Experiencing Smart Tourism Destinations in Madrid: primary and secondary drivers

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Abstract
This paper takes into account a new paradigm for destination management based on the concept of "Smart Tourism Destination" (STD). Indeed, managing destinations is a crucial part of controlling the economic, social and environmental impacts of tourism-related activities. In this sense, a deeper approach for STD is proposed in this research, based on the management of four pillars (i.e. technology, innovation, accessibility and sustainability) to achieve efficiency and enable guests enjoy enhanced comfort and convenience. In this context, STDs seem to rise in popularity for being the trend of the future by local authorities, service companies and travelers. Thus, STDs are analyzed from the scope of some experts and Madrid visitor's perspective for showing their benefits and drawbacks by implementing this tourism model. In particular, two protocol interviews with experts and a face-to-face survey were conducted in Madrid in order to investigate the main causes and effects of STDs. The findings of the papers state that technology is a driver to enhance the experience of visiting Madrid as STD and this technology increases the environmental awareness of visitors. These findings have been treated with content analysis and statistical procedures based on univariate, bivariate and multivariate techniques.

1 INTRODUCTION

A bit more than twenty years ago, the appearance of e-commerce thought the Internet as a new phenomenon had changed the tourism industry and particularly travel agencies business. During these last two decades Internet and other smart technologies have changed not only the way how we conduct different kind of businesses all around the word and communication between humans but also how we perceive and have experiences during our trips. In this sense, more and more, bigger or smaller cities, towns and villages which are receiving national and international tourists are thinking how to improve tourists' experiences thought the smart technologies. Hence, there have appeared new concepts and definitions such as Smart Tourism Destinations which help managers/city counselors/ policy makers to develop different strategies and models for improving tourists' experiences. Although, nowadays there is a tendency all over the world that tourists drive or force to implement new smart technologies in tourism destination management. Therefore, this article studies tourists' experiences in a capital of Spain, Madrid, from the technological point of view. In this manner, the authors have elaborated some hypotheses, which are the following:

- *H1: The experience of visiting a Smart Tourism Destination, such as Madrid, is influenced by the innovation bound to technology.*
- *H2: The experience of visiting a Smart Tourism Destination, such as Madrid, is influenced by the technology as a driver of transport/mobility.*
- *H3: The experience of visiting a Smart Tourism Destination, such as Madrid, is influenced by the technology as a driver of urban planning.*
- *H4: The experience of visiting a Smart Tourism Destination, such as Madrid, is influenced by the technology as a driver of social cohesion.*

2 LITERATURE REVIEW

2.1 Primary drivers

In the following paragraphs there will be explained the main drivers of the development of STDs since these four pillars (Technology, Innovation, Accessibility and Sustainability) are in which our case study of Spain's capital are going to be based on.

2.1.1 Information and Communication Technology (ICT) and Digital Marketing

The rapid development in the technologies has shift the main core of the tourism sector, from a business' offer controlled by industry, to the new paradigm, in which the users are in control on the offer. Already in 2005 a research made by Prof. Buhalis and Prof. O'Connor (2005) stated that "the ICT driven re-engineering has gradually generated a new paradigm-shift, altering the industry structure and developing a whole range of opportunities and threats. ICTs empowers consumers to identify, customize and purchase tourism products and supports the globalization of the industry by providing tools for developing, managing and distributing offerings worldwide. ICT make cities more accessible and enjoyable for both residents and visitors through interactive service

interconnecting all local organizations to provide real time services and use data centrally for better coordination".

Since this study is focused on Madrid (Spain), it is remarkable to find out how the Spaniards are reacting to these new developments in the technological field. As of the first trimester of 2015 the Encuesta sobre el uso de Tecnologías de la Información y las Comunicaciones (TIC) y del comercio electrónico en las empresas (authors translation in English: Survey about the use of ICT and the e commerce of business) (INE, 2015), reported that 98,4% of the Spanish companies with 10 or more employees have Internet connection, and 80,7% of these small-size companies have mobile bandwidth, as for the mid-size companies (between 11 and 249 employees) 89.4% have web-page website while meanwhile the companies that have more than 250 employees 95.3% have web-page. Spain's inhabitants are embracing technology, with a 64.3% of people (between 16 to 74 years old) that use internet on a daily basis; there have been a significant increase of 4.3% from the 2014 (74.4%) to 2015(78.7%). Also statistical data shows that in 2015 in the last trimester one out of three Spaniards had done an online purchase (INE, 2015).

Customer relationship management

Customer Relationship Management (CRM) is defined as the collection and analysis of information designed for sales and marketing decision support to understand and support existing and potential customer needs. It includes account management, catalogue and order entry, payment processing, credits and adjustments, and other functions. The CRM system definition comprises a set of software applications that help an organization to establish the preferences or needs of the customers by managing, tracking and organizing all consumer integrations. CRM systems allow users to document everything, from simple contact information to specific conversations with customers. So, some of the benefits of having CRM are tracking customer habits as well as industry trends, provide instant metrics or creating a more personalized customer experience in essence. (Laudon and Laudon, 2016: 393-397).

