

The Emergence of Cultural Resources, with the Aid of High Technology, as a Tool for Developing Tourism Enterprises

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Abstract

The natural world is becoming digital. According to Rifkin (2014), we are in the midst of the third revolution of the industrial sector and are moving into the 'Internet of Things' time frame, whilst we are already familiar with the Internet of Communication. As one of the primary targets for tourism is to find the proper ways to connect with culture, in order to develop tourism entrepreneurship, reduce the phenomenon of seasonality and ensure sources for conservation and maintenance of the monuments, a holistic scheme is needed that will change completely the existing perceptions and diversify the tourist experience. Advanced technology, provides new techniques on every tourism process. This is why innovation is equally important for the tourism industry, as in addition to consumer habits, technologies available, the legal framework and ever-changing environmental criteria, there is also increased competition that makes the practice of innovation necessary. The aim of this paper is to highlight the ways in which tourism entrepreneurship can benefit and grow through the use of high technology in culture, certified information and fast access to it.

Keywords: cultural resources, high technology, tourism enterprises

Introduction

In the last decade technological advancement has presented the introduction of new processes in all the procedures and all the fields of tourism, which provide better business structure, better machinery equipment and as a result better quality in services provided. Consequently, new services that would replace traditional and outdated forms of service were created. New technologies creating new products and change the entire landscape of tourism entrepreneurship by artificially created values. E-tourism is the digitization of all processes and value chains in the tourism, travel, hospitality and catering industries, enabling organizations to maximize their efficiency and effectiveness (Buhalis, 2003). The emergence of cultural heritage is the subject of a complex and multidisciplinary research. Places of cultural interest in Greece are an important pole of attraction for foreign visitors, helping to shape the overall tourist image of the country abroad (European Commission, 2014). Also, cultural tourism offers the prospect of expanding this seasonality by highlighting already existing folklore sights and cultural heritage sites (Mortaki, 2012). Archaeological sites, places of cultural or historical interest, apart from cultural destinations that tourists are drawn to in domestic culture, are entities, referred as properties of a system of geocurricular entities provide tracking information about where spaces and sites are located. The main idea is to provide information directly, whether this is a matter of a thematic walk, or is the result of an individual search for a passenger / visitor / tourist. The long-term vision is to create a "tool" that will provide services with proximity and be able to respond and be used by a wide range of citizens, businesses and institutions. The economic growth of a country is a fraction, with numerator the limitless technological and energy availability and denominator the limited resilience of natural resources.

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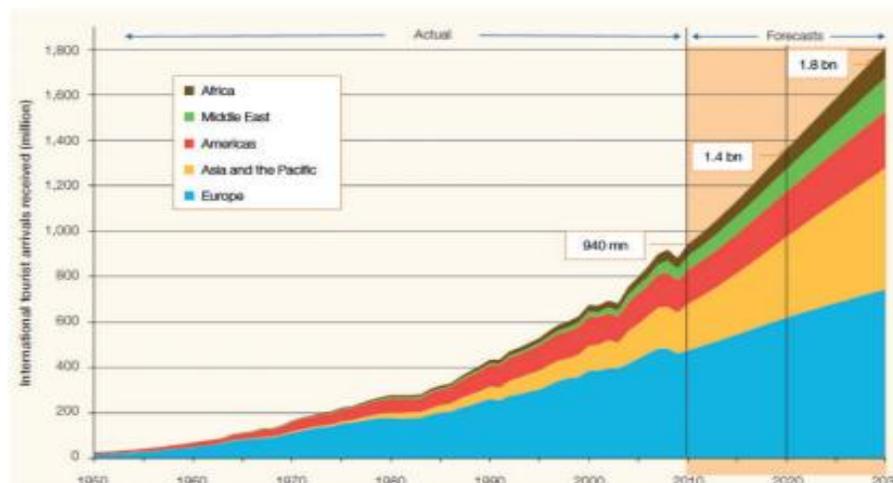
Inevitably, in order to be able to sustainably link the economic development of a country (at national or regional level) and the preservation of natural resources and social links (addressing cultural tourism to vulnerable social groups too), tourism needs to turn to sustainable development (Shaw and Williams, 2000) in order to preserve natural, cultural and other resources for future generations.

