

In Fuchs, M., Lexhagen; M & Höpken W. Eds. (2016) Big Data & Business Intelligence in the Travel & Tourism Domain, Proceeding Workshop “Big Data in Tourism”, series iFITTalk@Östersund, 10 April 2016, Mid Sweden University ISBN 978-91-88025-62-3 Pages 69-72.

Published in Fuch M. Lexhagen, Höpken W. (ed), 2016. Proceedings of the IFITTalk@Östersund Workshop on Big Data & Business Intelligence in the Travel & Tourism Domain. Östersund : Mid Sweden University, which should be cited to refer this work.

Using Mobile data and strategic tourism flows

Pilot study Monitour in Switzerland

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1 Problem Definition

Destination marketing and management has, since its inception in the early 1970s, been a major challenge for actors and organizations in the private and public sectors in tourist destinations. Lack of specific knowledge of what and when visitors do in a place and where they continue their trip is – among others – one of the major issues for the actors. Actors have limited information but also few indications on which initiative and project may have an impact on the demand side. At the microeconomic level, tourism companies need not only more relevant qualitative but also timely (nearly real-time) quantitative information on customer flows and behaviour in order to make efficient business decisions. Mobile data are the almost only way to fulfil these two major objectives.

This research firstly exhibits the results of the pilot project “Monitour” financed by the University of Applied Sciences Western Switzerland Valais (Institute of Tourism, 2012) which was carried out at the regional level in Fribourg and Valais (Switzerland). Some advances in terms of the estimation of tourism frequentation and the possibility to do produce data in pseudo real-time bases were tested. Also, the estimation of day-trippers seems to be encouraging but the matching of some traditional World Tourism Organisation categories, such as the differences between travellers and tourists are challenging. Problems linked to the geolocation of mobile users have also been quite challenging

2 Related Literature

The Monitour project was run contemporaneously with a Eurostat project (January 2013 to June 2014) named “Feasibility Study on the Use of Mobile Positioning Data for Tourism Statistics” (Eurostat, 2013). “Monitour” has a different and somewhat larger scope than the European project; not only does target the feasibility issues but it also it aims to integrate mobile data into a forecasting process based on a series of flash indicators (Croushore, Ruiz, & Scaglione, 2013). It complements therefore a research domain aiming at the estimation of tourism demand and frequentation with a number

of so-called indirect indicators. A series of variables have been tested such as number of tickets in supermarkets, weight of collected garbage, traffic counts, meteorological forecasts in order to improve the estimation (“nowcast”) of the frequentation and forecasts (Scaglione & Perruchoud-Massy, 2012). The inclusion of mobile data will certainly increase the accuracy of these estimates and also will increase the pace of the estimates, ideally approaching real time.

3 Methodological Approach

There are three main research problems. On the one hand, the problem linked to the ambiguous nature of the data in terms of geolocation of mobiles. In fact, the mobile geolocation raw data is yielded by the position of antennas whose geographical scope can be very broad, sometimes covering more than one municipality. The mentioned European project assigned visitors’ mobile position to the geographical localisation of connected antenna. The aim of this project is to give an answer to this issue in a better and more reliable way by implementing data mining methods or by developing ad-hoc algorithms. The use of other information sources such as traffic counting from ASTRA (Bundesamt für Strassen, Switzerland), road sensors and frequentation data from hotels collected by the Swiss Federal Statistical Office (HESTA) seems to participate in solving to solve these issues.

On the other hand, the validation of the strategic visitor flow theory (Beritelli, Reinhold, Laesser & Bieger, 2015) is the second central issue in this project. Different methods based on data mining techniques were tested, however they still deserve further care and improvement.

Finally, for what concerns the methodological approach, working with big data is a great challenge. It presents two main issues from the technical point of view. Firstly, the storage problem and secondly the processing time in order to insure a pseudo real-time handling of the data. During the “Monitour” project a proto structure for treating the data was implemented to insure the performance of treatment while respecting the confidentiality issues.

4 Results

This project contains the two following case studies. The flux-simulation of arrivals every 30 minutes by country of origin in the area of Bulle (FR) during the Benichon celebration in 2014 and during the Omega European Master Golf of Crans Montana the same year.

Monitour project showed that the exploitation of mobile data opens access to timely and exhaustive market information. Therefore, the two followings facts seem to be reasonable achievements in the very near future: (1) the harmonization of the counting methods for tourism frequentation data between different actors and (2) the access to exhaustive frequentation data in time and space for different kinds of visitors (tourists in hotels and in self-catering accommodations, day-trippers) on real-time basis.

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5 Research Outlook

Working with big data, allows filling the gap between the ex post statistics (past) and the prospective planning approaches (future). This opens a window to the real-time, present situation of the customer experience, allowing for cost reduction.

The Eurostat (2013) project conducted a detailed analysis of the costs associated with tourism data (inbound and outbound) collection based on traditional methods, i.e. surveys vs. modern methods based on the use of mobile data. The results show clearly that even if the implementation costs of mobile data approaches were high, the expenses would quickly be amortized in the production phase. Moreover, annual workload with mobile data can be considerably inferior when compared to the current tourism collecting methods. Also, the efficiency and quality of data could be increased if a mixed-mode is chosen.

Acknowledges: The authors like to thank **Swisscom** as the industrial partner of the Monitour project. Also Professors Jean-Frédéric Wagen (EIA- Fribourg, University of Applied Sciences and Arts of Western Switzerland) academic partner of the project, Beritelli, Pietro (Institute for Systemic Management and Public Governance (IMP-HSG), Research Center for Tourism and Transport, University of St. Gallen) and Yang, Yang (School of Tourism and Hospitality Management, Temple University, USA) for their valuable inputs.

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