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When Digital Government Matters for Tourism: A Stakeholder Analysis

Abstract

Despite the importance of governance processes for destination management and the impact of digital technology on such processes, there is surprisingly scarce record of academic research on the use of digital technology to transform public governance in the tourism sector. This conceptual paper contributes to filling this gap by conducting the digital government stakeholder analysis for the tourism sector using the Digital Government Evolution model as its theoretical foundation. The analysis identifies six relevant stakeholder groups: governments, businesses, non-profits, citizens, visitors and employee; and examines six types of technology-enabled interactions between government and other stakeholders: government-to-government, government-to-business, government-to-non-profit, government-to-citizen, governments-to-visitor and government-to-employee. The interactions are illustrated with real-life examples. The analysis helps identify pressures on tourism authorities; how the authorities responds to such pressures using available digital technologies; how they innovate their operations and policies through such technologies; and how the innovations are institutionalized over time. In addition to filling the research gap, results extend the theoretical foundations to cover sector-specific digital government, and support strategic discussion on the use of commercially viable and socially responsible digital innovation to advance the tourism enterprise.

Keywords: tourism; sectoral tourism governance, e-tourism, digital government

1 Introduction

The tourism sector accounts for an important part of the national Gross Domestic Product (GDP) and employment worldwide, and is among the most relevant export sectors for many developing and transition countries. Moreover, it is one of the largest and fastest-growing business sectors of the world economy. According to the World Tourism Organization, the number of travellers crossing national borders for touristic reasons reached 1.1 billion in 2014 (UNWTO, 2015a). Tourists that cross the borders not only spread economic resources globally, but also spread knowledge and ideas, and create opportunities for meaningful encounters and peaceful dialogue.

Digital technology is affecting how citizens, companies and governments operate, interact and co-exist. It changes operational and strategic practices of public and private

sector organizations and alters the competitiveness of companies and regions globally. The tourism sector is not an exception. Digital technology facilitates visitor experience before, during and after a trip; enhances marketing, sales and distribution processes; and generally transforms the tourism enterprise. At the same time, the advancement and spread of new technological developments within the tourism sector results in new economic model of "sharing economy" (also collaborative or peer-to-peer economy), represented by prominent examples of Uber (www.uber.com) or Airbnb (www.airbnb.com). This model raises a number of so-far unresolved challenges such as comparable global regulations concerning taxation, service quality, safety, security, waste management, and others. In addition, there are critical concerns related to data privacy, especially given the vast amounts of sensitive data collected by hotel chains, transportation and telecommunication companies, and online travel agencies.

Given the scale and impact of tourism development on communities, countries and the world (and how digital technology amplifies this impact), the tourism sector faces major governance challenges. First, the development of new business models, particularly those implemented through digital technology, which must be regulated through existing, updated (to the digital world) or entirely new regulations. Second, while jurisdictional boundaries define the space for public authorities to exercise their mandate and power, digital technology and the Internet in particular are generally ignoring such boundaries (Kulesza, 2015). Third, many private companies that operate within the tourism sector make active use of the public goods in both physical and digital forms, which raises transparency and accountability issues. Fourth, increasing the use of digital technology by destination management organizations, public authorities, and travel and tourism enterprises not only changes how such organizations operate internally, but how they interact with visitors, citizens and each other, and how they impact the larger social, economic, cultural, etc. environment. The latter is consistent with the transformation, engagement and contextualization stages of the digital government evolution model (Janowski, 2015b).

In order to enable a sustainable and harmonious development of the sector, addressing these challenges needs clear policy decisions and regulatory frameworks, based upon mature body of research and analysed cases. However, the scarcity of research concerning the impact of digital technology on public governance in the tourism sector is well acknowledged (Gretzel et al., 2006; Sigala, 2011; Spyriadis et al., 2011). So is the challenge to transfer digital government research findings from the earlier stages of the digital government evolution to the contextualization stage (Janowski, 2015a).

Given this motivation and in line with the United Nations' designation of 2017 as the International Year of Sustainable Tourism for Development (UNWTO, 2015b), this paper examines the usage of digital technology by public authorities and other stakeholders as part of governance processes within the tourism sector. In line with the digital government evolution model (Janowski, 2015b), the purpose is to identity pressures on tourism authorities; how the authorities responds to such pressures using digital technologies; how they innovate their operations and policies using such technologies; and how the innovations are institutionalized over time. To this end, this paper – conceptual in nature – identifies the main stakeholder groups for digital government in the tourism sector, determines how technology mediates interactions between these groups and provides examples of such technology-mediated interactions.

