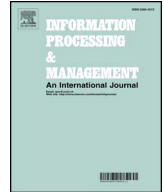


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Creating value from Social Big Data: Implications for Smart Tourism Destinations

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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-intense 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 (Neuhofer, 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).

As an emerging paradigm in the academic and managerial debate, the term Big Data refers to any set of data that, with traditional systems, would require a large amount of time to be analyzed (Gandomi & Haider, 2015; Laney, 2001). Scholars and researchers have recently contributed to the Big Data debate by focusing on the nature of data (e.g. structured or unstructured, video, images, text, codes), and analysis methods and tools (Davenport, 2014; De Mauro et al., 2016). Considering the sources, it is possible to distinguish two main types of Big Data: data from and about the physical world (all obtained from sensors, scientific observations etc.) and data from and about human society (all obtained from social networks, internet, marketing, etc.) (Jin, Wah, Cheng, & Wang, 2015). A set of variables arose in the literature to simplify the complexity of Big Data's technological and managerial dimensions. There are 6 Vs: Volume, Velocity, Variety, Veracity, Variability and Value. The first three Vs are more focused on Big Data's technological perspective (Laney, 2001; McAfee & Brynjolfsson, 2012), while the second three are the result of more concentrated research on the managerial implications, challenges and exploitation actions and strategy aimed to create organizational value (Manyika et al., 2011; McAfee & Brynjolfsson, 2012).

Within the emergence of the Big Data paradigm, Tu and Liu (2014) provided a framework for describing a Smart Tourism Destination according to three main layers: a smart information layer (for data collecting), a smart exchange layer (for interconnectivity), and a smart processing layer (for data analysis). Following the above framework, Smart Tourism is highly focused on the usage of advanced technologies to transform data collected and aggregated through physical infrastructures and social connections into on-site experiences and new business models for efficiency and value creation (Gretzel et al., 2015). According to the IGI Global Dictionary, a Smart Tourism Destination reflects the requirements of a large community of stakeholders to make available for them tourism products, services, spaces and experiences. It also arises as a fruitful field for fostering innovative and entrepreneurial businesses and sectorial interconnections. The first task for tourism destinations to address to become “smart” is widely recognized in the need for a more customer-focused approach that primarily values tourists’ needs, preferences and requirements to improve their experience and achieve better satisfaction, (Correia, Kozak, & Ferradeira, 2013; Prayag et al., 2013). Tourists are increasingly interested in experiences resulting from a variety of goods and services connected to the nature of the region they visit. In this context, tourism operators are called upon to offer “all-inclusive” package solutions able to incorporate a large number of products/services that compose the tourist experience (Buhalis & Law, 2008). Neuhofer, Buhalis, and Ladkin (2013) focused on “technology enhanced tourism experiences” as an integrative conceptual framework to describe today's tourism as a combination of “experiences, co-creation and technology”. Converting unstructured data into structured numbers is now mandatory to transform the huge amount of data created over the world into organisational value (De Mauro et al., 2016).

Social media and internet tools are instrumental in enabling Smart Tourism Destinations to develop such dynamic connections, as technologies enable them to network. Social media has been considered as a useful and rich source of tourist information (Miah et al., 2016). Consisting on gathering online communities of people “to share information, knowledge, and opinions using conversational media” (Buhalis & Foreste, 2015, p. 153), they constitute an important source of Big Data and provide new potential value to decision makers (Khan et al., 2014). The literature has paid a great deal of attention to mining social media and consumer generated content for value creation. Different researches emphasize the potential of Big Data for tourism firms to gain relevant insights and information on customers’ experiences, feelings, interests, opinions, behaviors, preferences etc. (Marine-Roig & Clave, 2015; Raguseo, Neirotti, & Paolucci, 2017; Xiang, Schwartz, et al., 2015; Xiang, Wang, et al., 2015). However, in a tourism destination context such data are not widely used by policy makers and authorities to create value (Miah et al., 2016). The analysis of Big Data generated through social media remains underexplored, especially in tourism destinations. Additionally, it is worth noting that, Big Data cannot automatically create smartness (Hollands, 2008, Shapiro, 2006). Instead, tourists’ engagement, broadband networks, and virtual collaborative spaces (Komninos, 2011) are other relevant dimensions of a Smart Tourism Destination. All this makes Big Data, with its multi-dimensional perspective, and mainly in terms of value creation, a central subject in the debate on Smart Tourism Destination.

2.2. Creating value from Big Data: opportunities for Smart Tourism Destination

Value creation in a Big Data perspective shapes the traditional monetary and economic dimensions of value, to include the full value from knowledge and intangible assets (Secundo, Del Vecchio, Dumay, & Passiante, 2017). Despite the growing relevance of Big Data paradigm, little consideration is given to transforming data into valuable specific outputs for managers and entrepreneurs (Jin et al., 2015; Schutt & O’Neil, 2013).

Value from Big Data analysis could be expressed in the gained knowledge for new products development, supply segmentation, performance improvement, better decision making, new business models and supply customization (Griffin, 2012; LaValle, Lesser, Shockley, Hopkins, & Kruschwitz, 2011, Davenport, Barth, & Bean, 2012; McAfee & Brynjolfsson, 2012; Schadt, Linderman, Sorenson, Lee, & Nolan, 2010; Wagner, 2012). Additionally, other studies demonstrate the role of Big Data in sustaining product innovation (Mayer-Schönberger & Cukier, 2013) and firms’ predictive activity (Kaisler, Armour, Espinosa, & Money, 2013).