Literature Review

Technological advancement in tourism

According to Macintosh and Goeldner (1990), Tourism is a social, psychological and at the same time economic phenomenon that results from the “fermentation” of the following factors: tourist, place of destination, tourist business and state. It is a widespread form of entertainment, especially in Western societies with an age-long past that is reflected in ancient Greek traditions, as will be discussed below. At the same time, it is one of the largest industries, with its revenue providing significant benefits to the investing states and able to support tourism. Global inbound tourism increased by 4% for the first nine months of 2016. The destinations that benefit most from tourism are basically safe destinations due to the rise in terrorism. The upward trend in arrivals will continue in the foreseeable future, with Europe at the heart of tourism, accounting for 68% of global travel (UNWTO, 2016a).

Chart 1: International Arrivals by Continent



Source: UNWTO (2016a)

Cultural tourism is a subset of tourism and is distinguished by great interest as a tourism and research activity (Gnoth and Zins, 2013). Francioni (2004) defines that culture is a special characteristic of each country but at the same time it is a link in a global chain of states around the world. Cultural tourism encompasses cultural products as well as the lifestyle of the people living in the area, thereby creating a blend of cultural heritage and present culture (Richards, 2001).

In Europe, culture is one of the main motives for tourism, but nevertheless its integration as an alternative form of tourism has taken place in recent decades, where it has been valued as a tool for the development of a tourism strategy for destinations in the context of international competition. In recent years, there has been an increase in cultural activities and facilities, as competition is increasing and this creates a need to continuously compete with new commercial product generations. In fact, this competition shows that Europe tends to lose its dominant position in this type of tourism in recent years (DuCros and McKercher, 2015). According to Dallas (2007), Greece's cultural heritage has been an amalgam of culture influenced by the Roman, Byzantine and Ottoman empires for thousands of years. It culminated, in the period of the Greek Revolution and was accompanied by the revival and redefinition of the country at the level of culture and borders.

Travelers who visit places or deal with issues of cultural interest are called cultural tourists, and according to Hughes (2002) they are a dissimilar purchasing public because the process of comparison between the past and the present is continuous. As Smith (2003) argues, tourists who prefer the cultural tone to their excursions, have the primary goal of changing their daily routine by actively participating in activities that offer them new constructive experiences of authentic character.

The high seasonality of the tourism product in Greece compared with its direct competitors, is attributing its negotiating power against the major international Tour Operators, who, due to their increasing bargaining power and that are active during the summer season, are pressing hoteliers for lower prices, as a result of which the profits of the latter are significantly reduced.

In addition, there is an uneven geographical distribution of tourism activity with tourist offer concentrated in specific regions of the country, with the main beneficiaries being the islands and coastal areas (about half of the hotel units are in Crete, the Dodecanese and Central Greece). As a result, some areas become heavily saturated and others remain completely unused. Global and domestic competition in tourism has created the need to find solutions for more efficient administration, better hosting and more immediate dissemination of information. The digital marketplace has not only come to the fore in terms of online travel and other tourism content. The adoption of digital work also relates to operating costs, which are significantly restricted within the digital environment. Businesses thus benefit both at the revenue and at the expense level by properly managing and exploiting new technologies. For this reason, businesses and government agencies have switched to ICT (Information and Communication Technologies). The term above is used to describe the way in which all parties manage, the information they have or the resulting information. It is a fact that we are now referring to the human species *Homo Connectus* (Rainie, 2007) and if we want something to be viable in business, it must meet the characteristics of the new species. The combination of blasting the use of the H / PC in every facet of our lives, work, commercial, scientific and personal, changed the culture of all developed societies, especially in the last twenty years. Since the beginning of the 21st century we have gone through the stages of digitalization, virtualization and process automation and product manufacturing.