The ultimate objective is to contribute to the development of conceptual and methodological foundations for technology-enabled governance in the tourism sector.

The article is divided into five sections. Section 1 provides the introduction. Section 2 discusses related work on digital government in the tourism sector. Section 3 presents the digital government evolution model that underpins the analysis of the digital government stakeholders in the tourism sector. The analysis is carried out in Section 4 and the findings and implications are discussed in Section 5. The final Section 6 outlines conclusions, limitations and future directions for this research.

2. Related Work – Digital Government in the Tourism Sector

The tourism industry accounts for an important part of the national GDP. The industry comprises public and private sector stakeholders, that are administratively isolated from one another and in several cases might have different or even partially conflicting goals. While tourism-related private sector entities pursue commercial objectives, mainly to increase the volume of tourists and generate profits, they are also exploiting green areas, water resources, cultural heritage, and other public goods.

Due to the dynamics of different stakeholders' interests, tourism destinations are challenging entities to manage. Although various stakeholders have numerous linkages and interdependencies, cooperation between them is extremely difficult as the stakeholders typically have different interests and diverging visions for development (Beritelli, Bieger, & Laesser, 2007; Fesenmaier, 2001; Padurean, 2010; Rodriguez, 2008). In addition, the sustainability of tourism development is both sensitive and critical (Ali & Frew, 2010). In both respects – cooperation and sustainability – sectoral governance entails joint decision and action between public authorities, policymakers, the tourism industry and local communities, to define and pursue common goals.

Tourism provides a major application context for digital government. Already in 2005, a survey done among US citizens to evaluate citizen interactions and phases of e-Government adoption (Reddick, 2005) showed that obtaining tourism and recreational information was the most common service requested by visitors to government websites (77.3%), followed by conducting research for work or school (69.8%).

However, the shortage of research and understanding for developing digital government practices in the tourism sector has been recognised by several researchers (Gretzel et al., 2006; Sigala, 2011; Spyriadis et al., 2011). In addition, despite the enormous potential of digital government to improve and advance the interactions between citizens, business and government, the full potential of digital government in the tourism sector has yet to be determined (Patelis et al., 2005).

This article aims to assess the state of research on digital government in the tourism sector. To this end, the researchers explored the content of the Scopus and Google Scholar databases in October 2016 using the keywords "e-government and tourism" and "digital government and tourism" to search within titles, abstracts and keywords of all documents. From the results obtained, several publications were excluded since they referred to entire conference proceedings or mentioned the tourism sector but did not

present any distinct contribution to it. Three additional articles were also excluded due to the lack of contribution compared to other papers by the same authors.

The resulting 26 publications were categorised into four problem areas: 1) digital government services in the tourism sector – 12 publications; 2) digital strategies promoting tourism – 4 publications; 3) assessing digital government initiatives in the tourism sector – 7 publications; and 4) data integration and interoperability in the tourism sector – 3 publications. The publications are summarized in Table 1.

AREAS	CONTRIBUTIONS	REFERENCES
Digital government services in the tourism sector	A destination management organization website as a collaboration platform for public and private sector actors	(Go & Trunfio, 2011) (Yang, 2010)
	A framework for delivering personalized tourism services based on a recommendation systems and an ontology	(Al-Hassan, Lu, & Lu, 2011) (Al-Hassan, Lu, & Lu, 2010)
	An hybrid recommender system tested on tourism services delivered by the Australian Government	(Al-Hassan, Lu, & Lu, 2015)
	A mobile intelligent service system for hotel recommendations for tourists	(Zhuang et. al., 2010)
	Best digital government experiences in the European Union including examples from the tourism sector	(Millard, 2002)
	Case-based reasoning for delivering e-tourism services	(Safapour, 2007) (Niknafs, Shiri, & Javidi, 2003)
	Innovative service for tourism based on geo-referenced information	(Benelli et al., 2005)
	Review of recommender systems in eight application domains including e-tourism	(Lu et. al., 2015)
	The contribution of digital maps, to building digital communities and delivering digital services for tourism	(Lin & Liu, 2012)
	The experience of the Qatari Government highlighting the importance of delivering online informational services to tourists	(Alja'am et al., 2008)
	The use of ontology for detecting inconsistencies in modeling goals for building digital government applications for the tourism sector using software product lines	(Fajar & Shofi, 2016)
	The use of single-sign-on to facilitate access to services, e.g. in tourism	(Niemiec & Kolucka-Szypula, 2015)
Digital strategies promoting tourism	Critical success factors for implementing digital government initiatives in a tourist city	(de Juana-Espinosa & Tarí, 2012)
	Digital government project promoting tourism activities in China	(Gao & Feng, 2009)