Creating value through Big Data means using specific technology and analytical methods (Morabito, 2015) to transform them into information assets that will lead to identification of hidden patterns and insights about customers experiences, which, when exploited, can provide firms with opportunities to predict market and consumer trends, improve performance, customize and personalize offerings, innovate products or services, and enable transparency and immediate feedback (Brown, Chui, & Manyika, 2011). Creating value is increasingly the result of managing information and knowledge assets to improve decision-making (Bharadwaj, El Sawy, Pavlou, & Venkatraman, 2013; De Mauro et al., 2016; Dumay, 2016; Secundo et al., 2017).

A recent comprehensive literature review related to the business value of Big Data performed by Fosso Wamba, Akter, Edwards, Chopin, and Gnanzou (2015), among 234 journal articles in Big Data published in the time frame 2006–2012, has synthesized and systematized the main sources of value creation resulting from Big Data, encompassing 5 main types of value creation: 1) Creating

transparency; 2) Enabling experimentation to discover needs, expose variability and improve performance; 3) Segmenting populations to customize actions; 4) Replacing/supporting human decision making with automated algorithms; 5) Innovating new business models, products and services.

On the other hand, the studies related to value creation in tourism industry, have focused on emphasizing the role of Big Data in facilitating value creation in marketing (Ambrosini & Bowman, 2009; Buhalis & Foerste, 2015). Ghose, Ipeirotis, and Li (2012); Day, 2011 demonstrate the potentialities of Big Data resulting from tourist generated content, in developing marketing tools such as recommendation systems. This allows discovering unknown patterns and finding out what tourists want and value, getting closer to them to gain a wealth of information about their behaviors and preferences, and identifying new market trends and new opportunities to remain competitive (Ndou & Beqiri, 2014). Other studies have demonstrated the insights emerging from analyzing Social Media Big Data analysis in terms of tourist behaviors (Xiang & Gretzel, 2010), tourism demands prediction and decision making support (Miah et al., 2016) identifying new market trends (Sigala et al., 2012), and creating contextualized offerings in relation to customer needs in real time (Buhalis & Foerste, 2015). Yang, Pan, and Song (2014) demonstrate the value created in terms of generation of improved forecasting models by using web traffic volume data of destination marketing organizations to predict hotel demand, showing an improvement in error reduction over more traditional models. Önder, Koerbitz, and Hubmann-Haidvogel (2014) use Flickr geotagged photos to assess the presence of tourists in Austria, showing that the method provides more reliable outcomes for cities than regions. Fuchs et al. (2014) show how Big Data analytics can be beneficial for business intelligence practices in a tourism destination and propose an architectural solution that combines different data sources. Advanced approaches are practically ignored, and the most used technique is a simple statistical textual analysis of pieces collected online from which the authors derive a number of insights. The papers by Menner, Höpken, Fuchs, and Lexhagen (2016), Saif, He, Fernandez, and Alani (2016) and Piryani, Madhavi, and Singh (2017), Schmunk, Höpken, Fuchs, and Lexhagen (2014) provide a notable exception with sentiment analysis of a large corpus of user generated contents using these advanced techniques (Support Vector Machines, naïve Bayes classifiers, latent semantic indexing, etc.).

Overall, the studies demonstrate that Big Data can significantly enhance organizations' value creation in tourism since, through the wide use of virtual technologies, tourists are able to know and compare their intentions for trips and journeys and also to share and learn from others, acquiring suggestions and recommendations for maximizing their time in the destinations by exploring them before their arrival and continuing to be linked to them also after the vacation (Ndou, Del Vecchio, Mele, Stefanizzi, & Passiante, 2016). However, in a Smart Tourism context, creating value is a matter of providing tourists with a 'smart experience' that encompasses personalization, context-awareness and real time monitoring' (Buhalis & Amaranggana, 2015). Realizing such smart experience depends on the ability of destinations to aggregate information, create ubiquitous connectivity and synchronize information in real time (Neuhofer, Buhalis, & Ladkin, 2015). As argued above, destination arises as a complex system of products and services enabling successful experiences within tourists' timing and expense constraints (Del Vecchio et al.; Del Vecchio, Secundo, & Passiante, 2015, forthcoming).

In this vein, Big Data, resulting from tourist generated content in social media platforms, along with their aggregation, inter-connectivity, analysis, integration, real time synchronization and intelligent use of data (Tu & Liu, 2014, Gretzel et al, 2015) becomes the major driver for value creation in smart tourism. Following Gretzel et al (2015), a Smart Tourism Destination, from a business point of view, encompasses: Enhanced and enriched tourists experience; Tourism experience co-creation; Improved decision making through data processing; Efficiency gains through technology mediation; Anticipation of user needs, Demand forecasting, New business models and new products/services development, Business ecosystem interconnectedness.

Secundo et al. (2017) proposed a conceptual framework that can be used in Smart Tourism Destination to understand the intangible value generated from Big Data. The framework is built around four main pillars, identified as the Why (why Big Data can enhance value creation), How (which processes support the value creation process from Big Data), What (what types of data are used to create value) and finally Who (who are the main actors involved in the value creation process). Thus, focusing on the dimensions (why, how, what and who), the framework is described in Table 1: the why dimension explains the value creation typologies resulting from Big Data in general settings (according to Fosso Wamba et al. (2015), the how dimension builds upon the processes relevant in creating and developing a Smart Tourism Destination (according to Gretzel et al., 2015), the what dimension synthesises the typologies of data available and finally the who dimension details the main categories of actors involved into a Smart Tourism

Table 1
Big data value creation in smart tourism destination: key dimensions.

