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## Creating value from Social Big Data: Implications for Smart Tourism Destinations

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### ABSTRACT

This paper aims to demonstrate how the huge amount of Social Big Data available from tourists can nurture the value creation process for a Smart Tourism Destination. Applying a multiple-case study analysis, the paper explores a set of regional tourist experiences related to a Southern European region and destination, to derive patterns and opportunities of value creation generated by Big Data in tourism. Findings present and discuss evidence in terms of improving decision-making, creating marketing strategies with more personalized offerings, transparency and trust in dialogue with customers and stakeholders, and emergence of new business models. Finally, implications are presented for researchers and practitioners interested in the managerial exploitation of Big Data in the context of information-intensive industries and mainly in Tourism.

### 1. Introduction

Big Data is one of the most representative paradigms of the “knowledge economy” and represents an emerging investigative field for researchers and practitioners (De Mauro, Greco, & Grimaldi, 2016; Erickson & Rothberg, 2014; Laney, 2001). Due to its capacity to provide organizations and firms with a huge and varied amount of data from which it is possible to gain invaluable insights (Morabito, 2015) about customers views, preferences, needs, attitudes, etc. (Canhoto & Clark, 2013; Choudhury & Harrigan, 2014), Big Data is being acknowledged as a key source of value creation.

However, while Big Data's emergence (Gandomi & Haider, 2015; Laney, 2001) is a common trend for all industries, it becomes especially relevant for the tourism industry given its information-intensive nature and the reliance on Information and Communication Technologies (ICTs) (Koo, Gretzel, Hunter, & Chung, 2015; Werthner & Klein, 1999). From an information based view, tourism is a complex phenomenon in which data, information and knowledge, from and about tourists, is the essential basis for destinations' competitiveness and innovations (Hjalager & Nordin, 2011; Jafari, 2001) and how tourists play a substantive role as key source of knowledge (Hall and Williams, 2008).

Smart Tourism relies on extensive adoption of emerging technologies, such as social media and mobile technologies, smart devices and sensors to collect and exploit the huge amount of data for creating new value propositions (Gretzel, Sigala, Xiang, & Koo, 2015, Sigala, Christou, & Gretzel, 2012). This has relevant implications on the ways in which tourism destinations compete. Their competitiveness now relies mainly on the extent to which knowledge creation and application is supported by ICT based infrastructures and services (Shaw & Williams, 2009) and how this large amount of data and knowledge is really processed and transformed into competitive assets. Consequently, a Smart Tourism Destination is the result of the interconnection of tourism destinations with multiple community stakeholders through dynamic platforms, knowledge intensive communication flows and enhanced decision support systems (Buhalis & Amaranggana, 2014; 2015).

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The main goal for a Smart Tourism Destination is the creation of a smart experience, defined as an experience mediated by technologies and enhanced through personalization, context-awareness and real time monitoring (Buhalis & Amaranggana, 2015). In this vein, Big Data, resulting from consumer generated contents, along with their aggregation, interconnectivity, analysis, integration, real time synchronization and intelligent use of data (Fuchs, Höpken, & Lexhagen, 2015; Tu And Liu, 2014; Gretzel et al, 2015), has become the major driver for value creation. Indeed, customers leave electronic traces during all travel-related activities, such as searching and trip planning, reservation and booking, service consumption, and providing feedback in community web-sites (e.g. social media platforms) or through online surveys (Fuchs & Höpken, 2011; Hu, Chen, & Chou, 2017). The recent debate on Smart Tourism has attempted to discuss relevant applications of Big Data in the context of Smart Tourism, for instance: as a generator of customer-based knowledge to support decision making in the case of Swedish mountain tourism destinations (Fuchs, Höpken, & Lexhagen, 2014); as driver for improving branding and positioning strategies in the case of Barcelona (Marine-Roig, & Clavé, 2014); as a lever for users' engagement in the case of the urban tourism ecosystem of San Francisco (Brandt, Johannes, & Neumann, 2017).

