# Disruptive Technologies and Hospitality Entrepreneurs Perceptions:
# Strategic Approach of a Greek Destination

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## Abstract

The rapid development of Information and Communication Technologies (ICT) and the fast flow of data, allowed tourism enterprises to significantly increase the quality of their services. The intimacy of potential visitors with new technologies makes it convenient for the policy makers to use this technology to develop tourist destinations. The definition of Smart Tourism denotes the interconnection, synchronization and sharing of different travel-related technologies. This paper aims to endeavour, through research and study, the potential of a mature destination with a strong seasonality to exploit new technologies in order to renew it and transform it into a competitive, smart destination. The study will focus on the peninsula of Kassandra, one of the leading branded destinations in Greece, a typical example of the traditional "Sun and Sea" product. An analysis will, also, be made of the available destination data that will reveal whether Kassandra can be transformed into a destination with innovative actions, where technology will bring together all aspects of cooperation between authorities, infrastructures, tourists and residents and whether or not the tourism enterprises are informed and ready to participate.

**Key words:** Entrepreneurship, Smart tourism, ICT, Accessibility, Innovation, sustainability.
**JEL Codes:** Q55, Z32, M15

## 1. Introduction

As the tourism industry worldwide is facing increasing competition, destinations research ways to improve their image and maintain their market position (Buhalis, 2000). Tourism destinations, when facing a major competitiveness problem, use product diversification in order to remain competitive. (Neuhofer, Bulhalis, & Ladkin, 2012). Today innovative approaches are necessary for the management of tourist destinations regardless of their development status. According to Buhalis and Amaranggana (2014), the business concept of Smart tourism is characterized by the interaction between stakeholders, business digitalization and agility. Innovation must occur in all aspects of destination organization and management to achieve Smart Destination development. This can include new ideas, new procedures, significantly improved services, development of new methods of marketing plans and renewed approach of stakeholder's involvement (Lopez de Avila, et al., 2015 ; Varelas & Georgitseas, 2018). In order to enable the use of ICT to understand the needs of visitors,

improve the quality of services and enhance the competitiveness of the destination, their development must be based on the knowledge of tourism and travel experts. The combination of knowledge and state-of-the-art technologies is a key aspect of providing information appropriately and potentially gaining the experience of tourists as a result of visiting a smart destination. The intangible nature of the tourism product is more easily restored by the abundance of information disseminated through all mobile devices in the hands of the visitors, while allowing the tourism operators to promote their product and interact with visitors through social networks (Lamsfus,, Martin, et al, 2015). The concept of the term - *smart* -used in tourism, is based on the intensive development of ICT, the proliferation of mobile technology and its applications. Using technology, to better understand human mobility is what makes the destination smart. Destination agencies gain insights from the information they collect and use this to empower local operators and entrepreneurs to create advanced infrastructure and services within the destination (Lamsfus, Martin, et al, 2015). Maybe the most important aspect, during the era of intense globalization, is that the tourism industry and the socio-economic development of destinations must rely solely on sustainable development, sustainable energy sources and the cultural heritage of destinations, (Magaš, Vodeb, & Zadel, 2018).

## 2. Smart Tourism Destinations- A Strategic Approach

The rapid development of Information and Communication Technologies (ICT) has resulted in changes in the way the tourism industry operates in total. Tourism market trends are changing quickly, forcing Destination Management Organizations (DMO) to modernize their product in order to remain competitive. The proliferation of ICT usage has also changed the way tourism products are demanded, with consumers playing an active role in shaping the tourist product, due to the power given to them using smart technologies. The term and meaning of the Smart Destination are still fresh but has found widespread use worldwide among the scholars (Jovicic, 2016). Four key pillars of destinations that are identified to be basic requirements for Smart destinations appears to be:

- Innovation

- Technology

- Accessibility

- Sustainability (Lopez de Avila, et al., 2015).