	Digital government and e-strategies promoting trade and tourism in support of development	(Budden, 2006)
	The use of technology to achieve community objectives through promoting development in different government sectors, e.g. tourism	(Gooneratne, 2002)
Assessing digital government initiatives in the tourism sector	Assessing digital government in Malaysia considering the services provided by the Ministry of Tourism	(Bakar, 2011)
	Assessing how ministries of tourism deliver visa services to tourists	(Adukaite, Gazizova, & Cantoni, 2014)
	Assessing web 2.0 tools as e-democracy initiatives in the tourism sector	(Sigala & Marinidis, 2010)
	Assessing user satisfaction based on the tourism services in Malaysia	(Marzoughi, 2010)
	Assessing SMS services and the relevance of the SMS channel for tourism-related informational services	(Ho et al., 2010)
	Evaluation of the provision of public Internet access by municipal administration in a Swiss city	(Picco-Schwendener & Cantoni, 2015)
	Governance as catalyst to sustainable tourism development	(Alipour, Vaziri, & Ligay, 2011)
Data integration and interoperability in the tourism sector	Data sharing platform for delivering tourism services	(Tao, Weicai, & Linfeng, 2006)
	Interoperability integration framework for delivering public services, including issuing of the tourism licenses	(Al-Husban & Adams, 2014)
	Statistical data usage by the national government for forecasting tourism demand	(Patelis et al., 2005)

Table 1. Related work on digital government and tourism

While existing research, outlined in Table 1, presents sporadic cases of digital government applications in the tourism sector, a holistic approach to the evaluation of digital government initiatives in the tourism sector is yet to emerge. Recognizing this need, the editorial board of the Journal of Information Technology & Tourism recently included "government and policy" as strategic category for conducting future research to advance the e-tourism domain (Werthner et al., 2015). Within this category, the board identified five sub-categories as critical for future research in the area: sustainability of the tourism ecosystem, data privacy issues, freedom of movement and personal safety for travellers and tourists, self-governance of public bodies, and fairness for all tourism stakeholders involved.

This article attempts to support such research by conducting a digital government stakeholder analysis for the tourism sector, and interpreting the findings through the digital government evolution model (Janowski, 2015b). The model is presented in

Section 3, the stakeholder analysis is outlined in Section 4, and the findings are discussed and interpreted through the model in Section 5.

3. Theoretical Foundations – Digital Government Evolution

The theoretical underpinning for the analysis carried out in this article is the digital government evolution model (Janowski, 2015b). This model was selected as the only conceptualization of digital government that explicitly considers sectoral applications.

According to the model, the concept and practice of digital government evolves through four distinctive phases: (1) Digitization, which aims to modernize the internal working of government organizations by digitizing and automating them; (2) Transformation, which aims to transform government organizations through digital technology in order to increase their efficiency, effectiveness and other relevant attributes; (3) Engagement, which aims to transform relationships between government and citizens through the use of digital channels in order to build trust; and (4) Contextualization, which aims to create better conditions within sectors, territories and communities through digital technology in order to pursue public policy and development goals. The four stages of the digital government evolution model and their logical characterization using three binary variables are depicted in Table 2.

NO	STAGE	VARIABLES		
		Internal government transformation	Transformation affects external relationships	Transformation is sensitive to the context
1	Digitization	no	no	no
2	Transformation	yes	no	no
3	Engagement	yes	yes	no
4	Contextualization	yes	yes	yes

Table 2. Digital Government Evolution model (Janowski, 2015b, p. 225)

Part of the digital government evolution model is the cause-effect framework, depicted in Figure 1. At each phase of the evolution, the framework identifies how government organizations are subject to pressure from various social, economic, environmental, political and other factors, how they respond to such pressures by utilizing existing digital technologies to innovate their services, processes, structures and policies, and how digital innovations are institutionalized in government practice over time.

