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Smart Tourism via Digital Governance: A case for Jeju Volcanic Island and Lava Tubes

Festus Fatai, ADEDOYIN[1*] Hyeyeong, AN[2]

1. PhD Candidate, Faculty of Management, Bournemouth University, Talbot, U.K.

2. Senior Official, Jeju Special Self-Governing Province, Jeju Island, South Korea

* Email: s5076568@bournemouth.ac.uk

Abstract

In order to establish policies that promote sustainable tourism, while selling out Korea's local culture and products, there is a need to highlight the roles played by smart city prospects and digital governance. This paper focuses on Jeju Island and draws on its rich cultural and natural heritage for policy and to understand tourism and regional value creation by the community and other stakeholders. This paper hinges on existing (OECD, 2016) framework, which considers digital governance as a co-evolutionary process that connects public governance and public sector innovation. This paper contributes to theory and practice of tourism by highlighting Jeju's efforts to place digital services at the core of government operations and tourism service delivery on the Island. The paper uses the case study research methodology to extend knowledge on strategies and frameworks of digital governance, and applies this framework to tourism strategies in Jeju Island. Since there are complexities embedded in using smart tourism as avenues for global tourism attractions in small regions, the research theoretically sheds light on existing trends in smart tourism, and then present policy directions and recommendations for each stakeholder.

Keywords: Smart Tourism, Digital Governance, Ecosystems, Jeju Island, etc

Highlights: Smart and green city prospects are channels for sustainable tourism; Public sector service provisions, if digital will make a country benefit from a successful transition to 4th industrial revolution; and Small Islands must coexist with several stakeholders to achieve smart tourism

1. Introduction

UNWTO (United Nation World Tourism Organization) forecasts that 1.8 billion international tourists arrival would be expected by 2030. Tourism industry occupies itself by 7% of world exports as well as 10% of world GDP, whereas producing 5% of world CO_2 emissions. As a result of sheer volume of tourism products, negative impacts occur especially when the amount of visitors is greater than the environment's ability to cope with the visitor volume.

'Sustainable tourism' has been introduced as one of the solutions of these problems. It highlights a holistic approach regarding all stakeholders in the field of tourism as well as considering not only present participants but also future generations of those. Despite of its significance, sustainable tourism is often considered difficult to be implemented in tourism field. It has been acknowledged that an informed participation of all relevant stakeholders is essential for sustainable tourism development (Hawkins and Cunningham, 1996). However, it has been noticed that while these stakeholders have interest in sustainable tourism, they also have different goals in terms of development (Berno and Bricker, 2001) making the process of participation and communication more difficult.

In this context, it is notable to speculate progress of smart tourism and its possible benefits for sustainable development of tourism. Smart tourism has been described as rapid application of technological, economic and social development in the field of tourism fueled by technologies that rely on sensors, big data, open data, new ways of connectivity and exchange of information (e.g. Internet of Things, RFIDs, and NFC) as well as abilities to infer and reason (Gretzel et al., 2015). Since the term is indispensable with technologies, smart tourism also has often been mentioned as a set of practical approaches such as a view seeing smart tourism as a part and a practical attempt of the smart city strategy (Guo Yang et al., 2014).

In contrast, Gretzel et al. (2015) described developmental trajectory of smart tourism from e-Tourism and mobile tourism while highlighting expandability of smart tourism. Their research also divided components of smart tourism into three categories; smart destinations, smart experience, and smart business. Moreover, recently, this multi-layered attribute of smart tourism has been reconsidered in terms of relationships among stakeholders such

as highlighting the importance of digital business ecosystem in smart tourism destination (Del Chiappa & Baggio, 2015).

Furthermore, in a similar context, the recent rapid growth of digital technologies is been noted as being a strategic driver of future change. This means that adaption of digital technologies in public service provisions, coined, as "digital governance" would birth insightful views, interpretation and implementation of smart tourism. Also, in OECD (2016) guidelines for digital governance strategies, emphasis is laid on the contributions of digital technologies as "to create open, participatory and trustworthy public sectors, to improve social inclusiveness and government accountability, and to bring together government and non-government actors and develop innovative approaches to contribute to national development and long-term sustainable growth."

In recent times, Jeju Island in South Korea shows interesting traits regarding its development of smart tourism. The island is renowned for its natural beauty and ecological significance granted by being designated by UNESCO as several internationally protected areas like Biosphere Reserve (2004), World Natural Heritage (2007), Global Geopark (2011) as well as Ramsar Wetlands (2015 etc.). Since the region suffered from adverse effects of mass tourism, smart tourism has been promoted as one of plans toward sustainable tourism by providing smart experience to foreign independent travelers (FIT) consequently replacing mass tourism travelers.

However, even before that, Jeju Island was one of promising smart cities supported by South Korea's ICTs capabilities and policies. Jeju Island declared itself as a smart tourism hub and has implemented multiple policies but there are several gaps, which need to be filled especially in creating new business ecosystem and boosting participation among stakeholders. This paper focuses on Jeju Island and draws on its rich cultural and natural heritage for policy and to understand tourism and regional value creation by the community and other stakeholders.

