stand as a defining element of the accommodation infrastructure scenario in Santiago, although they do not offer a large number of rooms and beds. Nonetheless, they are quite numerous (117 facilities). Also, they are well distributed between the old town (54%) and its vicinity (46%).

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Spatial and Temporal Distribution of Tourist Demand

For the most part, the tourism demand in Santiago de Compostela concentrates in the old part of the city (Figure 9). Only two very popular attractions were not included in this study: the *Cidade de la Cultura*, which is a little away from the urban area, to the east, and the *Museo de Historia Natural*, which belongs to USC, located at its North Campus, near the old town.
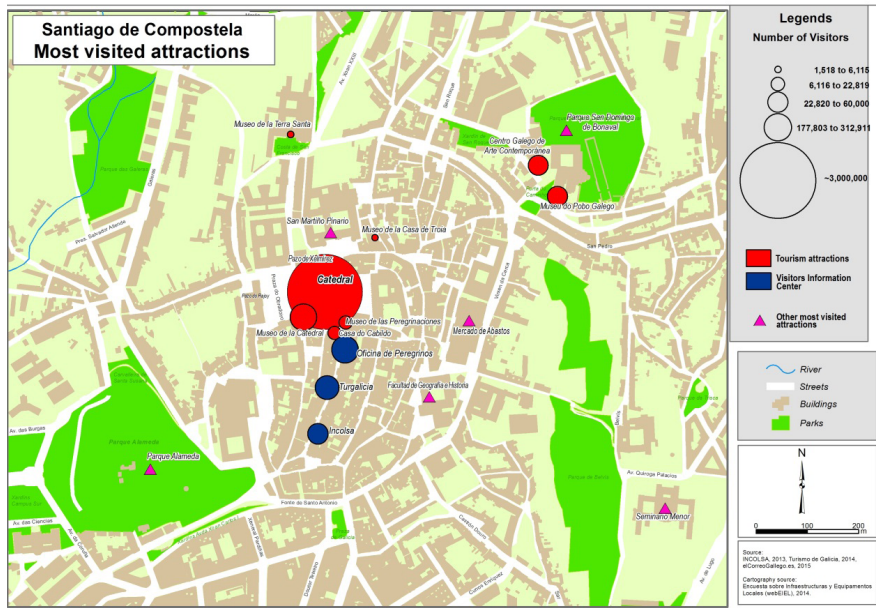

Figure 9 - Map of the most visited tourist attractions in Santiago de Compostela

Source: Agencia Galega de Turismo (2014). Elaborated by the authors (2015).

It must be noted that not every tourist attractions have or report statistics on the accurate number of visitors each year (or month). This information allows us to state that the results shown on the map underestimated the total number of tourists and pilgrims visiting Santiago's attractions.

Taking into consideration the entire Autonomous Community of Galicia, the tourism demand has a temporal distribution with high

seasonality index and large geographic concentration. Even though, in recent years, tourism management bodies have developed specific advertising campaigns to diversify the supply. At the same time, they invest in the development of products with lower seasonality index values. This temporality is mostly concentrated in the summer season: July, August, and September. The geographic concentration is located both at the source and the destination. Regarding the origin, emitting markets are nourished primarily by domestic tourism. As for the destination, they are essentially divided into the coastal areas and some parts of the interior, including Sanxenxo and Santiago de Compostela.

Regarding Santiago, the data available is from the National Institute of Statistics (INE) and the *Observatorio del Perfil de la Demanda Turística de Santiago de Compostela*, set up by CETUR-USC. First of all, it should be noted that the city receives a large number of visitors, among whom the pilgrims and hikers have a crucial role. Each year more than 500,000 visitors come to the city. Even in the years of Jubilee (*Año Santo Jacobeo*), this figure increases significantly – reaching 704,107 travelers in 2010 (Figure 10).
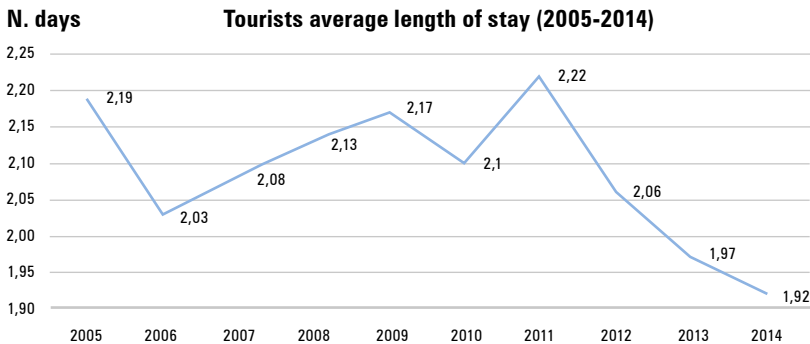

Figure 10 - Overnight travel demand evolution in Santiago de Compostela
Source: INE, 2014. Elaborated by the authors (2015).

The average length of stay at the destination is around two days (Figure 11), although this figure is trending downward in recent years. Perhaps this trend is because of the economic crisis affecting Spain for some years. Another reason is that often the tourism supply available in the city does not encourage a longer stay. This factor encourages the suppliers to think of new products and coordinate their actions.