Digital technologies		Pressures on government		Digital government institutionalization

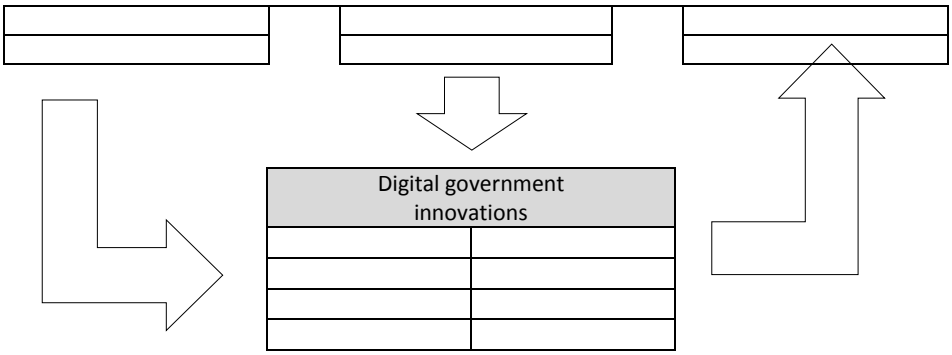

Figure 1. Digital government cause-effect framework (Janowski, 2015b)

The latest Contextualization phase of the digital government evolution is not just focused on improving the internal working of government organizations or on improving the relationships between such organizations and their constituencies, but on improving the conditions for these constituencies to develop themselves. In this phase, digital government is tailored to the circumstances of the sectoral or territories context in terms of "the choice of locally-relevant and/or sector-specific goals, locally-acceptable and sectorially-feasible ways of pursuing such goals, and managing the impact on the local environment and sector involved" (Janowski, 2015a, p. 429).

According to Janowski (2015b, pp. 227-228), the contextualization-stage digital government has been applied to different sectorial contexts: agriculture, e.g. the deployment of mobile governance services (Ntaliani, Costopoulou, & Karetsos, 2008); customs, e.g. the adoption of e-customs platforms (Urciuoli, Hintsa, & Ahokas, 2013); healthcare, e.g. the impact of social media use in Danish health care (Andersen, Medaglia, & Henriksen, 2012); insurance, e.g. the implementation and impact of the Florida Public Hurricane Loss Model (Chen et al., 2009); and taxation e.g. a tax information system and its usage in Greece (Terpsiadou & Economides, 2009). The current article focuses on another application sector – tourism.

4. Digital Government Stakeholder Analysis in the Tourism Sector

Six major stakeholder groups were identified as relevant to the tourism sector – governments, businesses, non-profits, citizens, employees and visitors.

The first category includes public authorities within tourism and related sectors – culture, economy, transport, security, foreign affairs, etc. operating on the national or sub-national levels as well as outside the country. The public authority has a certain jurisdiction that covers all remaining stakeholder groups. The second category comprises for-profit tourism-related businesses including transportation, hospitality, catering, entertainment and other service providers. The third category involves non-profit and non-government organisations (NGOs) with interests in tourism-related development and its impact on the national and sub-national levels. The fourth category involves citizens or residents living in the country or territory under the jurisdiction of the public authority. The fifth category includes civil servants and other employees of

the public authority. The sixth and last category involves non-residents in a given country or territory, particularly national or international travellers.

The stakeholder analysis covers six types of interactions between the stakeholders, particularly the interactions originated by the public authority and targeting other stakeholder groups, including the public authority itself. These interactions are: government-to-government (G2G), government-to-business (G2B), government-to-non-profit (G2N), government-to-citizen (G2C), government-to-visitor (G2V) and government-to-employee (G2E). The interactions are summarized in Table 3 and detailed in subsequent sections.

No	Interactions	Description
1	G2G	Includes interactions between two or more tourism-related public authorities operating within one or different sectors, on the same or different territorial levels, in the same country or outside the country
2	G2B	Involves interactions between public authority and transportation, hospitality, catering, entertainment and other for-profit tourism-related service providers functioning within the jurisdiction of this authority
3	G2N	Involves interactions between public authority and non-profit organizations with interests in the impact of tourism on the national or sub-national levels within the jurisdiction of this authority
4	G2C	Includes interactions between public authority and citizens or residents living in the country or territory under the jurisdiction of this authority and affected by tourism development
5	G2V	Involves relationships between public authority and individuals visiting the country or territory under its jurisdiction, particularly national and international travelers and non-residents
6	G2E	Involves relationships between the public authority and civil servants and other employees of this or other authority

Table 3. Digital government interactions in the tourism sector

The six types of interactions explained in the following sections include illustrations of digital government strategies and applications that deliver tourism-related information and services to the target stakeholder groups. The main objective is to populate the cause-effect framework depicted in Figure 1. All applications and cases referred to in this section were identified by visiting related tourism websites on 15 June 2016.