The paper uses the case study research methodology to extend knowledge on strategies and frameworks of digital governance, and applies this framework to tourism strategies in Jeju Island. Section 2 contains the literature review, as well as theoretical discussions regarding smart tourism and digital governance, drawing on policy frameworks and implications from previous findings. This is followed by an explanation of the methodology used in this paper, with clarity on validity and reliability of data sources as well as questions of generalization of the findings of this study. In section 4, an analysis of the case of Jeju Island is done in proper detail with adequate focus on efforts of Jeju provincial government and roles of diverse stakeholders in Jeju Island. The last section suggests policy recommendations on the basis of encouraging digital governance.

2. Literature Review

Smart city developments in South Korea are not unconnected from the central governments' national green growth initiatives. The efforts to attain green growth have been at the core of huge investments in clean energy for national development. At the centre of this national strategy also is a dedication to renewable energy and creation of smart and disruptive technologies that exhibits low carbon emissions. Furthermore, leading projects such as the new Songdo (IFEZ) International Free Economic Zone, Saemangeum, Korea's new administrative city (Sejong-si), and revival or reconstruction of eco-friendly 'old' tourists sites are based on the use of smart technologies for smart living.

Given the foregoing, in terms of the tourism sector in Korea, creating value for a number of stakeholders based on available infrastructure is yet to be developed. Hence, for tourism to be sufficiently smart and competitive, it requires a variety of sound policy network. According to Kim (2016), for Korea's tourism destinations to be competitive, a number of strategies should be put in place to connect agencies and industries. Also, these strategies should provide for interactions with the private sector. In a similar study, Koo et. al. (2013), showed that efforts by Korea's tourism organization (KTO) in recent times have been limited to social network services (SNS), use of information technology, and smart phone applications. However, there are changing trend in tourists who admire Korea, and KTO is expected to actively respond to these trends and utilize new platforms (open innovation, smart business ecosystems, and smart technologies) to make its tourism services smart enough to compete globally.

Although, no specific model exists that captures smart tourism destination competitiveness, Koo et. al. (2016) attempted to set-up a model that conceptualizes smart tourism competitiveness. Their model emphasized the comparative advantage of tourism destinations as a major feature that could enhance its competitiveness. Also, a clear distinction between competitive and comparative advantage can provide a path for the effective use of smart technologies in tourism destinations. Also, managing tourism information systems using location-based

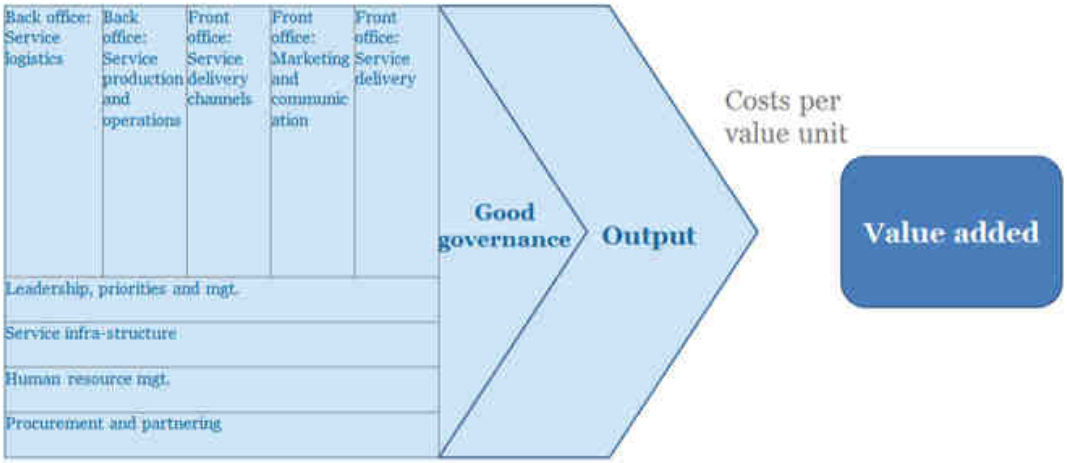
technologies and application of internet of things (IoT), could help decisions of tourists in line with understanding culture and transaction with local residents at tourism destinations (Kim H., and Kim Y., 2016).

In general, to enhance the development of smart tourism, it is important to properly embed smart technologies in smart city developments, and to speed up smart transformation of tourist sites through several innovative processes by the governments' tourism sector. The role of the government is undoubtedly salient to achieving these objectives. This therefore connects the nature of governance and its frameworks as it achieves satisfactory provision of public services. In recent past, most government service provision was digitalized in that delivery methods focused on cost reduction as well as following established processes. However, overtime, much use of digital technologies shifted focus to e-government, and then digital government in expectation of the fourth industrial revolution.

According to Hartley (2005), there is a connection between public governance and innovation in the public sector. This connection involves a transition from past centuries 'traditional' public administration to new public management and to networked governance in recent times. Networked governance is the emphasis of digital governance. It is a robust form of governance that harmonizes several systems and prevents duplication of efforts in policy making by the government. Also, in the OECD framework for digital governance, much focus is placed on the users, and their demands are captured in policy formulation, implementation and monitoring.