The role of the smart destination is to enhance the achievement of sustainable development by using available technologies. Due to the constant changes in the market, tourism stakeholders are increasingly facing the need to systematically update and monitor the process of exploiting natural resources, as well as analysing data at each management stage for more effective decision-making. A smart, or even intelligent destination, can record, categorize and analyse the incoming information collected for use in the decision-making process. The use of technologies such as Big Data, Open Data, Internet of Things and many other technologies related to data collection are essential to complete the transition of a destination to smarter, more sustainable and more competitive and to meet the expectations of both, tourists as well as stakeholders involved (UNWTO, 2017). A smart destination must be characterized by using smart technologies, so that the results of the data analysis collected can help further economic growth and enhance it in terms of environmental and cultural performance. The use of modern technologies in data collection and statistics analysis can help to understand the impact of tourism on the destination, compared to the past and indicative of the future. In addition, Smart destinations are implementing and increasing the

use of new technologies in order to improve the management of destination services in real time (UNWTO, 2017).

## 3. Disruptive technologies applied in destinations

According to De Avila, et al., 2015, "*the starting point in transition of one destination in smart, is the will, as well, as the need for change*". Choosing a strategy that can be adopted by the whole of society, the public sector and the entrepreneurs of the destination, is the first step that should be taken. At the outset, it is necessary to assess the conditions prevailing at the destination currently and then identify the needs of the destination. Finally, a strategic action plan should be created that will contain some concrete elements, such as, a segmentation of services, evaluating ICTs for their use in purpose of creating a Smart Destination and highlighting all the important elements, that Smart destination can offer. The fundamental principle for developing a Smart Destination is the use of sophisticated technologies. Their main purpose is data collection and analysis, that can provide solutions in order to improve services and infrastructures, but also, more importantly, to reassure easier access of the visitors to the destination, in order to interact with them in real time (Buhalis & Amaranggana, 2015). Currently, the key infrastructures of a successful destination management model are the linking of Information and Communication Technologies (Hardware) to the applications and programs (Software) used by operators, businessmen, residents and visitors (Lopez de Avila, et al., 2015). Both aspects of the technology are equally important for connectivity and information flow across all sides. The part that represents the equipment is necessary to access, transmit and store information, while the software component allows for connectivity and information flow between devices and users (Parabić, 2017). Due to the presence of ICT, all components of the destination have a clever insight to achieve the goal that is to make the destination more innovative, and more competitive. The information and communication Technologies (ICT) tools, mostly used, in Smart destinations are the following:

• Multi-access portals that integrate Internet access on multiple devices simultaneously, such as televisions and mobile phones.

• Wireless (Wi-Fi) points.

• Sensors located at focal points of the destination, which record all human and vehicle movements to collect information for further processing

• Advanced data processing systems, collected by the sensors of the destination, as well as processing of information collected by the inhabitants of the destination.

The development of Smart Destinations is based on a combination of sophisticated ICT systems and their tools, such as sensors that allow the collection of large volumes of information necessary to intelligently assist the essential services of the destination. The means to enable all equipment to be connected to the devices and to perform all the above actions by the users is the Internet. The widespread use of the Internet by businesses and customers has made connectivity a key tool in improving destination management and increasing competitiveness. (Lopez de Avila, et.al., 2015). There are several scholars (Giffinger, et al., 2007; Buhalis & Amaranggana, 2014; Varelas & Georgopoulos, 2017) who tried, through their research to present destinations as digital business ecosystems, looking for strategies to become Smart destinations. The most common ICTs, that are interacting with destination services are, mobile devices, Wi-Fi spots, Cloud Computing, Big Data, Internet of Things. Today's tourism reality is more competitive than in the recent past regarding the

tourist's profile and innovative network of businesses. E-business programs are very responsive to demand and those are the following:

• Business intelligence systems

• Customer Relationship Management (CRM) programs

• Business Systems - Business to Business (B2B), Business to Customer (B2C) and Central Reservation System (CRS)

• Content Management Systems for Social Media Integration, and

• Online systems for training, support, and exchange of views (Lopez de Avila, et.al., 2015).

The rapid development of ICT is responsible for the large-scale transformation of the tourism sector to date and has completely changed the way the entire tourism industry operates, including the management of the destinations. Particularly, the emphasis should be focus on the emergence of smart phones, online review sites and the great influence they have on decision-making, search engines and most of all, social media platforms. The full adoption of smart phones and social media has raised the level of demand from tourists, as well as the level of quality of services offered on destination. In the smart destination management approach, tourists are at the forefront, while destinations are adjusting to their expectations. (Femenia-Serraa, et.al., 2018; Varelas, 2016).