4.1. Government-to-Government Interactions

The goal of the G2G interactions is to realize collaboration between government agencies, mainly to deliver seamless, one-stop services, and to make efficient use of the whole-of-government resources. The interactions between government organizations can take place at different government levels – national, provincial or local, and between different departments and authorities. As part of collaboration, government and policy agencies share information (Estevez et al., 2011) and provide services to

each other including transactional services (Hiller and Belanger, 2001, p. 15). These transactions can include new forms of record keeping, which help governments become more interactive, or better service delivery. The interactions can happen within one country or between countries. Cases worth mentioning are the sharing of open data collected by local governments with national agencies to enhance policy-making, sharing of data between countries to support border regulation enforcement; or sharing of data on travellers at international airports to improve safety globally. All interactions that include communication and collaboration between government and other public entities can benefit from technological advancement.

Within the tourism sector, one case of technology-enabled G2G interaction is the statistical dashboard provided by the European Travel Commission, a consortium of 33 national tourism offices from Europe, available at http://www.etc-dashboard.org. This online tool provides statistics about tourism and other information relevant to monitoring tourism development across Europe and in selected source markets. The dashboard allows national and regional tourism authorities from across Europe to have an overview of the current trends on travellers' behaviour through constantly updated statistical charts, and use this data within decision-making processes to carry out accurate forecasts of the tourism demand on the national and European levels.

Another case is the G2G interactions within a Destination Management Organization (DMO), an institution that manages all stakeholders within tourism development. Digital technology can be used by the national tourism offices to provide Destination Management Systems (DMS) for the use by local tourism offices within the DMOs. Such systems provide a centralized approach to collection, provision and dissemination of tourism-related information. A concrete example is the DMS provided by the Switzerland National Tourism Board (Inversini et al., 2012).

The final case of the G2G interaction in the tourism sector is the provision of statistical informational services to the member states' tourism authorities by the United Nations World Tourism Organization, at http://www2.unwto.org/facts/eng/vision.htm.

4.2. Government-to-Business Interactions

The G2B interactions concern relationships between public authority and for-profit tourism-related businesses including transportation, hospitality, catering, entertainment and other service providers that operate within the jurisdiction of this authority. Businesses can benefit from many services offered by the public authority delivered through electronic and non-electronic means. The goal is to reduce the obstacles and increase the convenience for businesses to interact with the authority, e.g. for new company registration, for paying taxes, for becoming government service provider, etc. while providing them with immediate, authoritative information and enabling digital communication. Ultimately, the goal is to stimulate sustainable development of the tourism sector in a given territory or country.

According to Hiller and Belanger (2001, p. 14) efficiencies in technology-supported G2B interactions "can be achieved by reducing paperwork, mailings, and time delays, to name a few. Agencies could also group together (like consumer buying groups) to negotiate better prices". Important online services that are offered by public authorities

to businesses include paying taxes online; providing business-relevant information and statistics, e.g. statistics about tourism demand forecasting; and publishing government regulations through websites, mobile applications and other electronic channels. In addition, e-tendering and e-procurement are also becoming the fastest growing areas of G2B interactions as they can save time and financial resources for both actors. Another promising area for G2B interactions is related to the government's role as platform provider through which businesses and other actors can contribute to the co-creation of public services and public value (Janssen & Estevez, 2011).

Within the tourism sector, digital technology is being used by public authorities mainly to provide online information and services to tourism-related service providers, including licensing, taxation, authorization, etc. services. At the same time, public tourism authorities are offering shared e-commerce platforms, for instance for online sales of hotel rooms in the country. This is exemplified by portals run by the Switzerland National Tourism Board (http://www.myswitzerland.com) and Japan National Tourism Organization (http://www.jnto.go.jp/eng/arrange/accomodations). At the same time, public authorities are taking the responsibility of providing online education and training to businesses working in the tourism sector through Destination Management Organizations (DMOs). This includes online training on how to sell a country or region as a tourism destination (http://www.elearning4tourism.com), currently provided by more than 70 national DMOs (Kalbaska 2012). This also includes the provision of online training for hospitality businesses on how to boost accessible tourism, exemplified by the Scottish Tourism Office (http://www.visitscotland.org), or how to support sustainable tourism, exemplified by the Seychelles Tourism Board (www.sustainabletourismalliance.net).

The provision of open statistical data, mentioned under the previous category, thanks to which businesses can forecast tourism demand and plan and implement real-time tourism strategies to respond to such forecasts, should be also mentioned here.

4.3. Government-to-Non-profit Interactions

The interactions between public authorities and non-profit organizations include the provision of information, regulations and financial support to such organizations, including industry associations, social organizations, charities, political parties, etc. The interactions include also collaboration between public authorities on one side and non-profit and non-governmental organizations on the other to jointly address problems related to the impact of tourism development on countries, territories and communities.