Big data

The widely quoted Big Data study in 2011 by McKinsey highlighted definitional challenge. At this moment Big Data is defined as "datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyze" (Laudon and Laudon, 2016:262). However, there is still not a rigorous definition of Big Data.

Open data

The Open Knowledge Definition (The Open Definition, 2016) says that "a piece of content or data is "open" if you are free to use, reuse, and redistribute it — subject only, at most, to the requirement to attribute and share-alike." The main goal of open data is to "be more transparent and give consumers more control" of the data that is collected and shared. Providing a mechanism in which consumers can decide what information can be made available to advertisers is a laudable goal. Rather, open data means that whatever data is released is done so in a specific way to allow the public to access it without having to pay fees or be unfairly restricted in its use (The Open Definition, 2016).

Wifi and wimax

In addition to mobile networks, WLANs (or Wireless Local Area Networks) let users connect their devices to Internet through a Wireless Radio Connection (WiFi). In fact, WiFi connectivity is widely used in hotels, airports, of restaurants, allowing people to connect to the Internet. However, as WiFi does not offer omnipresent coverage like mobile networks do, the next step is WiMAX. It is defined as Worldwide Interoperability for Microwave Access. WiMax provides wireless data over long distances as well as respects the interoperability using the IEEE 802.16 standard. WiMax is expected to offer

the highest coverage possible, up to 30 miles (48 kilometers). The impact on users will mean they will not have to pay expensive data roaming charges in the destination. WiMax will have a huge impact in rural areas in which wired infrastructure is not very developed due to economic reasons. This situation narrows the digital divide, making the transition to a new stage or era of information easier (Intel, 2017).

Internet of Things (IoT)

IoT is the network of physical objects that contain embedded technology to communicate and sense or interact with their internal states or the external environment. The IoT links smart objects to the Internet. Cisco estimates the IoT will consist of 50 billion devices connected to the Internet by 2020. Gain deeper insight with analytics using our IoT System to enhance productivity, create new business models, and generate new revenue streams (Chui, Löffler and Roberts, 2010).

The phrase "Internet of Things" is widely credited to Kevin Ashton. Ashton (2009) indicated that he coined the term in 1999 while he was working at Procter & Gamble, but it didn't take off until 2009 with an article in RFID Journal. At a very basic level, "Internet of Things" means devices that can sense aspects of the real world — like temperature, lighting, the presence or absence of people or objects, etc. — and report that real-world data, or act on it. Instead of most data on the Internet being produced and consumed by people (text, audio, video), more and more information would be produced and consumed by machines, communicating between themselves to (hopefully) improve the quality of our lives.

Apps

There are some apps categories that have reached the first places on most popular app store categories. On the first place, we see the Games Category, with almost 33% of the total, being followed by Business Category, with a distant 10.31%, widely distanced with respect to Games. The next position belongs to the Category of Education, followed by Lifestyle and Entertainment (reaching 9.265, 8.72% and 6.35% each). Travel and Utilities occupy the next positions in the graph, having 4.15% and 5.01% each. In the case of Spain, and having figures up to 2015, it was found that Facebook accounted for 20% of all mobile apps traffic. The following most downloaded app was Instagram, with a 13%, followed by the Android Browser, with an 11% of market share. The following most downloaded apps were Chrome and YouTube, with a 10% traffic share. The 36% that left is shared between many different apps, such as Instant Buttons, DogFight, LetsBonus or Memedroid, among many others (Statista, 2016).

Near Field Communication (NFC)

For many years, pervasive computing research has explored the potential benefits of creating a connection between the virtual world of the Internet, and the physical world we live in. NFC standard might, at last, be the technology that makes this vision-sometimes referred to as the Internet of things-a ubiquitous reality. NFC technology enables simple and safe interactions between electronic devices, allowing consumers to perform contactless transactions, connect electronic devices or access to digital content with a single touch. NFC complements many popular consumer level wireless technologies, by using the key elements in existing standards for contactless card technology (ISO/IEC 14443 A&B and JIS-X 6319-4 protocols) (Want, 2011).

Another feature of NFC is that is compatible with already existing contactless card infrastructures so it enables the consumer to use one device across different systems (NFC, 2017).

Looking at the current trends, NFC chips could be used to replace every library card, shopper loyalty cards, business cards or even credit cards. All removed from the custumer pocket and transmitted via NFC technology (NFC, 2017).

Augmented/immersive reality

Until recently, Virtual Reality (VR) technologies were one of the most outstanding technologies. The basic idea was the total immersion of the user in a virtual world generated by a computer. Although this concept is currently one of the most popular with multiple application domains, the main disadvantage of VR is that there is no relationship between the user and the real world. Therefore, Augmented Reality technologies are becoming increasingly popular, not only among the scientific community but also for the general public and especially in tourism sector. Augmented Reality enhances the world instead of replacing it. The future use of this technology with respect to tourism could be visiting a remote place a given person wants to travel to. With this technology, the unique sensation and experience of the trip, without words to read, just looking at the video, would put brochures into serious risk. Some say that a picture is worth a thousand words (Augmented reality, 2017).