Big Data value creation dimensions (why)	Value creation process from Big Data (How)
Improving Decision making process	By synchronizing the information obtained in real time
Enhancing and enriching tourists experience	By discovering and anticipating needs, exposing variability, personalizing and customizing offerings, experience co-creation
New business models and new products/services development;	By enabling dynamic connections with outside stakeholders, resource and knowledge exchange, new customer relationship modes, innovative revenue streams and new value propositions
Business ecosystem interconnectedness	By enabling by collaboration, transparency and trust established with customers and stakeholders.
Social big data to be used (what)	
Structured or Unstructured, User generated content Data, Video, Images, Text, Codes	
The main actors involved in the value creation process (Who)	
Travelers, Residents, Tourism operators, Official tourist boards, Destination managers, Storytellers/bloggers, Local tourism associations	

Destination.

Against the above background, the adoption of a Big Data approach discloses several areas of opportunities in terms of value creation process for smart tourism destinations. This calls for a more in-depth analysis aimed to demonstrate some typologies of value creation that could result from analyzing Big Data generated from social media that are especially relevant for Smart Tourism Destination development.

3. Research methodology

This paper adopts an exploratory multiple case study methodology. Yin (2003) argues that multiple case studies are appropriate to monitor contemporary events and behaviors that cannot be controlled, as well as to derive theory from contemporary phenomena within real life. Moreover, the use of multiple case studies is considered relevant when multiple events are examined in their natural setting, employing different explorative approaches and tools for social Big Data retrieval and analysis. According to Glaser and Strauss (1967), the aim of case study research is to discover ‘grounded theory’ by comparing different cases.

Based on the case study guidelines set out by Yin (1994; 2003), our explorative analysis has consisted of selecting a set of digital tourism initiatives related to unconventional experiences, all located in the Apulia, a Southern Italian region and a destination of growing popularity.

Cross-case analysis was used to understand the value creation challenges resulting from Big Data related to unconventional experiences in a Smart Tourism Destination.

3.1. The research context

The context of analysis has been identified in the Apulia, a Southern Italian region and destination of recognized and growing reputation. Due to favorable environmental factors, cultural heritage, agro-food industry and infrastructures, Apulia is a destination complying with Pedrini's (1984) theory on tourism vocation. Based on data made available by Pugliapromozione, the Apulian Regional Agency for Tourism, the destination is continuing to register positive trends in arrivals (13.5 million presences in 2015) and contribution to the GDP (more than 8% in 2015), with 32,652 tourism companies in the area and 5693 accommodations of different types (B&B, hotels, etc.). Apulia is increasingly recognized as a region with a differentiated and valuable offering of tourism experiences that is looking at tourism as driver for its intelligent growth (Del Vecchio & Passiante, 2017). It boasts seas, beaches, natural reserves and historical sites recognized by UNESCO. To identify a set of cases characterized by a large web echo resulting from promotion of regional beauties and tourism assets, we scanned the regional offering in terms of experiential paths based on the following criteria. We looked for a recognizable image resulting from previous editions and/or official sponsorships, wide digitalization of the experience proposed and a structured presence on social media. This allowed selecting 7 regional sets from the North to the South that offered a good representation of the regional destination and deriving useful evidence on value creation from social Big Data. Identified by their official hashtags, the cases analysed are the following:

- *#MyGarganoExperience*, an Instagram tour sponsored by the GAL-Gargano, a local development agency, in collaboration with IgersItalia and Pugliapromozione (the regional tourism promotion agency) to promote the deseasonalisation of the Gargano, the northern area of Apulia, and of its natural, agro-food and cultural heritage.
- *#365PugliaDays*, a blogtour promoted by Italica Turismo SpA, an integrated company operating in the hospitality and incoming tourism field, in collaboration with the Laboratory of Management Engineering at the University of Salento. The blogtour is an experimental initiative to promote the Apulia destination, and specifically the area of Bari and Valle d'Itria, in a deseasonal perspective.
- *#focara2016*, a religious event linked to the popular devotion to St. Antonio Abate, held every year on January 16, in Novoli, a little municipality located in Salento, the Southern area of Apulia region. The Focara fireworks show lighting up the sky is promoted by Focara of Novoli, and Focara Foundation with several sponsors.
- *#CarnevalediPutignano2016*, a digital experience related to the 622nd edition of the old Carnival of Putignano, a city of the southeast hinterland of the Apulia region. The event has been promoted by the Putignano Carnival Foundation with the involvement of 11 partners, among them Pugliapromozione, the Municipality of Putignano, etc.
- *#InvasioniDigitaliNoci*, an experiential tour within the national digital invasion project and aimed to promote the value of a noble country house in the land of Noci (Villa Gabrielli), a city in the hinterland of Bari. The digital invasion was promoted by Noci My Destination, the local destination management organization, in collaboration with the Laboratory of Management Engineering at the University of Salento.
- *#Transumanza*, an initiative for the promotion and rediscovery of the cultural and naturalistic heritage of the *transumanza*. This old practice involves moving cows and other livestock from the mountains to the plains characterizing the north of the Apulia region. The initiative is promoted by Carpino Folk Festival, a non-profit association.
- *#SUD2016*, SalentoUpNDown 2016 is the second edition of a project for the promotion of Leuca's area (in southwest Italy) built completely on the use of social networks and digital media for telling stories related to different structured visits. Instagrammers Lecce and University of Salento have promoted the project.

Table 2 provides a detailed description of cases in terms of type of tourist experience, geographic area, period, promoter, partners, and official hashtags identified as keywords for the business analytics.

Table 2
Digital local experiences- sample description.