Within the tourism domain, the role of the national science agencies, which support tourism-related research and development, should be mentioned. An example is the Swiss National Science Foundation (http://www.snf.ch) which provides research funding within the tourism domain. In addition, development agencies such as USAID (http://www.usaid.gov) are providing support to non-profits that focus on utilizing tourism-related projects in the service of development. In particular, several projects Information and Communication Technology for Development (ICT4D) project have been supported by governments in recent years in order to foster sustainable tourism (Rega & Inversini, 2016; Salomao & Cantoni, 2015), and provide new employment and social opportunities in developing and emerging regions. For instance, successful

projects were recently run in Malaysia (Gan et al., 2016) and in the slums of Brazil (Inversini et al., 2015).

4.4. Government-to-Citizen Interactions

The goal of the interaction between public authorities and citizens is to "establish or maintain a direct relationship with citizens" (Hiller and Belanger, 2001, p. 14) while offering them a variety of technology-enhanced services in an efficient and economical manner. Another goal is to strengthen the relationships between public authorities and citizens through digital technology. This type of technology-mediated or technology-enhanced relationships presents a communication link between a public authority and citizens or residents living under the jurisdiction of this authority.

G2C interactions include exchange of instant messages directly with public administrators, electronic voting, declaring taxes online, paying city utilities online, electronic signatures, change of residential address, renewal of driving licenses, etc. For example, the United States' portal on housing and community provides information and services that help citizens find and keep a home (http://www.usa.gov/housing).

In relationship to the tourism domain, governments are working on the provision of information and support to their own citizens while they are travelling abroad. For instance, the Italian Ministry of Foreign Affairs and International Cooperation provides two services for its citizens. The first service – Viaggiare Sicuri presents information on health, security and safety in tourism destinations around the world, so that Italian citizens can access relevant and trusted information before travelling abroad (http://www.viaggiaresicuri.it). The second service – Dove Siamo Nel Mondo requires citizens to inform public authorities about their travel plans before they travel to potentially risky destinations, so that concerned embassies can be more effective in assisting them in case of a crisis (http://www.dovesiamonelmondo.it). The US version of a similar service to help US citizens be informed, connected and safe while traveling abroad is the Smart Traveler Enrollment Program (https://step.state.gov/step).

Governments can also crowdsource opinions from their citizens on new tourism development ideas for cities or entire countries, as in Vancouver, Canada (http://www.vancouver.ca/green-vancouver/greenest-city-action-plan.aspx).

4.6. Government-to-Visitor Interactions

The G2V interactions capture relationships between public authorities and visitors or non-residents to the country or territory under its jurisdiction, for instance national or international visitors. G2V services include informational services that explain to visitors how to move around in a country or territory, visa application and issuing, online booking of entrance to national parks or cultural events, etc.

Technological innovations have been exploited extensively in this domain, especially through the provision of online information and digital marketing to prospective tourists. National, regional and local tourism portals are being used, along with mobile apps and online campaigns. Examples of online destination campaigns are Your

Singapore (http://www.yoursingapore.com) or Experience Catalonya in Spain (http://www.experience.catalunya.com).

Another way of using digital technology by public authorities in order to enhance the experience of visitors to the country or territory is the provision of visa information and e-visa programmes, e.g. in India (http://www.indianvisaonline.gov.in/visa/tvoa.html) or in the USA (http://www.esta.cbp.dhs.gov/esta). In the latter case, the interface is provided in 23 languages, a service that could not be easily offered at a physical border.

As part of the G2V interactions, we might include all communication activities intended at promoting the tourism reputation of a country or territory online (Go & Govers, 2009; Marchiori & Cantoni, 2012), and to obtain feedback from tourists (Hu et al., 2014). G2C interactions also include different forms of cultural e-diplomacy activities. An example is "Web Japan" (http://www.web-japan.org), a website sponsored by the Japanese Ministry of Foreign Affairs (MOFA) and operated by a Japanese NGO. The aim of the website (http://www.web-japan.org/plaza/about.html), which is available in English and partly other languages, is to promote the country across different genres including culture, sightseeing, society, history and nature.

4.5. Government-to-Employees Interactions

The interactions between public authorities and their employees through digital technology is similar to the way businesses interact with their employees. The goal is to offer a range of tools, documents and data that help employees maintain communication and coordinate work with their offices. For instance, "government agencies can use an intranet to provide information to their employees and can typically allow some online transactions with their employees if they have the proper technological architectures" (Hiller & Belanger, 2001, p. 14.). Public administrations can maintain online records of personal information of their employees or create shared platforms for internal documentation to promote paperless interactions. Travel reimbursements forms or new working regulations can also be implemented online.