Digital governance does not have a one-cap-fits-all definition; yet, it is not an entirely abstract phenomenon. While the White House Office (2012) emphasizes an "information-customer-centric" and a shared platform for the American people, the UK Cabinet Office (2013), emphasizes a civil service reform plan that makes all government agencies digital by default in all spheres of service provisions. Dunleavy et. al. (2006), explained a shift from new public management to a new era of digital governance. Their conceptualization of digital governance was in three basic missions; a blend of old functions of government into new systems; focusing on needs; and continual use of digital systems in government's administrative processes. However, based on several deviations that occur in today's society, changes in the environment, in scientific inventions such as big data analytics, artificial intelligence, machine learning, open data, and threats to cyber security, all stakeholders are put to the test to adapt to these changes. Stakeholders here refer basically to the private and public sector. On the part of the public sector, therefore, efforts by the government to adapt to these changes, and to make effective policies for adaptive public service provisions are the focus of *digital governance.* Although, the public sector makes strides to respond to the global changes, it still suffers from lag due to delayed speed of adjustments. This further enlarges the divergence from what citizens and businesses expects. In connecting digital governance with smart tourism therefore, we theorize based on OECD's co-evolutionary process of digital governance and highlight that more use of digital technologies in tourism service provisions will maximise benefits to all stakeholders and this can be provided at more cost effective capacities, since most OECD countries have reasonable amount of ICT infrastructures or platforms. These platforms are basic requirements for value creation by the public sector. For example, as shown in figure 1, a simple business case that connects a variety of service delivery, from input through to output, requires clear insights. Hence, it is helpful if the government focuses on value added, while paying close attention to the input-output and costs relationships.

Figure 1: Value creation through unbundling service provision

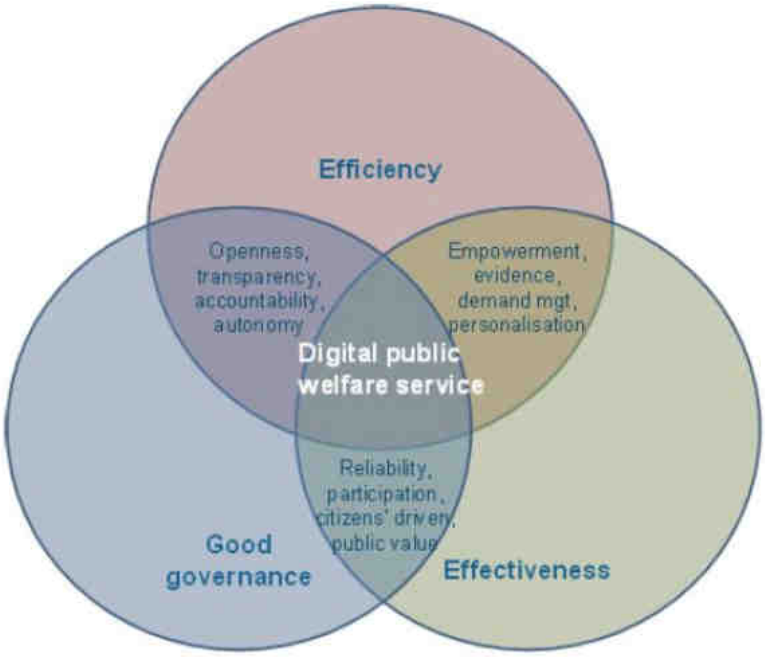


Source: OECD (2014)

In summary, the OECD (2014) framework adopted for this paper is a schedule of several recommendations on digital government strategies. The recommendation is a gradual move from past government service provision methods to a more intense use of digital technologies. The OECD framework has three strategies: "engaging citizens and open government to maintain public trust, improve governance for better collaboration and results, and strengthen capabilities to achieve return on ICT investments" (pp. 53). These strategies are adopted and applied to Korea's tourism industry.

Also, as figure 2 shows, much effort to provide digital public services will require an engagement of cloud computing, SNS, and other mobile technology to meet people's changing expectations about public services. Therefore, in line with back and front offices, leadership structure, and ICT infrastructure availability, government service provision can be potentially efficient, effective and welfare improving.

Figure 2: Service Provision with the use of digital technologies



Source: OECD (2016)

Also, according to PWC (2016), global digital government trends for service provisions revolves around "thinking digital first (UK), mobile now (USA), Omni channel (UAE), leveraging citizen data (Singapore), tracking and transparency (Denmark), Cyber security (Estonia), efficiency is key (UK)". These are advancements in digital governance efforts. In South Korea, based on its renowned ICT infrastructure, all public sector service provision is to be digitalized by 2020, as an active national policy.