## 3.1 Global Case Studies

In 2012, the European Commission took the initiative to share resources and develop and integrate energy, transporting the ICTs in specific areas. Cooperation should accord between, all public and private stakeholders involved in sustainable development and technologies for the proper functioning of energy, transport, information and communications infrastructures. Also, preparing destinations to become smart destinations is a process whereby destinations are adapted to different invitations with the primary aim of reducing risk and increasing the likelihood of success. Implementation of ICTs enables the proper collection and management of data, contributing to improve the quality of life of local people at the destination, environmental protection and economic development (Gekas, 2015).

### 3.1.1 Amsterdam – Netherlands

According to Gekas (2015), one of the most successful examples is the city of Amsterdam. The city of Amsterdam is one of the first cities known for implementing innovative projects in sustainable and economic development and of those who took the initiative to combat global warming. In 2009, the Amsterdam Smart City platform was launched, connecting public organizations, private businesses, and residents in the implementation of pilot projects in the Amsterdam area. Through the platform, the city advertises its innovative policies with new financing methods and cooperative actions, and the change of mind-set in general. In the first three years of the platform's operation, its funding was 20% of public funds, 40% of private resources and 40% of European Union programs. However, the municipality's goal is to develop private funding for the public interest of the area. The results are impressive in the first three years of the program's implementation with forty-three projects, 800 new jobs were created and 71 companies participated. The city of Amsterdam is a source of inspiration for areas seeking to become Smart destinations (Gekas, 2015).

### 3.1.2 Las Palmas - Grand Canarias

The Las Palmas local government has a dedicated section of information and communications technologies that coordinates all developments in the process of converting the destination into a Smart destination. Starting point was the creation of a strategy plan

2012-2014, seeking to increase the effectiveness of the destination management in tourism development. In the following step a '*smart city plan*' was created and the basic goal was the improvement of key areas in the city's development, such as maritime tourism, services in general, mobility and the quality of life of residents, as well as tourists. Subsequently, infrastructures were set up for fibre optic network and corresponding Wi Max wireless links, and this allowed the development of a Wi Fi network with 42 free access points distributed in 20 touristic areas. In addition to the networks, they have developed several applications for smartphones, as well as open data portals, where companies and the public have access to large amounts of data. The municipality of Las Palmas is also known for its Accessibility section, which aims to ensure equal opportunities for people with disabilities in the use of public spaces and services. The Accessibility Division has been actively involved in the development of the mobile app, where visitors can find out which areas are accessible, and which are not. Innovation process of Las Palmas does not stop there; local agencies have launched a program that includes two initiatives. The first concerns an intelligent power management system for the absorption of a small wind turbine, a photovoltaic system, a solar system or a wave energy model. The second initiative is the pilot platform for wind and wave energy. This platform, in collaboration with the Canary Islands ocean platform, encourages destination management to use programs in order to develop alternative energy sources (Lopez de Avila, et.al., 2015).

### 3.1.3 Split - Croatia

The city of Split on the Dalmatian coast recently became known as a Smart City Destination. The local government has adopted a program called "*Split 2020, Smart City and Innovation*". The aim of the program was to develop, innovative infrastructure in the touristic area of the city, by 2020. So far there is an infrastructure for a smart parking solution through mobile application, where citizens and tourists can find free the nearest place to park their vehicle. Through this app the users can also report some problems they are facing in the parking lot. The application also includes geographical location that separates parking zones according to parking costs and that helps limiting the search for parking time as well as carbon dioxide emissions. The Destination Management Agency, which took over the program, continues to improve the city's nervous system infrastructure through the Big Data system in order to analyse all information which will be collected through sensors and CCTV. The plan also includes several investments that will be implemented in the future and will result in significant energy savings and non-renewable resources. These are:

• Sensors in the garbage containers in order to control the amount of waist, which will assist in planning the transportation and collection of waste as well as in saving of fuel, improving the level of cleanliness of the area.

• Installation of smart sprinklers to water the green surfaces of the destination, in order to make saving in water supply.

• Improvement of public lightening by adapting the system to control the power of lighting equipment

• Sensors that will be used in case of accidents, which contain the algorithm to call emergency numbers, in order to speed the process.

These proposals will also be part of a public tender for private operators to reduce the time taken to complete all projects in less than five years (Ministry of Environment and Energy, 2017).

