Chapter 4
Geographical Patterns in the Tourist City: GIS for Spatiotemporal Analysis

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ABSTRACT

Understanding how tourists use space in urban environments has practical applications in destination management and planning. It reveals key issues for organizing facilities and essential services, creating new products, impact management, and other purposes related to urban tourism. The geotagged photos shared by Panoramio users, during their visit to the city of Lisbon between 2007 and 2014, allow the authors to incorporate into this chapter a quantitative and geographic reading on the tourist consumption of spaces within the city. In this chapter, they analyze the spatial distribution of tourists and its changes across time considering a period of 8 years. Furthermore, a regression analysis method was carried out in order to find the spatial relations between the observed pattern (geographical agglomeration of tourist’s photos) and a set of 24 selected independent variables.

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INTRODUCTION

Alongside the development of new information and communication technologies, less traditional data sources have been considered in the analysis of urban tourism, particularly for assessing the spatial behavior of tourists. Photo-sharing and instant messaging services, consumer review websites and other Web 2.0 platforms are examples of these new sources, characterized by the prominent participation of users, a high volume of user-generated content and its open access nature (Buhalis & Law, 2008; Herrera et al. 2015).

In the context of geographical information, the appearance of these new platforms came to expand the set of available sources, overpassing the condition in which the information was produced and distributed exclusively by official authorities - authoritative data. The social media and, in particular, social networks, are increasingly equipped with positioning and mapping tools.

Several studies have been led using data extracted from social networks platforms, as these services provide open and well-defined interfaces to interact with. They allow clients to extract the increasingly user-generated content, often with high spatiotemporal resolution, enriched with a set of other attributes such as geolocation, timestamps, user identification, individual profiles, etc.

Such crowdsourced data provides new insights and could be used to complement authoritative data. Considering the constraints about collecting data for urban tourism studies, some authors concluded that this information can be used as proxy to measure the attractiveness of places as well as the spatial distribution of tourists in the city (MacKay & Vogt, 2012; Tussyadiah, 2012). Content created by users (as opposed to top-down methodologies) has promoted individuals as generators of information (with high spatial and temporal resolution), expanding current alternatives for tracking their location. The tourists when they use their cell phones, their credit cards, or through access to social networks, they leave large amounts of digital tracks on their activities in a given target, resulting in a multidimensional data set known as \textquotedblleft Big Data\textquotedblright; (Buhalis & Amaranggana, 2014; Hawelka et al., 2014).

In this chapter, we analyze the spatial distribution of tourists in Lisbon based on data from \textquoteleft Panoramio\textquoteright; social network. First, the data was retrieved from \textquoteleft Panoramio\textquoteright, filtered and merged into a relational database. Then, the resulting features were mapped and time-space statistics were applied to find the tourists hot spots. Furthermore, a regression analysis method was carried out, in order to find the spatial relations between the observed pattern (geographical agglomeration of tourists\textquotesingle s photos) and a set of 24 selected factors (explanatory variables).
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