3. Methodology

According to Feagin, Orum, & Sjoberg (1991), the case study methodology affords us the opportunity to view a case in-depth and have a comprehensive and holistic investigation following very robust methods. By using several sources of data, this paper uses the case study method to highlight views of major stakeholders in Jeju's tourism sector. Following case study classifications by Yin (1993) and Stake (1995), this paper uses the instrumental case study methodology to understand Jeju's tourism service provision efforts and provide a view of how it incorporates digital governance at the core of service provision. Since case study methodology differs from sampling research methods, the selection of the case is done to maximize sufficient lessons that could be drawn over a long period of time for other tourism destinations in Korea.

In using the instrumental case study methodology, we adopt a specific unit for analysis i.e. Jeju Special Self-Governing Province (JSSP). Apart from being the sole body responsible for all services rendered by the government in the island, the reason for selecting this case is because JSSP houses the fusion of digital

governance at the core of public service provision in Jeju island. The information convergence unit stipulates issues that are fundamental to tourism service provision and the development of smart tourism in Jeju. Since case study research methodology has diverse perspective in analysis, this research incorporates several actors' perspectives in order to provide a framework acceptable to all and sundry.

The case study research strategy adopted for this study does not ignore the commonly known triangulation issue that could hamper validity of the research design. Since triangulation can occur within a specific theory or framework, this study uses a variety of data sources to overcome this problem (Yin, 1984). To also cater for the problem of generalization of this study, we differentiate between analytical generalization and the popular statistical generalization of empirical findings. In this study, therefore, the OECD framework for incorporating digital governance is embedded in smart tourism efforts of Jeju island, and this serve as a template to compare future empirical connections that could be established between quality of government tourism service provision and digital governance frameworks.

In terms of data, the study uses available evidence from the case study organization (JSSP). In order to ensure construct and internal validity, the data collection design is not separated from the entire research process itself. As noted by Yin (1994), sources of gathering evidence in a research that uses the case study methodology includes, but not limited to, interviews, participatory observations, reviewing literature/documents. This paper combines review of provincial tourism related documents such as letters, memoranda, agendas, study reports with archival records including service records, survey data, etc. The evidence are corroborated and reviewed with care to mitigate incorrect data or biasness in data collection and to provide for validity of research findings based on these.

4. Analysis of Findings

This section contains an analysis of the case study evidence from data gathered. The analytical strategy or procedure aligns with the theoretical frameworks highlighted in previous sections, and follows explanation building, in the classifications of Yin (1994). Also, in order to fully develop every aspect of the paper, this study does not utilize statistical analysis, but follows a logical ordering of information and does not in any way bias the findings.

In utilizing the explanation-building analytical strategy, the Jeju case study confirms the interaction that potentially exists between smart tourism and digital governance. This connection is established through an iterative process that proposes a link amongst all stakeholders vis-à-vis Jeju residents, tourists, private sector as well as JSSP. The efforts to make this connection are done in order to provide for utilization of all evidence gathered, connect with alternative explanations as well as maximize the author's knowledge of the study.

4.1. A case for smart tourism in Jeju Island

Jeju is the largest and southernmost island isolated from the Korean peninsula, which has an area of 1,845.55 km^2 and a population of 610,000 residents. Jeju is a volcanology open-air island, where hundreds of volcanic cones offer magnificent landscapes. Its ecological significance has been granted by the fact that a large amount of area all over the region are internationally recognized as protected areas. Examples include the Biosphere Reserve (2004), World Natural Heritage (2007), Global Geopark (2011) as well as Ramsar Wetlands (2015).

Being one of the most famous tourist destinations in East Asia, Jeju Island has acutely suffered from mass-tourism and has been seeking for a solution in sustainable tourism. Tourism has been a primary industry in Jeju for long a period and recently, its growth speed has skyrocketed. In 2005, the number of visitors was 5 million and within a decade, it doubled to over 13 million. Obviously this growth has brought sharp increase of GDP, job positions and value of real estate. However, residents of Jeju are suffering from negative impacts. An increase of waste and rent, traffic congestion is also a serious problem. Mountains and coastlines are being destroyed rapidly.

As a consequence of these issues, the agenda of Jeju's tourism industry has shifted from 'how much developed' to 'how well developed'. In this context, Jeju Island has paid keen attention to *smart tourism* since it could lead to a great change from mass tourism to sustainable tourism by adjusting to the needs of more foreign independent travelers as well as fostering new industrial ecosystem in which new and creative producers can join with residents of local community.