## 4. The Case of a Greek Destination - A strategic analysis

Kassandra's tourism development began in the 1970s and today represents one of the most popular destinations in Greece. The proximity of the Thessaloniki airport location makes Kassandra's destination easily accessible, while the Balkan countries also find easy access by road. The tourist activity is highly seasonal since the destination is offered only for *sun and sea.* The way tourism is developed in the region has the same characteristics as most other tourist areas of Greece, the majority of enterprises are seasonal type, small or medium size, and there is no specific institutional framework for construction so the final result can be characterized as inert. The strong tourism development has also contributed to dense construction, especially in coastal areas, contributing significantly to the deterioration of the natural environment (Ministry of Environment Greece, 2014). To combat the further burden of natural beauty, the Municipality of Kassandra conducted a study of a general urban plan that defined the use of land and a building plan to ensure smooth reconstruction, consistent with the sustainable development of the site. The objectives of the project were:

• Protecting and enhancing the natural environment with an emphasis on coastal and forest land, ecosystems and the preservation of cultural wealth.

• Promote a sustainable development model

• Emphasis on rural development.

• Adopt an innovative tourism model, for sustainable tourism development and for lengthening the seasonality of tourism, and

• Renewal and improvement of city planning function

Kassandra is a mature, well-known and one of the top tourist destinations in Greece (Chalkidiki Tourism Organization, 2019), while it can be characterized as a destination offering the standard tourist product *"Sun and Sea",* in its characteristic traditional form, exclusively in the summer months. The hotel potential of Kassandra Peninsula consists of 205 units, of which 25 are luxury five-star hotels and 70 are four-star hotels. Arrivals to Kassandra in general consists 80% of foreign tourists, while overnights are 88% for foreign visitors. According to INSETE data, the Russian market dominated in these figures until 2012, with Germany coming in second place, Balkan countries occupy the third place in arrivals, while the rest of the western market, besides the U.K., is almost non-existent. Overnight stay has the same picture as arrivals with the Russian and Balkan markets dominating 80%. The average stay in the destination is also occupied by Russians and Balkans with 7.8 days of holiday duration, excluding Bulgarians, who remain at the destination for 5.9 days, while the U.K. visitors do not exceed 6 days.

The traffic is observed exclusively in the summer months. The visits regarding Russian market are recorded from May to September, while for German market is valid for the period April - October. Balkan countries have the shortest season, which is almost only for the months July and August. Bulgarian market is an exception with the traffic being higher in the months before and after high season (INSETE, 2015).

### 4.1 Research Scope

The purpose of this research is to find out whether entrepreneurs were familiar with the basic terms of the Smart Destination concept as well as their awareness of advantages that they can achieve by using the disruptive technologies  in order to preserve high competitiveness for their businesses in this specific area. The implementation of the research was mainly based on the analysis of data frequencies through a structured closed-ended questionnaire and questions based on the 5-point Likert scale. The sample of the survey is composed of 104

entrepreneurs from the Municipality of Kassandra, who received and completed the questionnaire electronically, during the period of January until March 2019. The questionnaire included a total of 35 questions consisted from 6 parts. The first part concerned the individual demographic characteristics of the sample. The rest were divided into five sections as follows: Accessibility, Technology, Innovation, Sustainable Development, and Tourism Destination Management.

## 4.2 Results of the survey

Demographic characteristics showed that: 55% of the respondents were female-57 in total and 45% male –47 total. The most frequent age group was 45-55 and the less frequent was 55 years and older. Almost 50% of respondents were University or master's degree holders and more than half 62.5% were permanent residents of the Municipality of Kassandra. Most participants were involved in business activities with highly seasonal character and only 30% were operating all year-round.