Gamification

The newly arising concept is rapidly developing in the market, especially in the segments were the competition is so intense that companies need different ways to engage the customer. Many agencies have started implementing Gamification into their services and marketing strategies with the purpose of promoting and innovating their products in a fun and playful way. The travel and tourism industry embraces the idea of engaging the customer through gaming, striving for innovation and the development of a variety of skills. According to the PhD researcher of the Bournemouth University Jessika Weber (2015) many gamification practices have already pioneered the market and have an extremely positive influence on the customers. Location Based Games (games that take the visitor on individual and interactive walks through the place he's visiting), Gamified Tour Guides the customer checks at a specific place and receives awards), Gaming in Theme Parks (Augmented Reality for visitor guidance) and Gaming in Cultural Heritage (linking an ordinary exhibition with interactive gameplay) are one of the many examples of how gaming can be implemented into non-gaming context in order to achieve a whole new level of engaging the customer.

2.1.2 Innovation

Innovation is vital and a basic pillar when developing a smart tourism destination. But it must be clarified that innovation does not relate just with technology. It is also the persistent pursuit of efficiency, competitiveness and profitability. Innovation is something that must be in the basic structure of any organization. A research about Innovation made by ESADE (2015) reported that hotels and restaurants were the subsectors that considered the innovation as an indispensable turning point to overcome the recession. As for last year the optimization of human resources had made possible that there were less cutbacks, externalizations of services, the companies of the industry have search major flexibility inside the organizations and a great amount of companies are focus on talent management. On the other hand despite these measures the Spanish tourism enterprises reduced costs in 2015. Also in the same year Spain was considered by the World Economic Forum (Travel & Tourism Competitiveness (TTCIs)) (2015) as the top one the most competitive in tourism industry. The TTCI measures "the set of factors and policies

that enable the sustainable development of the Travel & Tourism (T&T) sector, which in turn, contributes to the development and competitiveness of a country."

2.1.3 Accessibility

In 1948 the United Nations proclaimed and adopted the Universal Declaration of Human Rights in which its Article 27 affirms that:

> "27.1 Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.
>
> 27.2 Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author" (UN, 2017).

In 1999 the UNWTO (1999) established the Global Code of Ethics for Tourism (GCET) that aims "to promote responsible, sustainable and universally accessible tourism in the framework of the right of all persons to use their free time for leisure pursuits or travel with respect for the choices of society of all peoples". In the Article 7 of the same paper, it is established the Right to tourism that installs the following:

> "1. The prospect of direct and personal access to the discovery and enjoyment of the planet's resources constitutes a right equally open to all the world's inhabitants; the increasingly extensive participation in national and international tourism should be regarded as one of the best possible expressions of the sustained growth of free time, and obstacles should not be placed in its way;
>
> […] 4. Family, youth, student and senior tourism and tourism for people with disabilities, should be encouraged and facilitated."

Therefore, Smart Tourism Destinations must face and overcome all scenarios that produce the highest level of accessibility for all potential visitors by making an effort of eliminating the different barriers in terms of mobility, facilitating the access to multiple cultural offers. Physical accessibility is not just basic in the perception of the quality of a given destination, but a business opportunity as well. Accessibility is the answer to the free access to goods and services, and enhances the image of the destination in a positive manner, because the destination is considered as socially responsible. With respect to digital accessibility, a Smart Tourism Destination must promote adaptation of their digital material as well as the respective International Protocols (UNWTO, 2016).

2.1.4. Sustainability

Tourism is one of the fastest growing industries in the world, with an increase from 25.3 million international tourist arrivals in 1960 to 982 million in 2008, and an estimated number of 1.6 billion people by 2020. Taking into account the rapid development of the industry, together with the benefits and the revitalization of the local economies also come a variety of problems such as social dislocation, loss of cultural heritage, economic dependence and ecological degradation. This is why sustainability is one of the most important factors that should be taken into account regarding the industry (UNESCO, 2010). According to UNESCO (2010) sustainable tourism defines as "tourism that respects both local people and the traveler, cultural heritage and the environment".

Another definition that dives into the depth of sustainable tourism is, according to the World Tourism Organization, is "Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities". This means that society should take care and make optimal use of the environmental resources, maintain essential ecological processes, conserve the cultural heritage and traditional values, as well as ensure viable and long-term economic operations for the stakeholders. Alongside the goals for sustainable development, it is really important to strive for innovation, ensure the satisfaction of tourists and provide them with an unforgettable experience while taking care of the environment. One of the long-term objectives is to raise awareness among the tourists and implement a variety of practices to make them contribute to the society and the nature that surrounds them.

2.2 Secondary Drivers

Having previously talked about the Primary Drivers, which are the basic four pillars: Technology, Innovation, Accessibility and Sustainability, it is also important to take into account other or secondary drivers such as Public Management, Economy in general, Urban Planning, International Outreach, the Social Cohesion, or the Transport and Mobility, among others.