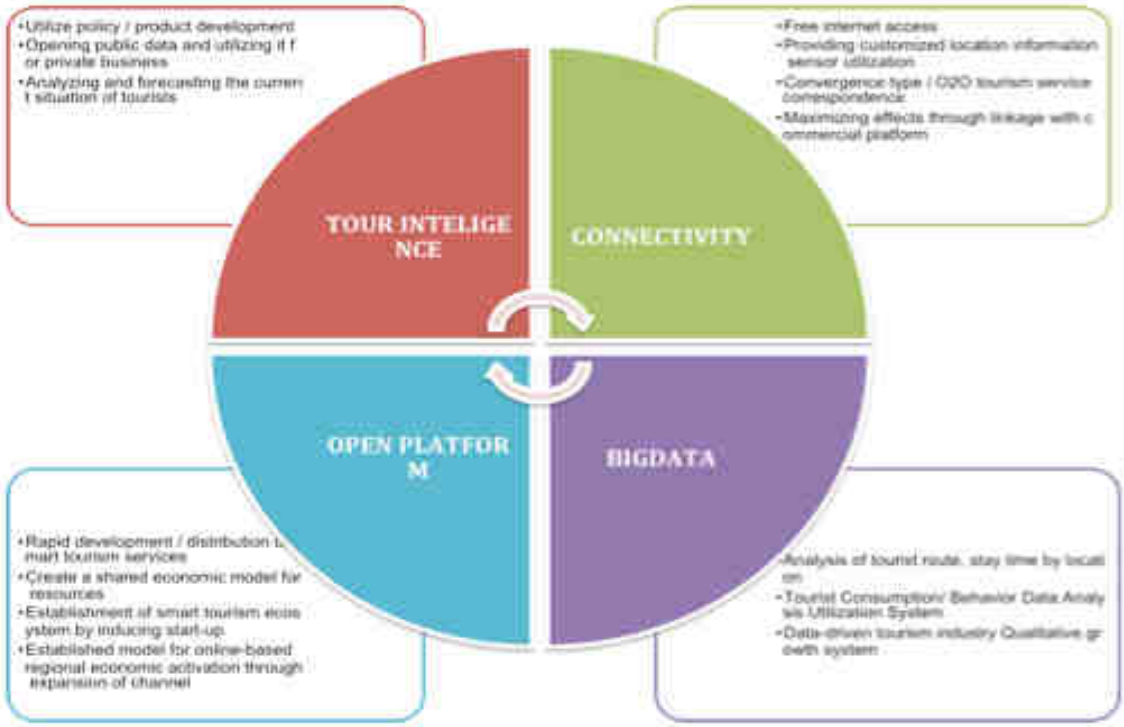
In recent times, the provincial government in Jeju is focused on boosting its value and creating its own development model by using a future vision for the island which many residents helped design and has announced in 2016. Through this process, the core values of the island have been narrowed down to two: *cleanliness* and *coexistence*. Cleanliness is to realize the virtuous circle of nature, and coexistence is to seek

happiness through harmony between humans and nature, tradition and creation, and tolerance and generosity. On the basis of this vision, Jeju Island draws its future self-portrait as a 'Carbon-Free Island by 2030' and takes a strategy of "Green Big Bang", which could make it a more competitive tourism destination.

The green big bang is a comprehensive concept that connects several policies such as 'Smart-Grid', 'Smart Tourism' with big data analysis, new and renewable energy generation combined with energy storage device, and expansion of electric cars. This leading movement has also gained national attention and has engaged Korea's central government. The government assigned "smart tourism" and "electric cars infrastructure" for Jeju Island's strategic fostering industries and introduced the case of Jeju as a future model of energy self-reliant city.

It is important to note that smart tourism is not simply an information service using smart devices. Although, recent smart technology drive has seen the use of smart devices has a foundation for industrial development, however, the approach in Jeju is expected to be the building of an 'ecosystem'. According to JSSP's chief information officer, smart tourism is conceptualized as the combination of concepts of tourism, Internet (Wi-Fi), location information (beacon), contents distribution, big data, idea, and business. As a result of this conceptualization, the island plans to approach smart tourism in three directions; by scientific policies; securing marketing channels; and fostering industry ecosystem.

Figure 3. Approach for Smart Tourism of Jeju



Source: Authors compilation

Table 1: Approach for Smart Tourism of Jeju

<table>
<tr><td colspan="4">BUSINESS
Combined business start-up / Job creation</td></tr>
<tr><td rowspan="4">ECOSYSTEM GOVERNANCE

Deregulation and Data Utilization / Ecosystem Activation Policy</td><td colspan="2">OPEN PLATFORM
An open environment for resource access and service / business development</td><td rowspan="4">PLATFORM INTERFACE
Maximizing effectiveness through linking with external platforms</td></tr>
<tr><td>CONTENTS
Location-based multilingual content, Multilingual map</td><td>BIG DATA
Big data collection / utilization system, Big data Analysis Model</td></tr>
<tr><td colspan="2">SHARING ECONOMY
Resource Sharing and Diffusion Utilization Model</td></tr>
<tr><td>CONNECTIVITY
Free internet access, Free location sensor environment</td><td>RAW DATA
Public / Private Data, Access logs, Credit card utilization data, etc.</td></tr>
</table>

Source: Authors compilation

Tourism-Promoting Efforts

As shown in table 1, Jeju Island has set up a three-year plan to promote smart tourism starting from 2016. In the first year, the government established a demonstration infrastructure as a "smart tourism experience" stage. It further designed a *beta* version of related systems and platforms, and obtains trial operation data. As a result, Jeju has installed 748 public Wi-Fi (figures 5&6) networks for everyone to use wireless Internet free of charge in the city (planning 5,000 more installing), and also built an 'open smart tourism platform[1]' with 720 beacons (in public places such as Jeju airport, Dongmun traditional market).

