

Production and consumption of data in tourism: Towards assertive decision-making

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Objectives | Literature indicates that smart tourism creates value for firms and destinations, embracing economic, societal, and environmental aspects. Moreover, it significantly impacts destination management, where digital tools make it possible to collect, analyse and share data from the tourism ecosystem (Rodrigues et al., 2023). In this context, Business Intelligence (BI) plays a key role, as big data analysis provides new opportunities for destinations in the marketing and management context (Ivars-Baidal et al., 2019). In the tourism industry, BI helps businesses improve efficiency, agility and the quality of decisions. It permits better decision-making as work is a drive for competitiveness (Korte et al., 2013).

However, there is a need for further studies to provide strategies for tourism firms to improve their performance (Rodrigues et al., 2023). Then, this study aims to assess how tourism data have been used to generate tourism intelligence. The goal is to understand whether the data is used in favour of more assertive decisions by companies to promote tourism intelligence. The analysis is carried out from the point of view of institutions that produce tourism data, as well as tourism companies that potentially consume this data for decision-making.

Three institutions were analysed from the point of view of the entities that produce data: one at a national level in Portugal and two at a regional level in the Azores. Moreover, from the companies' perspective, 149 businesses in the tourism trade. The sample resulted in the number of tourism companies that responded to the questionnaire. This investigation attempts to answer three research questions. 1. How are tourism practitioners using open data in their decision-making process? 2. What is the level of implementation of data provided by the institutions by tourism trade? 3. What are the restrictions on providing and using data efficiently?

Methodology | This research uses a quantitative approach. The data was collected from the tourism companies in the Azores, one institution that produces tourism data at the national level and two at the regional level. Quantitative surveys online were performed from April to September 2023.

Main Results and Contributions | The findings show an imbalance between firms' expectations for the data produced by institutions. On the one hand, national and regional institutions underestimate the applications of the available data. On the other hand, businesses underutilise information since they do not realise the importance of data or they do not know how to use it. The Institutions believe that tourism companies use the data their institution produces and/or makes available for "directing marketing actions" and "redesigning and improving tourist products or services". However, firms say data is used not only for "directing marketing actions" and "redesigning and improving tourist products or services", but also for "opening new markets", "improving processes or procedures", "defining tourism fairs to participate in", and "repositioning the brand".

From the point of view of data producers in tourism, the three institutions reported that they produce primary data based on the application of surveys. Regarding new technologies, only one of the institutions says it performs big data analysis, and none uses artificial intelligence. When asked if they can understand how tourism companies apply the data, only one is clear about how it is applied.

From companies' point of view, around 60% claim they need more human resources with data production and analytical skills. In this way, we found that in the sample studied, there needs to be more qualified human resources to deal with data in tourism. From the point of view of companies operating in tourism, there is a gap between the importance they give to data and the use they make of it, since the majority find it essential or very important, totalling 75.2% of the sample. However, only 10.7% use it a lot, 26.8% use it with some frequency, and 26.2% never use it. Regarding understanding the data available on national and regional tourism platforms, only 15.2% consider the data easy to understand. These results indicate improvements to be made in the availability and interpretation of data by data-promoting institutions.

Regarding usability, around 70% of companies have never used data from the national platform, and at the regional level, the non-use rates reach 42.3% and 63.1%. The main reasons for never using it are linked to the lack of knowledge of this platform, lack of need, not finding applicability of the data to the company's reality, and the fact that the data produced by this national platform highlights mainly the regions of mainland Portugal.

Limitations | The study findings are limited to tourism trade in a single region, the Azores. Then, the results cannot be generalised. For future research, this study may be replicated in different settings. Moreover, extending the data analysis method, including a qualitative approach with interviews, deepens the understanding of the motives and constraints for adopting open data for decision-making.

Conclusions | Data-producing institutions should invest in greater proximity to companies and have more clarity about what data they need and how they use it. Training of companies' human resources could be promoted in the interpretation and application of data. Mutual efforts should be made to effectively apply knowledge providing tourism intelligence in tourism territories. Through a quantitative study, we are uncovering the use of BI in tourism firms, specifically in the tourism trade of the Azores. Also, it brings practical implications for managers and marketers in the tourism industry as it highlights the importance of data mining and its benefits for decision-making. On the other hand, it guides institutions in delivering data, which includes, for example, expanding information about the digital footprints of tourists.

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