2.2.1. Government and Public Management

Article 6 of the Spanish Tourism State Secretary (Royal Decreed 425/2013, 2013) has taken some actions to define, develop, cooperation and execution of the tourist policies of the State, such as the cooperation with other ministerial departments, as well as the Autonomous Communities as well as with the private agents, to elaborate the necessary bases and the tourism policy. The exercise of the international tourism relations of the General Administration of the Estate, both bilateral as well as multilateral in terms of international cooperation, everything working together with the Ministry of Foreign Affairs. TURESPAÑA (Spanish Tourism Institute) is now part of the Ministry of Energy, Tourism and Industry. The development of programs that stimulate innovation, sustainability and competitiveness of tourism products as create value in order to slow down the seasonality of the offer.

2.2.2. Economy

Tourism is one of the most important industries in Spain. In fact, it represents an estimated 4.2% of the total GDP (Gross Domestic Product) in September, 2017. The consequences in terms of employment according to Exceltur (2017) states that 1 out of seven employees belong to the tourism sector, having 1.4 million employees affiliated to the Social Security. However, figures do not look so bright in the forecast for the rest of the year 2017 due to political uncertainty in Catalonia.

2.2.3. Urban Planning

Madrid is undergoing powerful urban changes. These changes affect both territorial but more importantly, social changes. Having this in mind, different social groups have understood the changes implemented by the local administrations as posing a

danger to urban segregation in the city. Over the last few years the evolution of the mobilization has favored a process of convergence with other social organizations and, finally, they have developed a criticism of the overall transformation of Madrid, seen as excessively oriented towards middle class consumption and the city's tourism industry. The most outstanding neighborhood that nowadays is considered as a Smart Neighborhood is Las Rozas.

2.2.4. International Outreach

Internationally Spain is perceived as a typical sun and beach country thanks to its adequate weather conditions for this kind of tourism and long Mediterranean coastline and Balearic and Canary Islands with nice beaches and adequately developed infrastructure. Therefore, during the last two decades the Spanish tourism policies aim to encourage other kind of tourism. However, Spain has a wide variety of destinations rather than sun and beach tourism. This is the case of cities and locations of the interior of the country and far away from the coastal zone. Places that deserve to be visited and need a bit more support of the local government in order to maximize their rich cultural, natural, gastronomic and linguistic potential for international visitors.

2.2.5. Social Cohesion and Human Capital

It is very important to integrate both Social Cohesion and Human Capital in the processes of change. The world is very different with respect to thirty, forty, fifty years ago. Many social changes have happened since then in Spain, from the change of the political system to the "welfare" state (reached over the 60's and 70's decades). The rise of the economic globalization, the rise of individualism, as well as the increase of immigrants coming from less developed countries converge in the question of "Social Cohesion". Plus, it is very important to take into account the different religious beliefs of the different people living in Spain. In addition to that, include social groups that may suffer from rejection such as the LGBT community. The achievement of this goal will unify people as well as create "Social glue" that may polish, little by little, the differences among humans. Social trust is dependent, naturally, on the political actions in order to build a society.

2.2.6. Transport and Mobility

Nowadays more than half (54%) of population lives in urban areas rather than rural ones, and this tendency is growing year after year. Studies done by UNESCO (2014) state that by the year 2050 66% of the globe population will live in urban areas. Being cities complex systems, having enormous amounts of interconnected citizens, transport modes, businesses, service, etc. This increase in the urban population needs a shift in mobility patterns. The biggest challenge is to increase mobility and at the same time, reduce congestion, accidents and pollution. Therefore, the writer Philip Ball (2017:11) affirms that cities depend on economies of scale: the bigger they are, the less they require per capita in terms of infrastructure and energy use, the more average earnings increase, and the more they become innovation machines.

3. METHODOLOGY

In order to confirm previously created and presented hypothesis for this research project, authors of this article have applied mixed scientific methodology: as a qualitative technique a protocol interview and as quantitative technique a face-to-face survey.

3.1 Protocol interview technique

Protocol interview is a qualitative technique that includes intensive individual interviews within a small group of respondents to explore their points of view and ideas about a certain issue, situation or subject (Boyce and Neale, 2006: 78). Both authors also state that protocol interviews are appropriate in a situation when researchers want to collect detailed information about views, opinions and thoughts. They are based on comparisons as researchers raise the same questions to the interviewees. This has been carried out in the interviews of the research to disclose common denominators. On the other hand, McNamara (2009) defines protocol interview as a structured interview made to highlight the understanding of an interviewee, asking open-ended questions where a person is free to share his point of view.

3.1.1. Design of the protocol interviews applied for this research project

For this investigation project there were carried out two protocol interviews for better understanding on sustainability management and smart hotels issues. Thus, these interviews have been conducted with one Operation Manager of SEGITTUR (Sociedad Estatal para la Gestión de la Innovación y las Tecnologías Turísticas, attached to the Spanish Ministry of Industry, Energy and Tourism and reporting to the National Department of Tourism) and one Professor of Environmental Marketing and Sustainability at Rey Juan Carlos University, Madrid.