On the other hand, based on data from the installed Wi-Fi-such as locating travel route and stay time of domestic/international tourists, Jeju Island analyzed 'Tourism Travel Route in 2015' and it showed a huge potential for establishing effective tourism policies or developing tourist products by using Big Data. Although the private sector is thriving more in this area, Jeju Island has secured demonstration districts for its second year of operation, and have completed the construction of infrastructure for its major hubs, and set up a full version of related systems and platforms to promote smart tourism.

Also, the tourism service-providing agent of JSSP has recently established a standard model and portal for local public-private convergence data service. This has thus been designated as the big data Flagship pilot project and was budgeted for $USD1million dollar. Through this project, Jeju Island will be able to acquire mobility data such as major route and demand of tourists staying in the region. In addition, it is expected that it will help to find new entrepreneurial items in ICT and tourism industry and to create jobs in the city by analyzing and linking tourism data, location, and social network data to provide intelligent data to the private sector. In the third year, the smart tourism infrastructures would be expanded throughout Jeju and deeply connected into smart city models.

[1] Smart tourism platform: a channel that enables 'big data' such as information collected from beacons, etc., to be used for start-up or company marketing and business planning

Figure 5: Places with public Wi-Fi in 2016 on the Island

Source: JSSP (Available at www.naver.com)

Figure 6: Analysis of travel route in domestic/Chinese tourists based on Wi-Fi information

Source: JSSP (Available at www.naver.com)

Stakeholder Involvement in Smart Tourism

Currently, Jeju Island (in particular, the department of ICT fusion is in charge of tourism activities, followed by the department of tourism policy) is leading the way for smart tourism. These branches of JSSP are in charge of planning and implementing policies. Also, there are two other public organizations that work closely in cooperation with the local government so as to establish sustainable infrastructure for smart tourism.

Firstly, the Jeju Center for Creative economy and Innovation (JCCI)[2] is serving as an incubator for start-ups and

[2] There are 18 CCIs in South Korea. The purpose of CCI is that the government - local governments - supporting large corporations have a mutually exclusive system to serve as a 'creative economic advance base'. Its' main tasks

a base for new industry in the region. Especially being matched with Kakao - the famous Internet and mobile company in South Korea – and specialized in Software and Tourism, JCCI has focused on supporting start-ups or small and medium-sized enterprises in IT and CT industry.

Secondly, Jeju Tourism Organization (JTO), the marketing organization for Jeju Island, has been providing public services at the tourist requests and now extending its service to collect and share valuable data with private sector. Also, JTO acts on behalf of several enterprises and Jeju Tourism Association (JTA), which is composed of representatives from various tourism businesses, but there is not yet a particular ground for new business ecosystems. Recently, Jeju Start-up Association (JSA) has been established as a national trial version and as a pure private start-ups association at the regional level.

Recently, internal evaluations by Jeju Island show that their proceedings are over the base level or starting point. The provincial government also claims that it is the role of public agencies to help private companies develop high quality services in smart tourism and to create a virtuous cycle model that will help create tourism markets through data utilization. The government emphasizes the financial issues regarding these policies. It is therefore estimated that to further expand Wi-Fi access for tourists and other stakeholders alike would alone require an estimated amount of $USD10 million.

In other words, Jeju's government is considering multiple options for this issue including public-private partnerships, and participation issues by local enterprises. JCCI points out that it is necessary to revitalize *local-based tourism services* using the infrastructure through a service-oriented service structure called beacon in order to carry out the local-based smart data mining. The system is being built, but it is difficult to activate because the players such as restaurants and lodging are insufficient to provide active content or participation. On the other hand, JSA believes that future challenges in startup ecosystem lay on recruiting talent, funding (especially for post-incubating ones), and creating cultural environment that accept failure.

To sum up, there are several questions commonly raised among stakeholders such as: in which areas should public and private sectors focus on smart tourism? What data is needed to maximize the use of the private sector and how can it be utilized? How do the stakeholders work with any (private) platform? How do they appeal to tourists and how do companies in the region participate in this system? How much is the standardization in smart tourism (in cases of data and content formats, their distribution structure) important? Although we do not attempt to answer these questions, they are yet highly fundamental to sustainable tourism agenda of Jeju Island's provincial government, and their ability to utilize digital technologies in tourism service provision in the coming years.

4.2 Framework for infusing digital governance and smart tourism

Based on the OECD digital governance strategies and recommendations, table 2 below connects tourism value creation and service provision efforts in Jeju Island and also presents modifications to what is expected in the efforts made by the agencies responsible for these services.

Table 2: Value creation through unbundling service provision

Back office		**Front office**		
Service logistics	Service production & operations	Service delivery channels	Marketing and communication	Service delivery
Who		JTO	JTO, JTA, JSA, Other SMEs	
What / How		Providing public data to tourists Distributing collected data to private sectors		

are: fostering entrepreneurship, cooperating and innovating among small- and medium-sized enterprises, acting as a center point for localized businesses, venture start-up hub functions, and youth employment support. It was the aspiration to create a creative ecosystem, such as building and operating an idea commercialization platform, revitalizing the local creation economy, and spreading the creative economy culture.