The tourism sector is not an exception. Public authorities employ intranets, online communication tools, online records of personal information of the employees, and other digital instruments. Two illustrative cases can be put forward. The first involves corporate e-learning courses (Cantoni, Kalbaska, & Inversini, 2009) used by the national or local tourism authorities to provide online training and education to their employees, for example on new regulations. The second case is an online training platform offered by the Defense Language Institute Foreign Language Center in the US (http://fieldsupport.dliflc.edu). The platform was launched to prepare government officers for intercultural encounters including promoting cultural awareness, raising the understanding of people and social customs inherent to various nations, and providing language support for government employees travelling abroad.

5. Discussion

Various types of stakeholders – public authorities in the tourism and related sectors; businesses operating transportation, hospitality, catering, entertainment and other services for tourists; non-profit organizations acting on behalf of local communities

affected by tourism development; citizens; civil servants; and tourists themselves – all play a role in the tourism sector. Sometimes the interactions among the stakeholders present conflicts of interests or need to be tightly regulated to ensure fair play and protection of rights and obligations between parties. Sometimes managing the impact of tourism development on countries and communities requires policy-level decisions and coordination among the stakeholders. These constitute typical tasks for sector-specific public governance. However, such interactions and generally the performance of public governance in the tourism sector have changed considerably in recent years due to the broad adoption of digital technologies. As a result, digital government has become an important tool in the governance of the tourism sector.

Presented in the previous section, the digital government stakeholder analysis for the tourism sector may contribute to addressing the challenges identified in the introductory section. For example, while new business models facilitated by digital technologies, like "sharing economy", must be regulated, the development of such regulations requires clear identification of various stakeholders and analysis of their interactions. Blurred jurisdictional boundaries in the digital world, so convenient for tourists in planning and conducting their trips, require that the providers of tourism service ensure transparency in their operations and decision-making processes, so that public authorities can exercise their role and mandate effectively. Likewise, regulation and transparency are required to ensure that tourism businesses exercise proper care with respect to the usage of public goods and pay attention to the social, environmental and other forms of impact of tourism development. In addition, through clear governance principles, stakeholder participation and transparency, the entire tourism enterprise and its participants must ensure that the visitors' data and privacy are protected.

As shown in Section 2, current research in the area includes mostly technology-driven innovations in service delivery, such as the use of recommender systems, case-based reasoning, artificial intelligence, ontologies, and other semantic tools for enhancing the quality of public service provision. Thanks to the adoption of such technologies, the tourism sector is at the forefront of the innovation in electronic public service delivery. According to (Bertot, Estevez & Janowski, 2016), such innovations include personalized, anticipatory, context-aware and context-smart tourism services. In addition, e-strategy development for the tourism sector, impact assessment on the sector of technology initiatives, ensuring data integration and interoperability to deliver complex services, etc. all need research attention. Such problems can be framed within the contextualization stage of the digital government evolution (Janowski, 2015b).

However, the divisions among governance relationships within the tourism domain might not be sharp. For instance, the emerging concepts of Smart City or Smart Destination could be seen as a form of integration of all stakeholders involved, who collaboratively contribute to the development of Smart City initiatives guided by a common vision and operationalized through various governance mechanisms. In the last years, several proposals examined the Smart City (Nam & Pardo, 2011; Paskaleva, 2009) and Smart Destination (Boes, Buhalis, & Inversini, 2015; Wang, Li, & Li, 2013) concepts. The development of Smart Cities is consistent with the contextualization phase of the digital government evolution as such initiatives enable intelligent responses to various needs of citizens or residents to enhance their quality of life through city-level public or commercial services (Su et al., 2011). Smart Cities also

affect tourism activities. In particular, Smart Tourism Destinations are enabled by "massive tourism resource data centre, supported by Internet of Things and Cloud Computing, focused on enhancing tourism experience through intelligent identification and monitoring" (Buhalis, & Amaranggana, 2014. p. 564). The related Smart Destination Services can be used by citizens, businesses or visitors to a city or territory. Even the public authority's own employees might take part, for instance through an online carpooling service/system.

Figure 2 depicts the digital government evolution cause-effect framework, introduced in Section 3 following (Janowski, 2015b). The framework is populated with pressures on public authorities responsible for the management of the tourism sector; what digital technologies exist and how the authorities respond to such pressures using them; and how the innovations are institutionalized in the daily practice of tourism authorities and their partners. The different elements of the framework were obtained from related work on digital government and tourism (Section 2) and from the digital government stakeholder analysis for the tourism sector (Section 4).