	MyGarganoExperience	365PugliaDays	focara2016	CarnevelediPutignano2016	InvasioniDigitaliNoci	Transumanza	SUD2016
Nature of the experience as official presented	Instagram/Blogtour for naturalistic and agrifood experience.	Blogtour for discover the Apulia region, through social and digital marketing tools.	Tradition, entertainment and popular rites salenines on the occasion of the festivities in honor of St. Antonio Abate.	Carnival and goliardic experience in one of the most ancient Italian carnivals.	Digital invasion of a noble country house.	Discovering ancient transhumance roots for natural, musical and agrifood experience.	Project of the promotion of Leuca's area built completely on the usage of social networks and digital media.
Period of experience	Week-end of October 1stWeek-end: 2-4 2ndWeek-end:9-11 3rd Week-end: 16-18	November from 20 to 23	January 16	January 24-30 February 7-9	May 8	April 24	May 29-2 June
Geographical area interested by the promoter of the initiative	South of Italy, Gargano area.	South of Italy, Bari, Alberobello, Conversano, Matera.	South of Italy, Novoli.	South of Italy, Putignano.	South of Italy, Noci	South of Italy, Carpino and surroundings.	South of Italy, Lecce, Leuca and surroundings.
Other partners	Gal Gargano Association	Italica Turismo Ltd.	Focara Foundation	Carnevale di Putignano Foundation	Noci My Destination Association	Carpino Folk Festival association	Instagramers Lecce and University of Salento
	Laboratory of Management Engineering of the University of Salento, Institutional Partners (regional tourist agencies, municipalities, etc.), Technical Partners (food companies, hotels, etc.)	Laboratory of Management Engineering of the University of Salento, Institutional Partners (regional tourist agencies, municipalities, etc.), Technical Partners (food companies, hotels, etc.)	Institutional Partners (Gal Valle della Cupa association, regional agencies, municipalities, cultural association, University of Salento, etc.). Technical partners (food and transport companies, etc.).	Laboratory of Management Engineering of the University of Salento, Institutional Partner (association, municipalities), others partners.	Laboratory of Management Engineering of the University of Salento	Laboratory of Management Engineering of the University of Salento, Institutional Partners (regional tourist agencies, municipalities, etc.), Technical Partners (food companies, etc.)	Laboratory of Management Engineering of the University of Salento, Institutional Partners (regional tourist agencies, municipalities, etc.), Technical Partners (food companies, hotels, etc.).
Number and profile of official storytellers	15 Instagramers and blogger	8 Travel blogger	Social accounts administrators	Social accounts administrators	Members of Noci My Destination	Social accounts administrators	24 Instagramers, Top Influencer, Blogger
Official Hashtag	#mygarganoexperience	#365PugliaDays #ItalicaExperience #Apuliasmartourism	#focara2016 #Apuliasmartourism	#carnevelediputignano2016 #lacasadifarinnella	#invasionidigitalinoci #invasioniNoci #apuliasmartourism	#transumanzaroots #transumanza #apuliasmartourism	#SUD2016 #SalentoUpNDown #apuliasmartourism

3.2. Data collection

The research covered a period from April 2015 to May 2016. The research team was involved in supporting the promoters of digital experiences to better plan and execute the social media strategy. In particular, the team collaborated for awareness creation related to the initiative's identity (preliminary meetings, interviews, etc.), support in designing the communication strategy (definition of #, communication plan, training of storytellers, sharing, etc.), creation of the main contents, monitoring data and information collected and defining main suggestions and insights through business analytics. Specifically, business analytics was used to collect, monitor, analyze, summarize, and visualize social media data.

The data collection consisted of gathering and analysing the Big Data from official websites and social profiles, etc. (primary sources). Moreover, semi-structured interviews with key informants were performed to integrate business analytics results and to better understand some specific issues related to the cases analysed. The interviews were conducted with a flexible approach through a semi-structured schema organized into three main sections: general overview of the initiative observed; strategy for measuring customers' satisfaction level and involvement; use of data collected from the social media. The interviews were addressed to at least one person responsible for each digital event observed, identified as key informants (Kumar, Anderson, & Stern, 1993). An inductive and iterative process was used to analyze data collected through interviews (Miles & Huberman, 1984; Strauss & Corbin, 1990). After identifying the stakeholders, an interview protocol was developed through repeated revisions with the aim to avoid redundancy and assure the highest degree of reliability.

3.3. Data analysis

Social media data analysis has been performed with business analytics through two tools: Keyhole and Buzztrack. Keyhole.com is a proprietary business analytics tool for cluster analysis available free in its basic version. Buzztrack is a proprietary tool for sentiment analysis and social media monitoring.

As a machine-learning tool, Buzztrack required a preliminary training set, during which it was necessary to validate the polarity assigned by the tool to the different posts, tweets and comments available on the main social network platforms (Facebook, Twitter and Instagram). This aimed to achieve a higher rate of precision and recall in evaluating the sentiment. After the parameter setting, Buzztrack uses an analysis engine to elaborate text and extract new knowledge from the input data. Specifically, the textual sources are pre-processed to obtain a noiseless and clean dataset, making the features' extraction and the overall data processing more effective. The Buzztrack engine uses filtering operators for a wide number of goals such as removing HTML tags, tokenizing the text by adopting the "non-letters" splitting points technique, removing stop words, applying stemming, and pruning the results with a token length of fewer than 3 letters. Text features are used for a sentiment analysis process that uses machine-learning algorithms, such as linear SVM (Support Vector Machine) and Cross Validation, to classify textual information streams to define the "sentiment" associated with content.