Friedman (2005), observed that nowadays a simple mobile phone with camera combined with internet connection is capable of reproducing an image and broadcast it to the world. This global interconnection capability between users of physical objects and devices (Roduneret al., 2007) makes it easy and fast to manage information and services to personalize the user's wants. Technology has radically changed the way in which tourism businesses communicate and interact with their customers and within the framework to improve the satisfaction of their expectations, constantly evolving. According to Global Data's report "ICT Investment Trends in Travel and Leisure", it was found that travel companies communicate with each customer during their journey and this is the reason travel and leisure industry currently allocate their ICT budgets across the core areas of enterprise ICT expenditure for purchasing technology relating to the development of enterprises applications, including the customization, rationalization, or modernization of travel packages and services in core areas , as well as the development of bespoke applications.

In Greek tourism, technology for its full implementation requires the collaboration and cooperation of many different bodies (private and public) involved, either directly or indirectly, with tourism, but this as a venture alone tackles the problems of implementation because of different interests. However, there are significant signs of improvement with the intense use of technological means, such as in archaeological sites and museums. In fact, heads of museums, having identified the growing interest in new technologies, are increasingly investing in multimedia devices that are considered to be of particular importance in enhancing the role of museums in spreading culture. Researchers are considering the possibility of providing additional information to visitors and increasing the time they take in front of exhibits but also interacting with other visitors (Allen and Lupo, 2012).

NFC technology is not just a new technology but it is the development of many communication systems aimed at the interoperability of all electronic devices for the benefit of consumers. This global interconnection capability between users of physical objects and devices (Roduneret al., 2007) makes it easy and fast to manage information and personalize the services according to user preferences. These technologies (NFC, RFID) enable us to think subversively about the quality of information and the way we want to be informed about buildings and objects of our interest. Therefore, we will be in a state of constant evolution, technologically and in order to be able to follow, we must have laid a solid foundation, as it is not only a matter of changing the simplicity of the material nature of museums, but of our entire everyday life. We live in an "in-digital" era in which we are called upon to redefine existing concepts and find a way to modernize the methods we teach or "meet" in our way, history. To implement the above, an essential prerequisite is to have the right environment for developing innovations.

Service innovation is defined as the ability to detect changes in customer behavior, needs and expectations but also to design better services through the development of new service concepts (Ojasalo, 2009). A prerequisite for innovative action is learning by observation which is particularly important for tourism development. These factors determine and affect knowledge production at both intra-regional and inter-regional levels, defined in the function of producing knowledge (KPF) function.

Its central concept is that the individual body must invest in inputs, that is, to invest funds in anthropocentric research that enhance innovation consistent with technological development. However, even the search for a technological problem (Dosi, 1982) or the need to keep up with global technological developments contributes to the exchange of ideas and knowledge. According to Hall & Williams, (2008) and Weidenfeld, Williams & Butler (2010), companies focus more on acquiring knowledge and innovation from suppliers than on developing their own innovations. In the case of the present study, the innovation lies in the field of marketing, that is, how the visitor approaches the history of statues and buildings (audio message). Connected to one idea is the new technology and culture that exists in all regions of Greece.

Methodology

Field location area

Primary data collection was done at the region of Attica. It is located mostly at the Central Athens District.

Data Collection

The field study was done from 02 May 2019 until 17 May 2019 at Hotels in Central Athens. The Hotels near this location have been selected as the center for distribution of the questionnaires because of the significant feedback they get from the tourists who visit museums or other locations of cultural interest and they are aware of the pulse of the market. A total of 120 sets of questionnaires were distributed to the Hotels. Overall, 60 questionnaires were distributed to 5 and 4 stars Hotels and 50 questionnaires to 3 stars Hotels. The questionnaire distribution was based on macroeconomic data (GDP, currency exchange rates, Consumer Confidence or Economic Sentiment Indicators) for the businesses of the markets most important to our survey. The respondents were given the opportunity to return the questionnaire both, directly to the researchers who conducted the research or via email afterwards, within a certain period of time. Overall, the response for this research was 62.5 percent, which in numbers is the 75 questionnaires. The response of 3 stars Hotels is higher by 70 percent (42 respondents) than the 5 and 4 stars Hotels at 55 per cent (33 respondents) based on the number of questionnaires that were carried out and examined.