**Table 1.** Demographic details

| | Categories | N | f % |
|---|---|---|---|
| Gender | Female | 57 | 54,81 |
| | Male | 47 | 45,19 |
| Age | 45-55 | 38 | 36,54 |
| | 36-45 | 30 | 28,85 |
| | 20-35 | 23 | 22,12 |
| | 55 + | 13 | 12,50 |
| Education | University degree | 44 | 42,31 |
| | High school | 38 | 36,54 |
| | Master's degree | 18 | 17,31 |
| | Middle school | 4 | 3,85 |
| Permanent Resident of Kassandra | Yes | 65 | 62,50 |
| | No | 39 | 37,50 |
| Type of Business | Hotel | 29 | 27,88 |
| | Not exclusively touristic | 27 | 25,96 |
| | Rent a room | 18 | 17,31 |
| | Touristic merchandise | 11 | 10,58 |
| | Restaurants and Fast food | 9 | 8,65 |
| | Touristic Agency | 8 | 7,69 |
| | Camp | 3 | 2,88 |
| | Rent a Car | 3 | 2,88 |
| | Transfer Services | 1 | 0,96 |
| Business Annual Operation | 6 Months | 73 | 70,19 |
| | 12 Month | 31 | 29,81 |

### 4.2.1 Accessibility

According to the results, the respondents strongly agreed (Avg. = 3.17) that the number of tourists in the summer months exceeds the potential of the Kassandra area. Although, they also believe that accessibility is easy in their municipality and they find it quite easy to access the beaches and centres of their villages (Avg. = 3.10), but they are not satisfied with the accessibility and facilities offered for disabled people in their area (Avg. = 1.98).

### 4.2.2 Technology

Data related to technology and infrastructure of the Municipality of Kassandra showed that entrepreneurs responded positively 55.77% to easy and fast internet access at the most public areas in the Municipality of Kassandra while 44.23% had answered negatively.

Almost all respondents 93.27% are using internet to promote their business and only 6.73% state that they do not. Also, two-third of respondents 66.99% believe that there are enough online services available for tourist information, while 33.01% do not share the same opinion. Finally, slightly more than half of respondents 57.28% argue that technological infrastructures are quite developed in the area, so citizens and tourists can use offered services properly.

**Table 2.** Technology

|  | Categories | N | f % |
|---|---|---|---|
| Fast and easy internet access in Kassandra municipality | Yes | 58 | 55,77 |
|  | No | 46 | 44,23 |
| Using internet for marketing and promotion in business | Yes | 97 | 93,27 |
|  | No | 7 | 6,73 |
| Online services for tourists | Yes | 69 | 66,99 |
|  | No | 34 | 33,01 |
| Existence of technological infrastructures for proper service of citizens-tourists | Yes | 59 | 57,28 |
|  | No | 44 | 42,72 |

### 4.2.3 Innovation

Regarding the results that show innovative actions used by the Municipality of Kassandra, respondents agree that Kassandra can develop an innovative and characteristic product for the region, but contrary to their opinion, only a few innovative actions actually took place by the municipality in order to promote tourism in general. On the question to the entrepreneurs do they use innovation-renewable energy sources in their businesses, 71.84% state that they use renewable energy sources, the remaining 28.16% did not find it necessary.

**Table 3.** Innovation

|  | Categories | N | f % |
|---|---|---|---|
| Using renewable sources of energy in your Business? | Yes | 74 | 71,84 |
|  | No | 26 | 28,16 |

### 4.2.4 Sustainability

The fifth part of survey provided the respondent's perception on the elements necessary for sustainable development in the Municipality of Kassandra. Entrepreneurs strongly agree that their business do have an environmental protection, energy saving equipment or installations. They also think that only a few waste and recycling bins are in the Municipality of Kassandra, which is not enough and that the Municipality of Kassandra is taking some actions in promoting alternative forms of tourism.

## 5. Destination Management through Disruptive Technologies

The last part of survey shows the perception of respondents about actions that must be made by the Municipality of Kassandra in order to manage its tourist destination status. Respondents agree that businesses, should apply smart technologies in their business to become part of the Smart destination, they also agree that the Municipality should take into consideration the tourist comments seriously, in order to improve offered tourist services. They also declare moderately, that Kassandra has the potential to become a 12-month tourist destination, while businesses using the Airbnb rental method have a negative impact on tourism in the Municipality of Kassandra, the quality and price in the touristic services is good value for money and finally, the majority believed that there is no cooperation between the municipality and tourism companies regarding tourism management issues. Moreover, most respondents 81,37% agreed that, if adopted, destination management organization should be part of the larger region, which would include the Municipality of Kassandra and that private sector should also participate in the share capital as a full-fledged stakeholder.