The first interview was carried out on February 25, 2016 and the second interview took place on February 29, 2016. The average duration of the both interviews was around 35 minutes each. The structure of both interviews has been based on the same set of questions in order to make comparisons according to protocol interviews theory. The design of the protocol interviews has mainly aimed to gather exploratory and formative information about sustainability, smart hotels and the application of technology for improving efficiency. This information has been analyzed through the qualitative software programme ATLAS.ti in order to identify main keywords (concepts linked with the literature review of this paper), indigenous words (new-brand concepts) and repetition words (the importance of the main concepts). The technical data of the interview technique is presented in table 1.

3.2. Face-to-face survey technique

With regards to the quantitative technique for data collection and analysis, a face-to-face survey is a hybrid field made up of statistics and social sciences. Indeed this technique studies the sampling of individuals from a population and data collection techniques (Groves et al, 2009: 15-17). Face-to-face surveys involve the systematic collection of data and at the very heart of surveys lay the importance of standardization. Precise samples are selected for surveying, and attempts are made to standardize and eliminate errors from survey data gathering tools (Gray, 2011: 219). Professor Stokes

(2011: 123) states that the purpose of using a survey is often to catch a range of facts or attitudes or information behaviors. Also according to Lavrakas (2008), face-to-face survey is probably the oldest and the most popular form of survey data collection. He states that it is efficient while we want to minimize nonresponse and maximize the quality of data collected.

In particular, a survey technique has been used for this research project: a face-to-face survey was conducted with respondents at the exits of the Prado Museum and the Reina Sofia Museum (main museum complexes in Madrid) on the random basis. Prior to that, the questionnaire used for this survey was filtered by a pilot test.

3.2.1. Design of the face-to-face survey applied for this research

In order to confirm the hypothesis seen at beginning of this article, a survey technique has been undertaken at different hotspot tourist attractions in Madrid. The applied questionnaire has been structured in 6 blocks in order to gather information/attitudes/opinions on Smart Tourism Destination, and the blocks are the following:
Block 1: Socio-demographic profile of the customers.
Block 2: Technology.
Block 3: Innovation.
Block 4: Accessibility.
Block 5: Sustainability.
Block 6: Secondary drivers.
The questionnaire was prepared in two languages: in Spanish and English); it has been pre-tested and polished accordingly before the final fieldwork where the Cronbach Alpha test presented 0.793. It took over 9 minutes to complete one questionnaire and with a refusal rate of 27.70% (there have been approached 101 subjects and 28 have rejected to participate in the survey technique). The non-response rate (unanswered questions) is very low with less than 3.9% missing data out 1679 total responses. For measuring the variables of the questions, some five-point Likert-type scales were applied to determine the sensibilities of these variables. The advantages of a five-point or a four-point Likert-type scale continue to be discussed; with some researchers believing that the answers from a four-point scale do not really follow a normal distribution (is skewed too much on one side).

Questionnaires have been handed out whenever possible over different days and periods of time to ensure that all customer groups are sampled. In particular, the questionnaires were carried out from Friday February 24, 2016 to Sunday March 2, 2016 (both dates included). The selected timetable corresponded from 09:00 to 14:00. A mixture of weekends and weekdays has been therefore included in the sample; there were sufficient midweek visitors to provide reasonable returns. Regarding the place, the poll-takers carried out the questionnaires at the exit of the museums where apparently the visitors have more time to complete them.

The total visitors' population consisted of all visitors staying in hotels in Madrid and who are 18 years old or older. The authors have taken a sample of 73 respondents. The way in which this has been achieved was as follows: the survey technique was conducted at the exit of the Prado Museum and the Reina Sofia Museum in Madrid (36 questionnaires at the Prado Museum and 37 at the Reina Sofia Museum) (stratified sampling). Therefore, tourists have been selected on a simple random basis- by approaching every third visitor who leaves the museum. This technique provided a simple

random sampling (probability sampling) of the respondents with a Confidence Level of 95% and a sampling error (with assumption of most conservative scenario p=q=0.5) of 11.3%.

Finally, the obtained primary data have been analyzed with the Statistical Package for Social Sciences (IBM SPSS, V.20) for univariate (frequency, mean and standard deviation), bivariate analysis (Crosstabs and Pearson correlation) and multivariate. The summarizing technical data of the survey you can see in table 1.

Table 1 - Technical data of the protocol interview and face-to-face survey

Technical features	Protocol interview	Face-to-face survey
Participants	- Operation Manager at SEGITTUR. - University Professor of Environmental Marketing and Sustainability.	73 visitors at the exit of the Prado Museum and the Reina Sofía Museum in Madrid (Spain)
Sampling technique	Not applicable	Stratified (1st step) and simple (2nd step) random sampling
Sampling error	Not applicable	+11,3%
Confidence level	Not applicable	95% (with p=q=0,5)
Duration	Around 35 min	Around 9 min.
Dates of implementation	February 25 and 29, 2016	From Friday February 24, 2016 to Sunday March 2, 2016 (both dates included).
Analysis technique	Content analysis: -Keywords -Indigenous words -Word repetitions	Statistical procedures: -Univariate analysis (frequency, mean, standard deviation); -Bivariate analysis (Cross-tabs, Pearson correlation); -Multivariate analysis (multiple linear regression)
Software used for the analysis technique	ATLAS.ti	IBM SPSS V.20
Used language for the fieldwork	Spanish	Spanish and English

Source: Authors.