Data Instruments

For the structure of the questionnaire it is considered appropriate to follow certain rules (Henderson et al. (1987), Cohen et al. (2008)). In this survey was applied the method 'chi-squared test' in order to determine whether there is a significant difference between the expected frequencies and the observed frequencies in a number of categories (Pearson, 1900). The questionnaire was structured based on the tourist motivation research in cultural tourism destination and how the technological advance in this particular section it is believed that could possibly help further to develop tourism entrepreneurship. The first section was about the socio-demographic and tourists' motivation (push factors). The second part was about tourism destination attraction (pull factors) and the third part and most important was about the business profile in relation with technology and how tourism entrepreneurship can be benefited by using high-tech tools to showcase and promote cultural resources of the region. The formula for the chi-square test used in the analysis is the following:

$$\chi_c^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where "c" are the degrees of freedom, "O" is the observed value and "E" is the expected value.

In this way the research hypotheses are as follows:

- 1) The null hypothesis is that every technological development (high-tech tool) in cultural tourism benefits equal the tourism entrepreneurship and
- 2) The alternative hypothesis is that every technological development (high-tech tool) in cultural tourism doesn't benefit equal the tourism entrepreneurship

Research results and discussion

In tourism, the satisfaction of the traveler is considered to be one of the prime variables to sustain and develop competitive business, according to Kozak and Rimmington (2000), because it affects the consumption of goods and services, the final choice of the destination and repeat of the travel to the same city-country. Research through the years (Oliver, 1981; Oliver, 1999) showed that “Satisfaction is defined as the judgment that a product or service itself, provided (or is providing) a pleasurable level of consumption-related fulfilment, including levels of under and over-fulfilment.

Factor Analysis

In this specific analysis, are analyzed 14 push motivations and 3 pull motivations in order to examine the percentage of the push and pull factors that affect the choice of Athens as a tourist destination. In Table 1 it is shown that Athens is preferred from people between the age of 41 and beyond, mostly professionals and retirees that have a high level of education and income. Mostly they are informed by internet and tourist agencies for the destination and the purpose is by far vacations. The pull factors percentage shows that tourists have as a priority for their choice of destination, the services of the hotel and the city and their safety. Visiting Cultural Sites and the traditional Greek Cuisine are the second factor. Last factor is the prices which don't seem to affect very much their final choice.

Table 1: Push and Pull Factors

Variable	Frequency	Percentage (%)
Socio-demography factors of tourists (Push Factors)		
Age	Frequency	Percentage (%)
21-30	13	17.3
31-40	18	24
41-60	20	26.6
>61	24	32
Occupation		
Students	10	13.3
Employees	20	26.6
Professionals	18	24
Retirees	27	36
Travel Motivation		
Source of Information	Frequency	Percentage (%)
Internet	37	49.3
Advertising spots (TV/Newspapers)	9	12
Family / Friends	11	14.6
Tourism Agency	18	24
Purpose of visit		
Business	12	16
Holiday	63	84
Destination Attraction (Pull Factors)		
Security and Services	33	44
Culture and Greek Cuisine	25	33.3
Prices	17	22.6

Tourism development of culture in Athens related with technological advancement

Based on the main subject of the thesis, 3 factors were analysed from push motivation (Table 2). The factor analysis of push motivation is shown in Table 3. Meanwhile, as examining the Technological Factors it seems that tourists prefer more cities and hotels familiar with Virtual Reality and Artificial Intelligence technology. The “AI to VR technology in cultural sites” is a factor consists of 2 push motivations: “Voice messages with NFC/QR codes tech in statues and buildings of interest in Athens” (59.37%) and “Compatible Augmented Reality for cultural sites with wall maps in Hotel rooms” (40.62%). The difference of the percentages in these two is 18.75 %. The “Automate Processes in museums (book tickets, visits schedule)” factor also consists of 2 push motivations:

“Book Online Package tickets for museums” (61.1%) and “Available time for visits (not standing in lines)” (38.8%) with a deviation of 22.3 %. The last factor is “Virtual Experiences of nearby cultural sites” and the motivation consisted of: “Virtual Experience of sightseeing in information kiosks (Acropolis, Odeon of Herodes Atticus etc)” (64%) and “Virtual electric roller-coaster experience in cultural paths” (36%).