Leadership, priorities and management	1. Leadership: top down 2. priorities: budget > participation 3. management:
Service infra-structure	
Human resource management	1. fostering potential human resource 2. connection b/t university and industry is needed 3. vocational training and education 4. Training in field will be beneficial (industrial pool is so small) *What else? Understanding of digital governance in public sector is very weak. Department of ICT fusion generally deals with technical issues without deep understanding of tourism and Department of Tourism Policy has a tendency to avoid technologic issues (actually their position in smart tourism is a bit reluctant). Series of workshop or education on public officials would be beneficial. Also the government has no experts in analyzing big data. Regarding this issue, some people suggest establishing another organization for these tasks, but it is still considered a bit excessive action.* 5. Moreover, recently the government has difficulty in securing local budget in Provincial Council. Said education would be extended in partnership with local council.
Procurement and partnering	• procurement: - Mostly budget (unlikely other parts like transportation, or environment, in the field of tourism, there are not many regulations and marketing costs of tourism are huge, so what mostly encourage enterprises is providing monetary support) • Partnering : public/private partnership is essential - Especially in securing bigdata, partnership with big companies is not be avoidable (usually telecom, financial company) - So far, KT corporation - Jeju Island partnership (2016.12.), and in several analysis projects with card companies (BC, Shinhan), Jeju Island purchased card data, analyzing and consulting services from those companies. KT will invest W14.3bn over five years to provide network services based on Giga infrastructure such as Giga Wi-Fi, Giga Internet, and Giga Beacon. This will build 1100 Giga Wi-Fi networks that can be used by tourists at major tourist and public places for free. The group companies such as BC Card and KTH also invested KRW 8.2 billion, which will gather power from the entire KT Group. In addition, KT will build a smart tourism platform based on Geographic Information System (GIS) in cooperation with its affiliates BC Card, KTH, and KT IS.

Source: Author's compilation

What else? Privacy issue is not raised yet, but there is potential for that. This will guide all ethical consideration about the strategies adopted by the provincial government and their engagements with tourists and other stakeholders.

5. Conclusion

Engaging all stakeholders in building competitiveness in destination economies includes a range of efforts, some of which embraces access to local resources, enhanced quality of service delivery, and sustainability of favourable governance. In recent times, Korea has emphasized the need for sustainable tourism through its renowned ICT capabilities and e-government, which showcases Korea's heritage to the world. This has led to a boost of smart tourism in Korea as well as encouraging development of discussions about emergence of new stakeholders and partnerships. However, a lot is still to be done in transitioning smoothly to the fourth industrial revolution which is expected to accommodate the use of digital governance in administering government services including tourism sector activities in the country's cultural heritage attractions.

Moreover, Korea's advantage in creative smart cities, as well as emphasis on continual regional development across the country poses for quick-wins in equal engagement of all stakeholders. Also, in order to establish policies that promote sustainable tourism, while selling out Korea's local culture and products, there is a need to highlight the roles played by smart city prospects and digital governance. This paper focused on Jeju Island and drew on its rich cultural and natural heritage for policy and to understand tourism and regional value creation by the community and other stakeholders. Digital governance remains a vague concept, and this hampers its theoretical development.

However, this paper hinged on existing (OECD, 2016) framework, which considers digital governance as a co-evolutionary process that connects public governance and public sector innovation. This paper contributes to theory and practice of tourism by highlighting Jeju's efforts to place digital services at the core of government operations and tourism service delivery on the Island.

The paper used the case study research methodology to extend knowledge on strategies and frameworks of digital governance, and applies this framework to tourism strategies in Jeju Island. This is done in terms of finding new business ecosystem with limited human resources, solving privacy issues of tourists, negotiating effectively with private companies who monopolize big data, amongst others. Creating a link for 'smart tourism-governance' in small regions is potentially difficult. However, the efforts in this paper are put together for connecting digital governance frameworks and smart tourism. Since there are complexities embedded in using smart tourism as avenues for global tourism attractions in small regions, the research theoretically shared insights on existing trends in smart tourism, and then presented policy directions and recommendations for stakeholders.

Lessons for Policy

The findings of this paper raise further questions and lessons for policy makers in the tourism sector in South Korea. In order to adequately prepare for the wave of digital technologies application to various sector of the economy, due care most be taken in addressing certain problems in smart tourism in connection with digital governance. Some of these include;

Readiness

First of all, the strategies of smart tourism in Jeju are mainly concentrated in a few specific areas or technological trends like Wi-Fi, big data and public data collection. Also, without general understanding and readiness for changes, there is a chance of being left behind other smart cities which implements comprehensive approach over the whole area of city like Barcelona, London, amongst others. The question of readiness potentially hampers efficiency in service provision and value creation.

Low empowerment of private sector

It is important to ensure that among all stakeholders, residents of the region or local entrepreneurs show much interest in smart tourism and also participate to present the business local system. Although this is an early stage of smart tourism, and the government has little evidence in assuring their participation, yet, this reveals that the government should further make efforts to understand the role of local resident & businesses and find out how to empower local people. If not looked into, this issue could hinder the government's goal of good governance.