Business analytics activity through Keyhole focused on the three main social networks (Facebook, Twitter and Instagram) has required setting different parameters: official profiles, accounts and keywords (#), observation time, etc. In particular, the digital content published on Facebook, Twitter and Instagram was analyzed with the keyword identified (#) during the monitoring period: posts, tweet/retweets, comments, replies, photo and video. After the parameter-setting, the tools executed the data extraction, collection and analysis by providing statistics, insights and information on the following: users' socio-demographics, behaviors by users and event followers in terms of timeline, main topics and the most followed ones, types of devices used for sharing, and a preliminary form of debated issue clustering in the form of a tag cloud. Identified as some of the most common KPI (Key Performance indicators) for measuring the impact of social media campaigns, the dimensions analyzed with the two tools were useful items for identifying and evaluating the critical success factors of a virtual and social network mediated users' experience as well as for suggesting areas of immediate intervention (Alberghini, Cricelli, & Grimaldi, 2014).

After data reduction and synthesis and in accordance with Eisenhardt (1989), we conducted a final iteration between data collected from social analytics and interviews and the literature on Big Data and Smart Tourism to identify our arguments' theoretical foundations.

4. Findings

The case studies considered in this paper offer an interesting overview of a differentiated set of unconventional local experiences related to Apulia region with meaningful implication for Big Data value creation. All cases adopt social networks as enabling platform of dialogue with visitors and customers for their feedback and exchange, and as a repository of strategic knowledge assets and sources of inspiration for travelers, companies and destination makers.

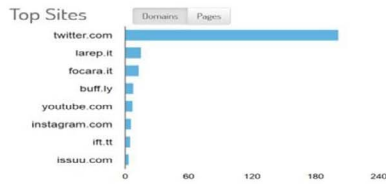
Fig. 1 provides an example of the main outputs of business analytics performed by the tool Keyhole. It is a collection of exemplar items related to the different cases, identifiable through the associated hashtags.

The social media analytics performed by Keyhole (Fig. 1) focused on the hashtag campaigns related to the different cases and is based on the main KPI for social media analytics, in terms of the number of posts, number of users, and the total reach and impressions generated by the hashtags. It has an historical timeline and a list of top posts, determined by the total number of likes and retweets received. The figure also shows examples of analytic dashboards related to the top sites and types of devices adopted by the users, the ratio of males to females, and a tag cloud with hashtag and keyword that users used with the official hashtag analyzed.

Fig. 2 offers an example of the results of the sentiment analysis performed through the tool Buzztrack and it is related to the trends

767 posts
302 users
2,275,937 reach
6,374,192 impressions

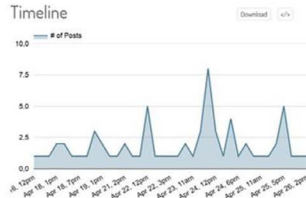
Conversation Tracker #SUD2016



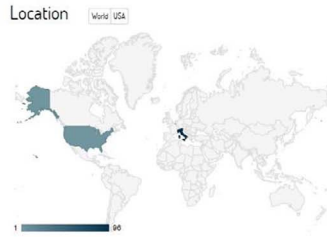
Top Sites #focara2016



Themecloud #SUD2016

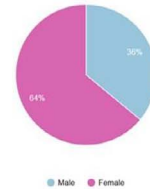


Timeline and Top Post #Transumanza



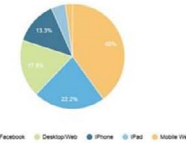
Location users #CarnevalediPutignano2016

Demographics



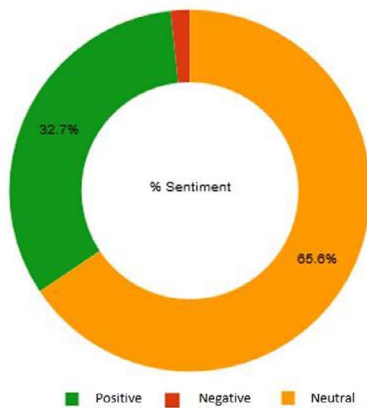
Demographics #InvasioniDigitaliNoci

Top Sources



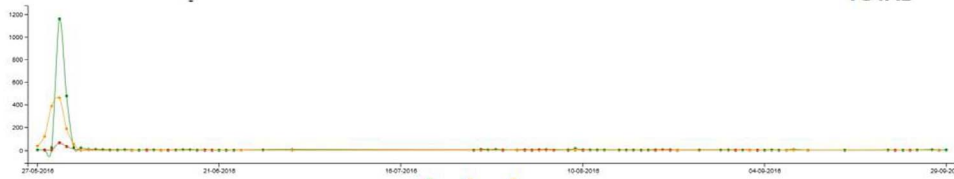
Top sources #Transumanza

Fig. 1. Examples of social business analytics (elaborated by Keyhole).



SENTIMENT

1893
Posts, comments, tweets
73
Posts, comments, tweets
1393
Posts, comments, tweets
3359
TOTAL



Sentiment #SUD2016

Fig. 2. Examples of sentiment analysis (elaborated by Buzztrack).

registered for the official hashtags.

With the exception of #365Pugliadays, created by a private company, almost all the cases are promoted by non-profit organizations. They include a wide community of stakeholders such as the regional agency for tourist promotion (Pugliapromozione), the

Laboratory of Management Engineering at the University of Salento, and other agencies and associations. Strategic actors' involvement has produced positive results in terms of organization of the digital campaign, visibility and follow-ups.

Each initiative has been labelled with an official hashtag (representing the name and nature of the event), in addition to secondary hashtags (i.e. #apuliasmarttourism), the regional promotion campaign (#weareinpuglia), and specific elements of the areas. In all the cases, an official nucleus of storytellers is involved.

In some of the events analyzed, those storytellers present the profile of top influencers (#MyGarganoExperience, #365PugliaDays). In some others, the official tellers are voluntarily involved based on their cultural interests and backgrounds (#InvasioniDigitaliNoci), without any official commitment with the events' organizers. Some tellers were hired by event promoters to assure continuous updating of the digital experience offered.