DIGITAL TECHNOLOGIES		
Internet	Data centers	Internet of things
Intranet	Data sharing	Cloud computing
SMS	Data analytics	Case-based reasoning
Web pages	Data interoperability	Recommender systems
Web 2.0 tools	Data integration	Artificial intelligence tools
Single sign-on	Mobile apps	Geographic info. systems
Digital maps	Mobile platforms	Semantic technologies

PRESSURES ON TOURISM AUTHORITIES
Freedom of movement and safety for tourists
Privacy protection for tourism-related data
Accommodate new tourism/hospitality players
Conflict resolution and fairness for tourism stakeholders
Minimize adverse impact of tourism development
Promote local tourism-related jobs and interactions
Regulate sharing economy and other new business models

DG INSTITUTIONALIZATION
Self-governing tourism bodies
Accessible and sustainable tourism
Sustainable tourism ecosystem
Sustainable sharing economy
Smart city-enabled tourism
Smart tourism destinations
Smart destination management organizations

DIGITAL GOVERNMENT INNOVATIONS BY TOURISM AUTHORITIES		
Public internet for tourists	Participatory tourism services	Recommender systems for tourism services
National and local tourism portals	Anticipatory tourism services	Case-based reasoning for e-tourism services
Destination management systems	Co-created tourism services	e-Procurement systems
DMO website as platform	Personalized tourism services	e-Tendering systems
Local data sharing for policymaking	Context-aware tourism services	Cultural e-diplomacy campaigns
Tourism statistics dashboard	Context-smart tourism services	Online tourism campaigns
Real-time tourism strategy implementation	Accessible e-tourism services	Online citizen feedback
Data sharing for tourism	SMS-based tourism services	Citizen crowdsourcing on tourism development
Data sharing for boarder enforcement	e-Licensing for tourism	Distance working for civil servants
Tourism safety observatory	e-Visa services for tourists	Job automation tools for civil servants
Travel notification services	e-Sale of hotel rooms	Online training on destination making
Tourism demand forecasting	Community-based digital services	e-Learning courses for civil servants

Figure 2: Digital government innovation cause-effect framework (Janowski, 2015b) adapted for the tourism sector

6. Conclusions, Limitations and Future Research

While new technological developments are constantly providing new business opportunities for the tourism industry, such developments and their impact on countries and communities might create complex situations, conflicting goals and socially undesirable side effects that need to be regulated and managed. Public governance in the tourism sector includes interactions between tourism authorities and various non-state actors that take part in the tourism eco-system, as well as policy-level decisions concerning the development of the tourism sector. The governance of the tourism sector needs examination concerning the impact of digital technology, particularly on tourism authorities and their partners, i.e. digital government in the tourism sector.

This research analysed existing literature at the intersection of digital government and the tourism sector, and conducted digital government stakeholder analysis in the sector, considering six types of stakeholders and corresponding interactions between them: government-to-government, government-to-business, government-to-non-profit, government-to-citizen, government-to-visitors and government-to-employee. The interactions were illustrated with concrete cases. The related work and cases were synthesised through the digital government evolution model (Janowski, 2015b) and used to populate related digital government cause-effect framework which identified pressures on tourism authorities, how the authorities respond to such pressures by innovating their policies, processes, services and structures using existing digital technologies, and how such digital innovation are institutionalized in the daily practice of the tourism authorities and their partners over time.

The framework could raise awareness and inform decision-making concerning the development and use of digital technologies and digital innovation to carry out governance functions in the tourism sector. The framework could also help anticipate how the governance function is being transformed in the process. Decision-makers could also use the cases to identify the stakeholders involved, what services should be provided to them, and how to plan tourism-related policies and programmes.

Given the initial stages of the digital government research in the tourism sector, future research opportunities abound across several disciplines. Future research should go beyond the mapping of existing interactions, and look at how such interactions are performed, how they increase or slow down the performance of the organizations in different national and institutional contexts, and in what ways can technology enhance the performance of such organizations and the governance mechanisms that put them together. Further empirical studies may evaluate additional aspects of digital government in the tourism sector, such as security and privacy of tourism-related data, digital technology for green tourism, etc. Such research could also inform decisions by government actors responsible for tourism policy formulation and for establishing and maintaining tourism eco-systems to enable co-creation of tourism services and promote socially responsible innovation in the sector.

This research was initially published at the ENTER2016 e-Tourism conference. The paper was substantially extended in its literature review, in the contextualization and interpretation of the study, as well as in the number of the analysed cases. Furthermore,

the digital government evolution model (Janowski, 2015b) was applied as theoretical framework, with prospects for its extension to the tourism sector.

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