Through the use of specific and sophisticated datamining techniques and analytics, within the Smart Tourism context, it is possible to provide a much better tourism experience (Zhu, Chen, Xiong, Yu, Cao, & Tian, 2015), create contextualized offerings based on tourist needs (Buhalis & Foreste, 2015), co-create products and services with tourists, thus providing better value to them in real time (Neuhofner, Buhalis, & Ladkin, 2012). Performed through different tools for data collection, extraction, analysis and visualization, business analytics has recently captured the attention of both academics and practitioners (Chen, Chiang, & Storey, 2012) by demonstrating its usefulness for exploitation of value from social media data. This is because, despite the large amount of information provided, social media analytics can leverage on a rich set of metadata (e.g., tags, user-expressed subjective opinions, ratings, user profile, etc.), made available by computer mediated social interactions among users (Zeng, Chen, Lusch, & Li, 2010). In addition, social media are now considered one of the main sources of Big Data generation in tourism, offering enormous opportunities for a more efficient decision-making process (Miah, Vu, Gammack, & McGrath, 2016). This gives rise to a new concept, the so-called Social Big Data, defined as "processes and methods that are designed to provide sensitive and relevant knowledge to any user or company from social media data sources when data sources can be characterised by their different formats and contents, their very large size, and the online or streamed generation of information" (Bello-Organ, Jung, & Camacho, 2016, pp. 46).

However, despite the acknowledgement of the opportunities offered by Big Data in the tourism context, the exploitation of data for value creation in Smart Tourism is still in its infancy (Gretzel et al., 2015). Furthermore, to our best knowledge, there is still little research on how destination makers and tourism organizations can use the huge amount of data generated by tourists in their travel experiences for a more effective value creation process; this calls for a more in-depth analysis.

Moving from the above-mentioned gaps, this paper aims to demonstrate the potential value that can derive from exploiting Social Big Data for Smart Tourism Destinations. The following research questions find answers in this research: *How does Big Data generated from social media create value for Smart Tourism Destinations?* For this goal, a multiple case study methodology is used to analyze Social Big Data generated by a set of unconventional local digital tourism experiences related to the Apulia destination, a southern region in Italy. The aim is to offer context for the Big Data value creation process and to derive implications for the agendas of practitioners and researchers dealing with Big Data and Smart Tourism Destinations.

The paper is structured as follows: the literature background summarizes the emerging trends in the debate on Big Data for Smart Tourism Destination, and opportunities for creating value from Big Data in Tourism; the methodology presents the research approach adopted consisting in a multiple case studies; the results in terms of Big Data value creation are presented in the findings and discussions; finally, conclusions summarize the main evidence, implications and limitations of the study.

## 2. Literature background

### 2.1. Smart Tourism Destination in the age of Big Data

Smart Tourism Destination today is the frontier of studies in the tourism field and is a promising area from various research perspectives in terms of models, tools and strategies to sustain the process of intelligent configuration of destinations (Buhalis & Law, 2008; Law, Buhalis, & Cobanoglu, 2014; Sigala et al., 2012; Xiang, Schwartz, Gerdes, & Uysal, 2015; Neirotti, Raguseo, & Paolucci, 2016). A Smart Tourism Destination is characterized by advanced services, a high degree of innovation and the presence of open, integrated and shared processes for enhancing the quality of life for both residents and tourists (Caragiu, Del Bo, & Nijkamp, 2009; Wang & Xiang, 2012; Micera, Presenza, Splendiani, & Del Chiappa, 2013; Komninos, 2002; Shapiro, 2006).

A Smart Tourism Destination encompasses technology, people and institutions (Nam & Pardo, 2011). The creation of a Smart Tourism Destination requires integrating technologies, systems, services, and capabilities into an organic network that is sufficiently multi-sectorial and flexible for future developments, as well as being open-access (Albino, Berardi, & Dangelico, 2015).

According to Buhalis and Amaranggana (2014; 2015), a *Smart Tourism Destination* is the result of the interconnection of a tourism destination with multiple community stakeholders through dynamic platforms and knowledge intensive communication flows and enhanced decision support systems. The final objective of a Smart Tourism Destination is to enhance tourism experience maximizing both destination competitiveness and consumers' satisfaction with attention to sustainability over an extended period.

It is worth noting that in Smart Tourism Destination, the available technology is used to enable co-creation of value and experiences for tourists and create wealth, profit, and benefits for the organisations and destinations (Boes, Buhalis, & Inversini, 2015). In fact, different authors consider smart experience as an output of Smart Tourism. It derives from a social phenomenon arising from the convergence of Big Data with the tourism experience and its enhancement through personalization, context-awareness and real-time monitoring (Buhalis & Amaranggana, 2015; Hunter, Chung, Gretzel, & Koo, 2015).

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