In Table 3, the main evidence collected about each digital local experience is summarised in terms of the nature of the experience offered, the official hashtag/s adopted, social analytics metrics (reach, impression, number of posts or tweets, comments, etc.), number of storytellers (if presented), official social accounts, audience's geographic area and profile (gender, age, country, etc.), most appreciated type of post, tag cloud, and sentiment analysis of digital content.

Regarding the social performances observed, the data analyzed show that all events have registered peaks in the days when the initiatives were performed.

The number of posts, tweets/retweet and replies range from a minimum of 680 (#Transumanza) to a maximum of 6028 (#MyGarganoExperience). Reach ranges from 3644(#InvasioniDigitaliNoci) to 2,900,000 (#MyGarganoExperience), and impressions from 28,537 (#InvasioniDigitaliNoci) to 15,100,000 (#MyGarganoExperience). In some cases, analysing top influencers has shown that some individuals or external organizers have published and reached more levels of engagement than the organizers, with one post only, thanks to their number of profile followers.

The most appreciated type of social tracking was represented by post or tweet associated with photos (see Table 3). The audience, in terms of nationality, was conditioned by the idiom used for the hashtag and promotional strategy (this implied coverage of the Italian market in all the cases, although there have been foreign users in some of them) (see Table 3). Instagram was absolutely the most used social network (Twitter is relevant only in the case of #365PugliaDays,) (see Table 3). With the exception of #MyGarganoExperience, women were more sensitive to and interested in the events (although in almost the cases, the gender difference is very low) (see Table 3); the tagclouds (preliminary result of a semantic analysis of the experiences in terms of most frequently used words) suggest the importance of creating a joint initiative of promotion and offerings by leveraging different assets and attractiveness of the regional destination.

The results revealed that in most cases, the posts/tweets and replies expressed a neutral sentiment, probably because most of them are published by event sponsors for promotional purposes. In three cases, a predominance of positive sentiment was registered with a clear appreciation of the Apulia destination's cultural assets and traditions. All the cases registered low negative contents, with percentages ranging from 0.7% to 3.7%, mainly for items concerning price and overcrowding. The results of the interviews conducted with at least one key informant for each case have allowed acquiring strategic insights related to the nature of the unconventional local experiences, the reasons behind the period involved, the storytellers' involvement, the dynamics of collaboration activated at local level as well as identifying critical areas of interventions and opportunities of value creation deriving from social media data.

5. Discussions

Case studies analysis discloses interesting evidences for the advancement of knowledge on value creation from Big Data in context of Smart Tourism. Specifically, the integration of evidence collected by Social Media Analytics and the in-depth interviews demonstrates how the management of Social Media Big Data can represent an opportunity for value creation in its larger definition.

Coherently with the conceptual framework of [Secundo et al. \(2017\)](#), the analysis of data (what) generated on the pages of social networks, in the form of texts, videos, images, etc., related to the journey's experiences in a certain destination and shared within the large community of actors populating the destinations (who), can allow to derive several value dimensions (why) by specific processes (how), as follows:

- **Improvement of decision-making process**, by synchronizing real time information of tourist experiences,
- **Enhancement and enrichment of tourists' experience**, by discovering and anticipating needs,
- **New business models and new product/service development**, by enabling dynamic connections with outside stakeholders,
- **Business ecosystem interconnectedness**, by enabling collaboration and trust within the community of actors.

As for the improvement in **decision-making**, the analysis of cases allows deriving insights for managers and promoters of the unconventional tourism experience. The ongoing monitoring of social media data can enable to identify critical features and take real-time corrective actions for removing problems that may compromise the event's success. This requires the synchronization of key actors involved into the strategic and operative management of the event. All the cases demonstrate how the content analysis of posts/comments labelled as "negative", visualized through a themecloud because of their frequency, allows identifying issues that need to be improved or solved instantaneously or in the future editions. In the meantime, the recurrence of positive keywords (magnificent, nice, etc.) should support organizers in consolidating their offering by leveraging on elements that are more appreciated for the planning and management of future editions. This was experienced in the event SalentoUpNDown 2016 (#SUD2016), in which the feedback collected in the previous edition in terms of availability of multilanguage contents and the optimization of walking itineraries were identified as critical points.

Table 3
Digital local experiences at the glance.

	#MyGarganoExperience	#365PugliaDays	#focara2016	#CarnevalediPutignano2016	#InvasioniDigitaliNoci	#Transumanza	#SUD2016
Reach	2.900.000	n/a	247.490	114.165	3.644	68.386	2.791.049
Impressions	15.100.000	8.500.000	600.853	266.900	28.537	143.338	10.569.616
Nr. of storytellers	15	8	0	0	3	2	24
Nr. Of post, comments and replies on Facebook	148	264	809	1.018	23	98	1.893
Tot. nr. of Tweets	1131	1.145	168	28	0	18	73
Tot. nr. of posts and comments on Instagram	4.749	263	574	1.210	3.334	564	1.393
Social network more influent	Instagram	Twitter/Instagram	Facebook	Instagram	Instagram	Instagram	Facebook
Geographic coverage	Italy, UK, Russia, Brasil	Italy	Italy	Italy, USA.	Italy	Italy	Italy, USA, Canada, Spain, GB,Brasil
Gender %	1st Week-end: 35% Female 65%Male 2nd Week-end: 24% Female, 76%Male 3rd Week-end: 40% Female, 60% Male	n/a	n/a	49% Male, 51% Female	36% Male, 64% Female	47% Male, 53% Female	28% Male, 72% Female
Main Types of devices used	Iphone, Android	n/a	Iphone, Desktop	Android, Desktop	Iphone, Android	Android	Iphone, Android
Type of post more appreciated	Photo	photo	photo	photo	video	photo and video	photo
Tag cloud	stupenda, galgargano, igerspuglia magnifica, scoperta, wearinpuglia, puglia, polpetta.	viaggiavero, viaggiaredasoli, thnetalks,pasqua, springs.spiaggia, vedere, consigli.	novoli, salento, wearinpuglia, igerslecce, focara, lamiafocara.	apulia, incredibile, wearinpuglia, spettacolo, micheleguacci, apulismartourism, l'ulivo	destination, wearinpuglia, volgopuglia, bella, problemi, noci, digitale, villa	carpino, gargano, masseria, festa, tradizioni, wearinpuglia, folk, michele, ischitella.	Igersalento, wearinpuglia, tours, igerslecce, salento, puglia.
Sentiment	91,5% Neutral, 7,7% Positive 0,7% Negative	84,5% Neutral, 13,6% Positive 1,5% Negative	53,9 % Neutral, 43,5% Positive 2,6% Negative	54,2% Neutral, 42,4% Positive 3,4% Negative	43,5% Neutral, 54% Positive 2,5% Negative	31,9% Neutral, 64,4% Positive 3,7% Negative	41,5% Neutral, 54,6% Positive 2,2% Negative