Table 2: Analysis of Technological Factors

Technological Factors		
Possible Technology Applications	Frequency	Percentage (%)
1.AI to VR technology in cultural sites	32	42.6
2.Automate Processes in museums (book tickets, visits schedule)	18	24
3.Virtual Experiences of nearby cultural sites	25	33.3
Technological Motivation analysis		
Preferences to possible technological developments	Frequency	Percentage (%)
1.1 Voice messages with NFC/QR codes tech in statues and buildings of interest in Athens	26	81.25
1.2 Compatible Augmented Reality for cultural sites with wall maps in Hotel rooms	6	18.75
2.1 Book Online Package tickets for museums	12	66.67
2.2 Available time for visits (not standing in lines)	6	33.3
3.1 Virtual Experience of sightseeing in information kiosks (Acropolis, Odeon of Herodes Atticus etc)	20	80
3.2 Virtual electric roller-coaster experience in cultural paths	5	20

To test chi-square hypothesis was taken into consideration: 1) 5 Degrees of Freedom (df=the number of categories -1) and chi-square test statistic of 19 (Table 3). The p-value was found from the chi squared table below and used in hypothesis testing (Table 4).The closest value for df=5 and 19 is between .005 and .001.Null hypothesis, is rejected or not rejected based on what is observed in the random sample that is obtained from the population. Specifically, assuming that null hypothesis is true, if there are observed extreme values in the sample it is very unlikely to occur, and so it is rejected. An example of this is in the sample above (Table 3) where component value at the factor 1.1 is obviously different from other component values. It occurs that tourists would appreciate voice messages with NFC/QR codes technology in statues and buildings of interest in Athens and the reason is that it requires very simple and free software on their smartphones or tablets.

Table 3: The chi-square formula for Technological Factors

Pull factors Variables	Observed	Expected(Tot-Obs)	Residual (Obs-Exp)	(Obs-Exp)^2	Component(Obs-Exp)^2/Exp
1.1	25	12.5	12.5	156.25	12.5
1.2	7	12.5	-5.5	30.25	2.42
2.1	10	12.5	-2.5	6.25	0.5
2.2	8	12.5	-4.5	20,25	1.62
3.1	16	12.5	3.5	12.25	0.98
3.2	9	12.5	-3.5	12.25	0.98
Total	75				19 >5

Table 4: chi squared table

df	Area					
	0.100	0.050	0.025	0.010	0.005	0.001
1	2.7055	3.8415	5.0239	6.6349	7.8794	10.8276
2	4.6052	5.9915	7.3778	9.2103	10.5966	13.8155
3	6.2514	7.8147	9.3484	11.3449	12.8382	16.2662
4	7.7794	9.4877	11.1433	13.2767	14.8603	18.4668
5	9.2364	11.0705	12.8325	15.0863	16.7496	20.5150

Conclusions

Applying the above technologies into culture sites, the visitor will have access to additional functionalities including audio and text, image and video, multilingualism and uploading feedback and informing future visitors during a simple walk to Athens. The importance of the research is that there is a possibility of creating new touristic attractions like thematic walks that use many technological assets such as voice messages in statues and buildings will increase the flow of tourists. It requires only simple technology and addresses as many social ranks such as people with limited vision. Municipalities can collaborate with universities or companies from the private sector in order to create links between the cultural sites and the corresponding municipality website. The same can be applied by hotels websites adding to thematic walks, suggestions for coffee, restaurants or shopping, increasing the income by advertising and participating businesses. Also, this can be achieved by small software download, including specific activities that are related with the hotel location. There can be investments in innovation research, with the purpose to find the parameters, not only for Athens but intra-peripheral with other cities, that can highlight the cultural assets they have. The innovation that will come up, can be used by startup companies or existing companies operating in the field of technology, creating new paid positions of employment, exploited by all tourism businesses to optimize their fullness (inventory) and price allocation (price management). In the same investing frame companies may include, in their communication strategies, social media in order to help people to make their final decision about the destination, since it can prove economically beneficial for tourism industry (Vlachvei and Notta, 2014; Yasa Ozelturkay and Mucan, 2014; Kirá'lová, and Malachovský, 2014; Amaral, Tiago and Tiago, 2014).

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