## 4. MAIN FINDINGS AND DISCUSSIONS

4.1. Analysis of the protocol interviews

According to our analysis in relation with the keywords of the two conducted interviews, importance to a Smart Tourism Destinations are concepts "cities", "citizens", "eco" and "technology". Smart Tourism Destinations apply the technology for promoting their cities and tourism products. Citizens of these smart cities or/ and locations play a crucial role in the interactions with tourists enhancing the experience. Hence, "eco" (ecological), mentioned by the experts as also very significant concept, is the most

important dimension of sustainability, highlighting the awareness on this concern for Smart Tourism Destinations. Therefore, we can observe that the concept of STD is not applying only to smart technologies but sustainability, in all its senses, plays a crucial role for managing STD

On the other hand, STD developments need to reinvent the term "privacy" as visitors don't know what happens to their data. In fact, STDs need to rethink where privacy is about in order visitors do not scare to provide information (please see figure 1).

Figure 1 - Analysis of keywords from the protocol interviews
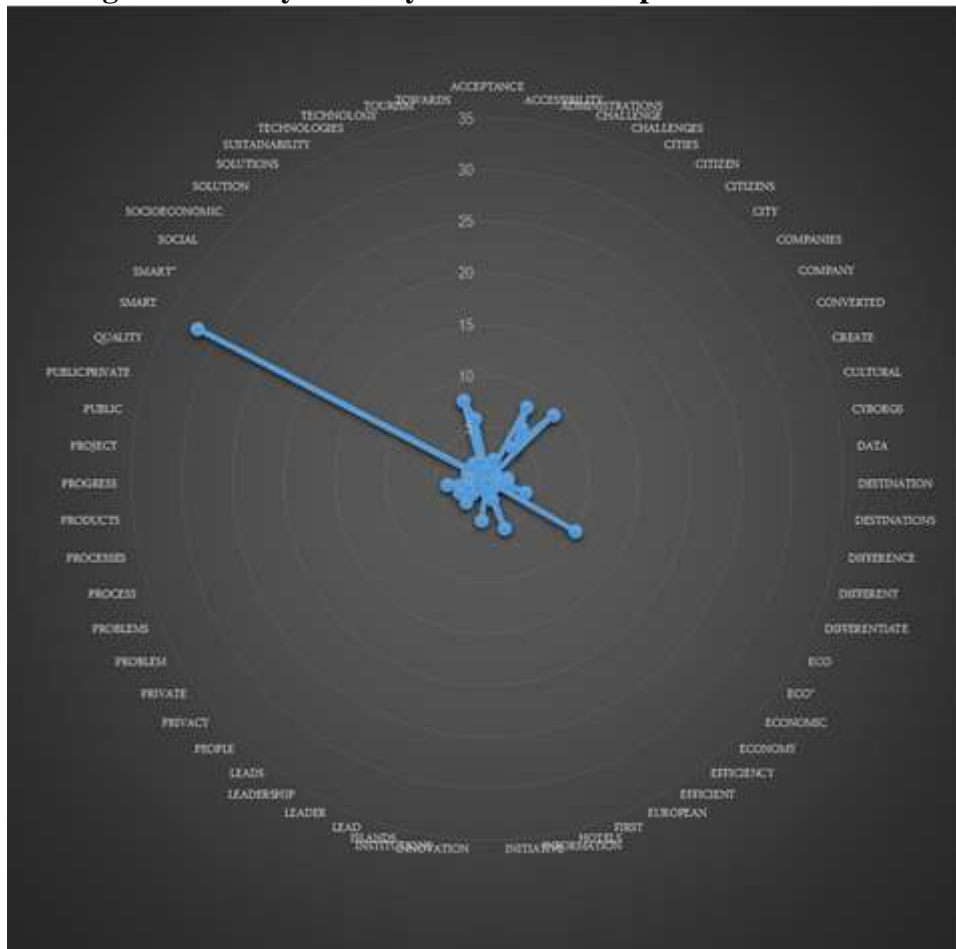
Source: Authors.

4.2. Analysis of the survey

In a multiple linear regression model, a single response measurement Y is related to at least two predictors X (covariate, regressor) for each observation. The critical assumption of the model is that the conditional mean function is linear: Based on this mean function, we can determine "if Madrid had more adapted technology as a Smart Destination, it would improve the experience of the visit" as long as it goes with (1) "technology in the destination Madrid has a positive influence towards Transport and Mobility", (2) "innovatión at a tourist information level is connected or bound just to technology", (3) "technology in the destination Madrid has a positive influence

towards Urban Planning" and (4) "technology in the destination Madrid has a positive influence towards Social Cohesion". Thus, some assumptions have been made for designing this model: linearity, independence, normality, and equal variation of the selected variables.

According to the set of tables 2, the prediction of "the experience of visiting Madrid as a Smart Destination" will be influenced just by (1) "innovation bound to technology" (with a statistical significance lower than 0.05). The "technology as a driver of transport/mobility", the "technology as a driver of urban planning" and the "technology as a driver of social cohesion" do not have any influence on this model.