**Table 4.** Management of tourist destination

|  | M.O | T.A. |
|---|---|---|
| Do you think that local and private sector should take into consideration comments made by tourists in order to improve their services? | 4,24 | 1,07 |
| How much do you believe that Kassandra has the potential to become a year-round destination? | 3,36 | 1,24 |
| Is there any negative impact on tourism in Kassandra destination caused by Airbnb rentals? | 3,31 | 1,32 |
| In your opinion, is quality of offered services for tourists in the destination, good value for money? | 2,99 | 0,88 |
| Do you believe that, there is satisfying level of cooperation between the municipality and tourism enterprises on tourism management issues? | 2,20 | 0,92 |

Regarding the Smart concept of the destination and the elements of smart tourism the participants were asked about several topics related to the smart in general. Responses were able to answer multiple questions. About half of the participants with a percentage of 51.92% reported that all the available options are elements of smart tourism. In addition, 24.04% of participants focused on Social media, 18.27% choose Blogs, Mob. Apps were considered only by 14.42%, but less than 10% in total had knowledge about Internet of things 9.62%, Big Data 6.73% and Widgets 5.77%.

**Table 5.** Smart tourism elements

| Categories | N | F |
|---|---|---|
| All below | 54 | 51,92 |
| Social Media | 25 | 24,04 |
| Blogs | 19 | 18,27 |
| Mob. Apps | 15 | 14,42 |
| Internet of Things | 10 | 9,62 |
| Big Data | 7 | 6,73 |
| Widgets | 6 | 5,77 |
| None | 4 | 3,85 |

Finally, as to what might be the reason for becoming a smart destination, the majority of almost 64% answered advertising of the destination, almost 60% lengthening tourist season and almost 60% improved customer service. Only 40% were motivated by profit or ecological reasons.

**Table 6.** Reasons to become a smart destination

| | | |
|---|---|---|
| Advertisement of the destination | 66 | 63,46 |
| Extending the turism season | 61 | 58,65 |
| Customer Services | 60 | 57,69 |
| Profit | 42 | 40,38 |
| Ecological reasons | 39 | 37,50 |

Most of the participants were familiar with the term of Smart Tourism destination and convinced that strategic development of Kassandra's smart destination will make the municipality more competitive.

## 6. Conclusion

The present research attempted to record some of the contemporary concerns of tourism stakeholders in order to offer their products and in one specific tourist destination in line with the requirements of the modern era. The results of this research revealed that almost all the entrepreneurs, are worried that soon Kassandra as a destination will be facing the problem of over tourism, as already the number of tourists exceeds the capacity during high season. Moreover, results showed that respondents are aware of smart tourism destination as a concept and most of them did not hesitate to express positivity about all changes necessary to bring to realization in their businesses, in order to achieve their presence in destination that is considered smart. Infrastructure in the area needs to be improved, especially regarding the accessibility for the disabled population. Also, the younger participants were well informed and very familiar with smart technologies and the huge potential they offer. At least more than half of respondents agreed that Kassandra, as a destination, should adopt the idea of participating in Destination Management Organization of a larger region as in that case the cooperation between public and private sector would be at least improved, as in their believe there is no cooperation between stakeholders regarding tourism. They are even positive to an idea to participate in share capital. The technological developments of our time have substantially influenced the tourism sector in the sense that today's potential visitor to the destination is more demanding, well informed and differentiated than in any other era. The smart technological developments have essentially transformed the visitor into a smart consumer of tourism products. Tourism is not the only human activity that has seen changes in consumer behaviour. In almost all business activities it is timely to discuss how the supply of goods and services will keep pace with this evolution

This study revealed the lack of cooperation between active stakeholders in the area and the necessity to establish a body or network which can improve this cooperation. Tourism product diversification is necessary to increase the competitiveness of the destination as well as the duration of the season. Exploitation of natural recourses is also one of the major problems, which need to be solved using proper management, in order to protect the environment, a very important factor of tourism development.

The most important issue revealed with this study is the emergence of fast actions to be taken by all stakeholders involved in the development and growth of tourism, in order to bring prosperity to the destination. This kind of research should be taking place on a regular basis, not only in the area of Kassandra, but also in the larger area of Chalkidiki, in order to include not only more groups related to tourism, but also the public sector which could be and should be the motivating power for constant innovations and increasing competitiveness.

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