As for the *enhancement and enrichment of tourists' experience*, case analysis shows meaningful evidence for creating personalized offerings, and innovation in products and services composing tourism experience based on tourists' expectations. By using and comparing social media data, organizers can predict customer behavior and needs. This is made possible through automated monitoring of digital experiences in a perspective of customers' business intelligence. The analysis of digital tracks in terms of engagement (e.g., impressions, reach, etc.) can be used to evaluate the attractiveness of elements of tourism experiences associated with the event and can be the basis for new offerings more focused on customer satisfaction. Business analytics in the case of #365PugliaDays, for example, demonstrated the main themes of interest as "old town" or "food", and suggested creation of new tourism packages aimed to integrate these assets. In other cases, the tourist profile and geographical location of the users that published posts related to the events suggested re-defining a digital strategy in multiple languages (#MyGarganoExperience, #CarnevaleDiPutignano). Finally, a further contribution of Big Data analysis is the identification of new market niches or targeted market's segments, according to a broad set of segmentation criteria (geographical location, gender, technology orientation, etc.). Based on the geo-localization of potential demand, the analysis of the cases of #MyGarganoExperience, #CarnevaleDiPutignano and #SUD2016 allowed to identify markets of interests in emerging and developing countries as Russia, Brazil, as well as in developed countries as USA, Canada, UK, etc. Once captured and processed, Big Data can allow identifying unexplored markets, increasing tourists' satisfaction and developing new profitable business areas.

As for the **new business models and new products/services development** cross-case analysis demonstrates that digital experiences can be considered drivers for the smart development of a destination. The temporal execution of digital experiences monitored suggested in all the cases, with the exception of #SUD2016 that interested a pre-summer period and so is mainly characterized by traditional offering of marine experience, as social media can disclose market opportunities for an unconventional tourism offering based on the valorization of natural (e.g. #MyGarganoExperience, #Transumanza, etc.) cultural (e.g. #CarnevaleDiPutignano, #focara2016, etc.) and agro-food (e.g. #MyGarganoExperience, #365PugliaDays, etc.) assets. Additionally, in the case of #SUD2016, the engagement rate (No. 7053 likes) registered for a picture related to "the red shrimp of Gallipoli", suggests the opportunity of innovating the offering by stressing agrofood and typical dishes. All this allows identifying in the cases analyzed a process of reconfiguration of the business strategies and models of private and public organizations to go beyond the selling of rooms and hospitalities services and requires looking for new revenue models based on the exchange of local experiences regarding overall the destination. This is because the wide dissemination of digital technologies has impacted the configuration of the tourism industry by suggesting the emergence of data-driven business models and new product and service development strategies inspired by the principles of networking and crowdsourcing. The deeper analysis of data collected in terms of user engagement and visibility on social networks in the cases of digital experiences that saw the involvement of top influencers as official storytellers (#MyGarganoexperience, #SUD2016, and #365PugliaDays) has demonstrated how networking and collaboration between organizers and professionals can enhance the success of communications strategies and generate larger interest in the crowd. In the same way, the collaboration with institutional accounts such as the Regional Agency (#weareinpuglia) or official communities such as Instagrammers (#Igerspuglia, #Igersitalia, etc.) is a further positive element.

The analysis conducted shows how using social networks for events' promotional and communication activities has been able to create engagement and trust within a large set of stakeholders and customers.

All the cases analyzed were characterized by an intense dialogue populated by spontaneous demands, request for advice that embrace the destination in its overall dimension (food, hospitality, transport, culture, etc.), and suggestions for and from tourists with interesting implications in terms of co-creation of tourism experience. Specifically, the analysis of social media performances registered by the blogtour #365PugliaDays has allowed identifying elements of major appreciation related to the destination (i.e. corners of the old city of Bari, typical foods and pasta, etc.) and virtual behaviors (e.g. timing of social usage, etc.) useful for determining new sources of revenues and innovation in offering. The importance of monitoring customer satisfaction has also arisen from interviews with the event organizers; in all cases, they expressed a particular interest in monitoring customer satisfaction and increasing customer loyalty.