Set of Tables 2 - Multivariate analysis
Model Summary
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,480[a]	,231	,185	1,013

a. Predictors: (Constant), Do you think that innovation at a tourist information level is connected or binded just to technology?, Do you think that technology in the destination Madrid has a positive influence towards Transport and Mobility, Do you think that technology in the destination Madrid has a positive influence towards Urban Planning, Do you think that technology in the destination Madrid has a positive influence towards Social Cohesion

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20,901	4	5,225	5,096	,001[b]
	Residual	69,729	68	1,025		
	Total	90,630	72			

a. Dependent Variable: Last but not least, if Madrid had more adapted technology as a Smart Destination, would it improve the experience of the visit?

b. Predictors: (Constant), Do you think that innovation at a tourist information level is connected or binded just to technology?, Do you think that technology in the destination Madrid has a positive influence towards Transport and Mobility, Do you think that technology in the destination Madrid has a positive influence towards Urban Planning, Do you think that technology in the destination Madrid has a positive influence towards Social Cohesion

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2,380	,627		3,794	,000

Do you think that technology in the destination Madrid has a positive influence towards Urban Planning	,304	,167	,250	1,827	,072
Do you think that technology in the destination Madrid has a positive influence towards Transport and Mobility	-,296	,158	-,263	-1,871	,066
Do you think that technology in the destination Madrid has a positive influence towards Social Cohesion	,198	,163	,196	1,210	,230
Do you think that innovation at a tourist information level is connected or binded just to technology?	,229	,091	,284	2,521	,014

a. Dependent Variable: Last but not least, if Madrid had more adapted technology as a Smart Destination, would it improve the experience of the visit?

Source: Authors.

4.3. Confirmation of the hypotheses

The hypotheses established at the beginning, we have tested with the analysis of statistical procedures worked out earlier in the paper. The obtained results are shown in the table 3.

Table 3 - Contrast of hypotheses

HYPOTHESIS	CONTRAST (ACCEPTED OR REJECTED)
H1: The experience of visiting a Smart Tourism Destination, such as Madrid, is influenced by the innovation bound to technology	**ACCEPTED**
H2: The experience of visiting a Smart Tourism Destination, such as Madrid, is influenced by the technology as a driver of transport/mobility	**REJECTED**
H3: The experience of visiting a Smart Tourism Destination, such as Madrid, is influenced by the technology as a driver of urban planning	**REJECTED**
H4: The experience of visiting a Smart Tourism Destination, such as Madrid, is influenced by the technology as a driver of	**REJECTED**

social cohesion	

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions of the protocol interviews

Tourists of the city of Madrid think it is important having technology as a way to enhance the experience of visiting a destination. Furthermore this technology increases the environmental awareness of visitors. Indeed, using technological devices makes easier to be eco-friendly with the destination visiting in. They can use the Wi-Fi of the hotel to look for the information of the hotel and the way they can help, like using the towels more than once, not wasting water, lighting or air conditioning/heat in their rooms, or giving some information so the hotel can help them and make their stay better.

Thus, information technology permits the tourism companies to collect big data from visitors´ touch points in order to customize tourism experience on mass scale. Besides, it allows these tourism firms to know better individual customer likes and dislikes and reduces costs for maintaining relationships with the customers for long time period.

5.2. Conclusions of the face-to-face survey

In conclusion to the survey technique applied to this research project, Smart Tourism Destinations are a new trend which is going to continue in the upcoming future. In this sense, there are already destinations which are "getting on the train" to the new digital era. The idea is to build destinations where Internet 3.0 or "Internet of Things" allows visitors to enjoy and live new experiences, offering among other custom-designed Apps, WIFI, smart rooms, etc.

The development of technology is a driver to grab interest of the visitors and enhance their experience. Therefore it is necessary to structure these contents to the type of tourist who is visiting a destination (sun and beach, business, city-break, eco-tourist, etc.). Offering new innovative and technological attractions (especially for those foreign tourists who do not usually have a 3G- 4G network) is a distinctive experience and allows a high degree of satisfaction.

Overall we can say that visitors are aware of new technological apps and find them as an important aspect in the future of destinations. Based on our multivariate analysis, "the experience of visiting Madrid as a Smart Destination" is influenced by "innovation bound to technology".

5.3. Recommendations

5.3.1 Recommendations to the Public Bodies

To talk about Smart Destinations does not refer just to one, two, three of few Smart Hotels and Restaurants in the destination, but a vast majority of them. The nature of Smart Destinations should be understood in a holistic and inte-gral way for achieving

sustainability, even complemented with "Smart Restau-rants", "Smart Tourism Attractions", "Smart Transportations", etc.

Henceforth, there should be an organization that coordinates synergies among Smart Tourism Products (unter alia, Smart Hotels) to create a real Smart Tourism Destination. In this sense, a Smart Tourism Destination is composed of differ-ent layers (hotel, city, and destination, country in general) requiring a global sustainability policy to ensure team players.