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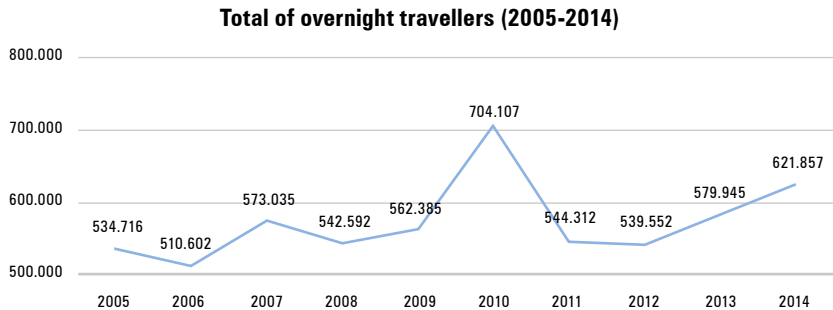**Total of overnight travellers (2005-2014)**

Figure 11 - Tourists average length of stay in Santiago de Compostela

Source: INE, 2014. Elaborated by the authors (2015).

One of the features of Santiago tourism, in addition to its spatial concentration in the old town, is its high seasonality. It means that in the summer months, the city is packed with visitors, affecting the historic site to a great extent and, as a result, triggering tourism carrying capacity issues. This fact has a negative impact on the local population regarding tourism. Residents often demonstrate certain discomfort with the avalanche of tourists in passing key areas, like the streets of *Vilar* and *Franco*, as well as *Obradoiro Square*. Moreover, tourists crowd the crossing of the cathedral on a daily basis.

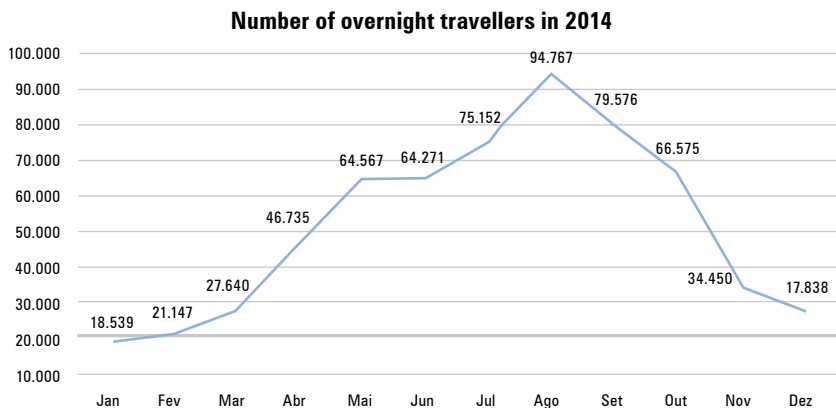**Number of overnight travellers in 2014**

Figure 12 - Monthly evolution of tourism demand in Santiago de Compostela in 2014

Source: INE, 2014. Elaborated by the authors (2015).

It is also necessary to note that the huge seasonality (Figure 12) creates adverse effects on tourism employment, as some hotels and eating facilities close their doors in January and February. These months are regarded as periods of low occupancy and low consumption. For this reason, it is necessary to take measures to combat instability in demand, such as the creation of products with a less seasonal character. Also, it is advisable to segment more the demand and seek for new tourism-emitting markets.

Conclusion

Spain is one of the countries with the largest historical and artistic complex declared as a world heritage site, which encourages the transformation of its cultural heritage assets into tourism products. The cultural travel market is a booming market since cultural tourists spend more money than any other tourist, are less invasive, and contribute to positively project the image of a country (Taboada-de-Zúñiga, 2012).

The historic centers serve to assign identity and allow differentiating the cities, by constituting spaces of the past and to a large extent also the collective memory of a society. For this reason, we consider that cartography is essential for the promotion of historic sites in a professional manner. It enables that: 1) the visitor has access to quality information about the destination's tourism resources; 2) tourist agents, like professionals working for tourism agencies, can guide tourists in a more dynamic way and organize various alternative routes to the usual ones; and 3) managers, in decision-making on territorial planning of tourism, may access detailed analyzes of the geographic distribution of tourism demand and supply.

Additionally, cartographic work must be conjugated to a whole set of visual information on tourism. For example, signaling of the historic centers, which in Santiago de Compostela, is an aspect that needs improvement. A renewal or upgrading of the city tourism signs, as well as new tourism cartography, is needed. First of all, because it is a demand expressed by the city tourism industry and identified, in the satisfaction surveys[1] conducted with the city's visitors, as an aspect that needs improvement. Moreover, Santiago de Compostela has one of the world's most important legacies of historic and artistic heritage. Thus, it is entitled to a more comprehensive action for the improvement of its

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tourism visual communication, if the goal is to maintain the quality of the brand image of this tourist destination of worldwide fame.

Endnotes

[1] The authors would like to thank the Coordination for the Improvement of Higher Education Personnel (CAPES) for the first author's post-doctorate scholarship, which allowed the realization of an internship at USC.

[2] The evaluation of city tourism signs reached a score of 4 points (out of a total of 5), according to the document *Informe del Perfil de la Demanda Turística* (2013). However, according to the 2014 *Informe*, the evaluation reached an even lower level (3,8 out of 5 points).

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