As for **Business ecosystem interconnectedness**, the analysis demonstrated that all the events have generated a set of direct and indirect spill-owners over the whole region. Due to tourism's nature as regional integrated industry largely affected by the spread of Big Data, the analysis demonstrated how the echo created around all the local experiences, characterized each one by specific features based on nature (i.e. #MygarganoExperience, etc.), culture (e.g. #InvasioniDigitaliNoci, etc.), agrofood (e.g. #Transumanza, etc.) has been positively impacted also by the availability of facilities, ancillary services, products and services directly and indirectly connected to them and made available by a larger destination ecosystems of stakeholders. This is the demonstration that the event creates value not only for event's organizers but for a larger community of actors. The analysis has provided important opportunities for promoters of initiatives, related to the possibility of future collaborations with top influencers to increase the event's visibility. As previously recalled, the involvement of travel bloggers (as in the case of #365PugliaDays, #SUD2016 and #MyGarganoExperience), the sponsorship of institutional actors as the Regional Agency for Tourism (#weareinpuglia) is a lever for the popularity growth of events and consequently of the destination and a factor of competitiveness.

By focusing on the benefits in terms of loyalty and trustful relationships between tourists and destinations, the performance reached by the official hashtags (in number of posts, reach and impressions) has contributed to increasing the event's popularity, nurturing a sentiment of trust, and has facilitated organizers' creation of a stable relationship with their target audience. The automated analysis performed has also demonstrated the valuable contributions of Big Data for better understanding of opinions, feedback and suggestions. The performance registered confirms the importance of a Big Data approach for establishing a stable relationship with customers to capture knowledge and transform it into value. All the interviews have confirmed this evidence as resulting from the business analytics performed by disclosing the events' organizers awareness on the importance of collaboration

among all the actors operating on the destination as well as on the feeling of belonging and an active participation by private and public actors.

6. Conclusions and implications

The recent debate on Smart Tourism has highlighted the challenges and opportunities related to the management of Big Data for destinations' competitiveness. The wide adoption of social media and mobile technologies, smart devices and sensors, has contributed to the exponential growth of data. Despite their proliferation, the challenges for smart tourism destinations are linked to the capability of exploiting them for creating new value propositions and remaining competitive (Gretzel et al, 2015, Sigala et al., 2012). Thus, Big Data resulting from user-generated content, their aggregation, analysis, integration, real time synchronization and intelligent use of data has become the major drivers for the value creation process in a smart destination.

With the aim to discuss how Big Data can represent a large base of value creation opportunities to sustain the competitiveness of destinations in the context of smart tourism, this paper adopted a multiple case study analysis related to a set of digital local experiences in Apulia. This Southern Italian region is a destination of growing popularity and attractiveness.

Cases have been selected for their recognizable image resulting from previous editions and/or official sponsorships, wide digitalization of the experience proposed and a structured presence on social media.

The analysis conducted has demonstrated how managing social media Big Data provides opportunities for value creation in its larger definition. This is coherent with the theoretical perspective recalled in the literature background, mainly concerning non-monetary and economic dimensions of value creation (Fosso Wamba et al., 2015; Manyika et al., 2011) as well as with the dimensions of value proposed in the framework of Secundo et al. (2017). With this in mind, data identification and collection was based on integrating information from preliminary interviews with events' organizers integrated with the study of official websites and social networks' profiles. These were further integrated with results from the "business analytics". In particular, the "business analytics" approach was followed for the extraction, tracking, analysis, graphical visualization and reporting of unstructured data (posts, comments, answers) published by tourists and destinations' stakeholders on various social networks. The integration of social Big Data analysis (preliminary interviews, cluster and sentiment analysis) supports value creation for Smart Destinations, enabling a definition of tourist's profiles, socio-demographics, preferences, sentiments, and attitudes, useful to create a tourist offer that is more suitable to tourists' needs. Dimensions of value for Smart Tourism Destinations have been identified into the improvement of decision-making process, the enhancement and enrichment of tourists' experience, experimentation with data-driven new business models and new products/services development, the creation of a smart tourism ecosystem at destination level.

The study presents implications for practitioners and researchers. As for the first, analysing digital local experiences allows a more direct understanding of the potential offered by digital technologies for a tourism destination's smart configuration. The findings highlighted the need for consolidating the experiences and developing a regional offering of knowledge-intensive business services (decision-making, customer relationship, business analytics, etc.) to sustain the smart tourism destination development. This moves towards the implementation of data-driven business models able to combine the benefits deriving from the domain of Big Data, both in terms of methodologies and technologies, with the demand of more personalized and co-created tourism experiences.

This is of interest for the Apulia region, a destination engaged in a smart configuration process as required by supranational institutions at European level, but it is also meaningful for private and public organizations interested in tourism development and operating in destinations all over the world. The need for preserving the interests of a large community of stakeholders as well as the nature of inter-sectorial industry affecting the entire regional area suggests the primary involvement of a public agency able to orchestrate the strategic development if the destination for smart development.

For researchers, implications arise in terms of deepening mechanisms for collecting and analyzing Big Data, developing integrated and analytical frameworks able to exploit the benefits of Big Data coherently with the different value dimensions. Findings offered evidence about the different dimension of value that can be created from social media Big Data through the integration of qualitative and quantitative approaches. The actuality of the debate highlights the need for more investigation with replication on larger scale as well as on different industries. The emerging dimension of value identified in the study suggests the opportunity for an interdisciplinary research agenda able to mix the perspectives related to the information systems with the business management ones.

Limitations and future research. Despite the paper presenting an original contribution to the understanding of challenges and opportunities associated with Big Data value creation, the tourism contextualization and focus on the Apulia Smart Tourism Destination represent the two main limitations of the study. This suggests the opportunity to replicate the analysis in different industries to deepen the understanding of trends and opportunities for Big Data value creation in a cross-industry perspective. As for the second limitation, future development could include replicating the study on different regional destinations, also by reserving attention to the identification of regions characterized by different levels of innovativeness, technological readiness, etc., to derive more implications about the types of Big Data value creation.

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