Public bodies should encourage more annual contest about feasible and real-istic projects on Smart Destinations or Smart Cities. A creative and smart think-ing includes many separated projects that results in a summation of measures that remain aligned to the sustainability aims of a destination.

More technology means more unemployment. When dealing with future tech-nology it is clear that future personnel will have to be better qualified and formed as being technically native. What happens with older employees that are not capable of assuming this technology? The technicality, artificial intelli-gence needs to be sought out to find a balance between human service and technological service. Technology should always be complementary and not substitutive. Not to forget about the true meaning of service in accordance to social, economic sustainability as well as people and human contact.

5.3.2. Recommendations to the Industry

Findings show that technology means more efficiency but not necessarily more sustainability. Technology is a driver to boost sustainability but some as-sumptions must be taken place. The idea is to achieve a "status quo" among the implementation of technological initiatives and non-technological initia-tives vis-à-vis sustainability.

A Smart Tourism Destination does not imply automatically more smart issues (in the technological sense) but more efficient services. For instance, the fact of inviting the guests to take the stairs instead of the elevator due to healthy and ecological reasons, might be grouped as a smart initiative (energy saving).

There is no difference today between the online and the offline life. Smart Tourism Destination Hotels should understand this as a concept of smartness and as a challenging future to hyper-connect with their guest or tourist in order to satisfy them in real time. We are not talking in this point about construction, rooms or buildings, but services and people and the concept of adprosumer. People have integrated their relationships off and online. Thus, they use tech-nologies, demand applications, enjoy their self-experience and finally share them with their families and friends co-creating product image and brand awareness.

In the last decade, traditional tools for sustainability management have been surpassed by the application of smart concepts. However, these traditional tools have supposed the starting point for framing sustainability in the hotels, so they must be complementary (not substitutes) with the new state-of-the-art technological projects.

In addition, we can distinguish between "ecological" and "ecological and tech-nological" initiatives for setting the standards of hotel sustainability. Both are equally important and must encompass a whole range of activities as a matter of concern for all hotel stakeholders (staff, customers and tourism local authori-ties). A balance should be fixed between technology and ecology.

The role of Smart Tourism Destinations is not based on more technology, but more efficient services without harming the whole experience of the customers. This must be accomplished by the design of efficient processes, blueprints and the implementation of

Self-Service Technologies (SST's, such as a Kiosk for proceeding with the check-in/check-out in a hotel). The support of Big Data and Internet of Things are crucial for collecting better information of customers, hence to design better and more efficient services.

5.4. Contribution to the Science

This research paper achieves understanding about Smart Tourism Destinations not only from the perspective of industry management but also from the view of customers. Its originality and value to the science is based on the lacking background in the country Spain in general, and in the city of Madrid in particular on technological- centered destinations. In this sense, this research is a modest exploratory and descriptive study of the general situation that the destinations will face in the upcoming future (even at present time).

5.5. Limitations and further research

This research has certain acknowledged limitations that should be mentioned when interpreting the findings. First, the research focused only on data from Madrid; comparisons of the findings in other Spanish destinations are clearly appropriate. Secondly, the number of variables to analyzed "Smart Tourism Destinations" in the questions of the survey was deliberately minimized to avoid respondent bias due to tiredness; further research might include additional variables to describe the full analysis of "Smart Destinations". Thirdly, the representativeness of this study is limited, due to the fact that only 73 subjects participated in the research survey; further research should enlarge the number of respondents for more analytical refinement from the tourist's perspective.

ACKNOWLEDGMENTS

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57

Experimentar los destinos turísticos inteligentes en Madrid: los conductores primarios y secundarios

Abstract

Este artículo toma en cuenta un nuevo paradigma para la gestión de destinos basado en el concepto de "Destino Turístico Inteligente" (DTI). De hecho, administrar los destinos es una parte crucial del control de los impactos económicos, sociales y ambientales de las actividades relacionadas con el turismo. En este sentido, se propone un enfoque más profundo para los DTIs en esta investigación, basada en la gestión de cuatro pilares (es decir, tecnología, innovación, accesibilidad y sostenibilidad) para lograr la eficiencia y permitir a los huéspedes disfrutar de una mayor comodidad y conveniencia. En este contexto, los DTIs parecen aumentar en popularidad por ser la tendencia del futuro de las autoridades locales, las compañías de servicios y los viajeros. Por lo tanto, los DTIs se analizan desde la perspectiva de expertos y de visitantes de Madrid para mostrar sus beneficios y desventajas mediante la implementación de este modelo de turismo. En particular, se llevaron a cabo dos entrevistas de protocolo con expertos y una encuesta a turistas cara a cara en Madrid con el fin de investigar las principales causas y efectos de los DTIs. Los hallazgos manifiestan que la tecnología es un impulsor en el fortalecimiento de la visita a Madrid como DTI, y esta tecnología incrementa la concienciación ambiental de los visitantes. Los hallazgos del trabajo han sido tratados con análisis de contenido y procedimientos estadísticos basados en técnicas univariantes, bivariantes y multivariantes.

Keywords: *Gestión de destinos. Destinos turísticos inteligentes. Impactos. Experiencia de los visitantes.*

58