How to address these issues

This paper posits some future directions of smart tourism via digital governance in this specific case of tourism in Jeju Island

Comprehensive approach for capable and smart service provision for the tourists

- A capable and intelligent service will be provided by facilitating government-wide distribution and utilization of information and knowledge and creating new services via mobile devices and IPTV.
- To be ready to adjust by changing trends, policymakers in Jeju Island (specifically JSSP) has to keep adaptive and susceptible attitude for technological changes; it can be represented by composition of special organization/task force team.

Global network of local governments together with the international community

- It can be towards unilateral directions. Jeju Island's experience and know-how will be shared in smart tourism with the international community of local governments by promoting joint projects with international organizations and exporting digital government systems to foreign countries.
- ** the smart city agenda, "Green Big bang" has been shared many times at the global stages, it also can be encouraged to share its experiences about smart tourism
- Moreover, Jeju Island will be at the forefront of sustained efforts to make competitive and especially smart tourism destinations and share these with local tourist attractions in neighboring South-East Asian and to other developing countries by holding workshops for smart tourism experts and officials.

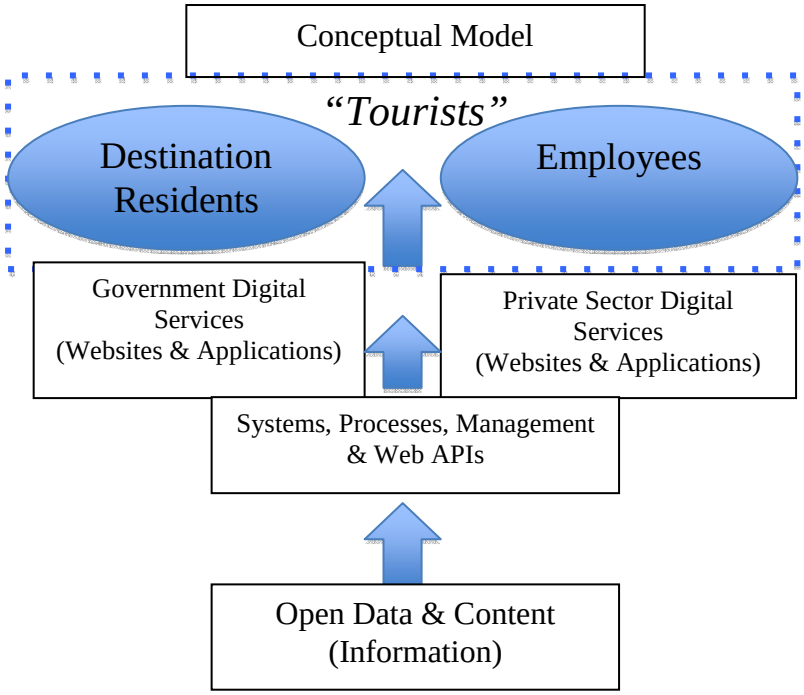
Meaningful engagement of local residents and employees for

- As shown in figure 7, transformation from the existing top-down management to bottom-up one would be beneficial for encouraging engagement of local residents and businesses.
- In order to encourage participation of local residents or businesses, Jeju Island will make spaces for public arena in which their opinions can be presented and discussed and will require for other public organizations to advocate private sector's stances against international or major platforms in negotiations.

Fostering Green Smart Tourism by utilizing green ICT

- In case of Jeju Island, from the beginning, the strategy of smart cities originates from demand for conservation of nature. Smart tourism cannot be separated from these environment-friendly aspects of city development
- These include e-Government services such as an environment monitoring system, green office, intelligent traffic system (ITS), and logistics management system using ubiquitous-IT.

Figure 7: Making efforts to connect all stakeholders



Source: Author's compilation

The combination of smart cities with sustainable tourism policies in South Korea in general can establish a

competitive regional tourists destinations and boost foreign earnings of these attractions for further sustainability.

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Vitae

Adedoyin Festus Fatai is a recipient of the Bournemouth University, 2017 PhD Studentships at the Faculty of Management. He earned a Bachelor's Degree in Economics (Nigeria) and a Masters in Development Policy [South Korea] with concentration on Sustainable Development. Till date, he has continually improved on Mathematical Economics, Research Methods, Quantitative Methods, Econometrics, and Impact Evaluation Methods. Such skills and capabilities are necessary for a Ph.D. degree in Economics, and to engage in joint research with fellow academic. He has authored and co-authored a number of articles in reputable journals.

Hyeyeong AN is a public official of Jeju Special Self-Governing Province and currently in a 2017 master's course in Development Policy with concentration on Sustainable Development at the Korean Development Institute School, South Korea. She earned a Bachelor's Degree in Nursing and English Language and Literature. In her career path, she has served for 13 years for Jeju Island and especially dealt with various stakeholders or partners in development of regional tourism industry and the environment. Recently she has been in joint project of Jeju Island with international partners such as UNESCO, IUCN, as a liaison officer and participated in compiling several work manuals in the field of conservation of internationally protected areas.