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Article

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BEST PRACTICES REGARDING THE USE OF ELECTRONIC ENVIRONMENT FOR ROMANIAN TOURISM DEVELOPMENT

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Abstract
Information and Communication Technology (ICT) plays an important role in all sectors of activity, hence in tourism sector too. Starting from this fact, authors consider as important identifying and implementing best practices in electronic environment for sustainable development of tourism in Romania. Traditional tourism – implying at all stages specialized human support – knows profound modifications. Today, current statistics show that more and more people dive into virtual environment for visualizing new places and finding out new information, for cross border business meetings, for entertainment as well as for communication. Hence, the current paper – presenting the results of a complex quantitative research, aims to discuss about the influence of virtual environment upon tourism in what concerns informing, planning and organizing a trip. The obtained results led towards recommendations for developing ICT facilities, especially for business tourism, for an extensive use of web-GIS applications during the three phases of travel, for improving infrastructure and mobile applications, especially for young people, as well as for implementing digital systems that investigate tourists’ behaviour and personalize tourism offers. The final purpose of the paper is to contribute to the development of best practices that lead to economic growth in tourism, by quantifying the impact of electronic environment upon visiting experiences.

Keywords: Information and Communication Technologies (ICT), eTourism, GIS applications, best practices, tourists’ behaviour.

JEL Classification: L83, L86, M390, O33

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Introduction

Nowadays internet and information systems applications are part of our life, the advance of our digital society being pointed out by the exponential growth of those and of their users. According to statistics (Internet World Stats, 2015), in the last 15 years the number of online European users has increased with 454.2% and today, more than 70% of the European population uses the online environment for various purposes. Internet globally provides information for all domains of human knowledge, therefore business environment may strongly benefit from this instrument of. Tourism - as part of business area, makes no exception from it, due to the fact that online sites and specialized applications are efficient means for obtaining and sharing the information needed for its promotion and development, hence for its economical development. As a matter of fact, Information and Communication Technology (ICT) development has resulted in a major transformation and influence of tourism sector, this one having a leading position in e-commerce, due to its numerous transactions (Hartevedt et al., 2009).

In the first part of the paper the literature review about ICT role in developing the electronic tourism, as well as about the connections between eTourism and Geographical Information System (GIS) applications is briefly presented. The second part of the paper contains a description of research methodology which aimed at identifying the correlations between various types of tourism and demographical characteristics, at quantifying eTourism and GIS based solutions usage when planning a trip and travelling, as well as at determining the relations between the used electronic environment applications and demographic variables.

Research results may be important sources of information for local authorities and for the management of the companies belonging to tourism sector in what concerns the need for various services in the touristic places. These results are the starting point for our best practices examples for developing Romanian tourism, as they are presented in the last part of the paper.

1. Literature review

1.1. ICT influence in electronic tourism development

Nowadays tourism depends more and more on modern technological means (Cooper et al., 2008). The change in tourists’ behaviour is rather due to the wider use of ICT means, than to the economical welfare of more people in the society. These means provide more accurate information about interesting places to visit, they are efficient technological instruments for organizing and booking touristic tours, as well as for communication with friends and family, contributing thus to an improved mobility of tourists (March, 2009).

Electronic tourism (eTourism) involves using ICT and its facilities for online search, comparison and booking the touristic products so that service providers may reach more efficiently to their customers (Khanchouch, 2005).

eTourism is often called e-travel or travel technology and it refers to a phenomenon that appeared as a result of ICT use by tourists and tourism business environment, transforming tourism sector. eTourism dynamics is closely related to ICT development (Buhalis and Law, 2008) and, nowadays, Social Media and mobile technology have dramatically changed the way consumers access information and perform transactions. Its development
changes companies’ specific processes and organizational values while reconfiguring the concept of trade (Buhalis, 2003).

Searching for information online has become the subject of study by different researchers. Thus, while some studies focus on the need for information, on sources of information, on navigation routes and on changes in the attitude about searching for online travel information (Pan and Fesenmaier, 2006), others analyze the utility and accessibility of various types of tourism or the content of businesses’ websites. The assessment of websites design has also been the subject of many empirical studies (Law, Qi and Buhalis, 2010). From these large amounts of information - what literature calls big data, not only tourists benefit, but also companies. The knowledge and information received online will improve the tourist experience and provide a thorough understanding of behavioural patterns and tourism industry structure. Moreover, travellers share their experiences using online communication platforms and these have more credibility than traditional marketing messages (Sabou, Nistoreanu and Vlad, 2014)

It is very important that, when developing online instruments fit for eTourism, all its specific stages should be taken into account. The main phases of touristic travelling, involving e-tourism activities, are shown in figure no 1.

![Figure no. 1: The role of eTourism during the three stages of a travel](Source: Sabou, 2015, p.57)

Mobile technology plays an important role during all these stages of travelling, as it influences tourists travel experiences. By having easy access to information, anytime and anywhere, tourists are able to redesign and change their plans after their travel has already started, to purchase unplanned additional products and services during their travel and to handle more easily the uncertainty and cultural barriers associated to tourism. Actually, there are many mobile applications in this area - including those for aircrafts flights tracking, touristic destinations and points of interest guidance and travelling applications designed by online travel agencies, which may be relevant for implementing best practices in tourism.
1.2. eTourism and Geographical Information Systems based applications

Any person using eTourism will generate large amounts of data. These may come from user’s feedback and behaviour on certain tourism websites, from registration data due to the use of booking applications, from the volume of traffic data used when arrived at a destination, from online sales records of travel services, from the queried information on search engines, from social media communication, as well as from location services and GPS based applications.

Thus, the various applications of eTourism are designed for (van Leeuwen and Nijkamp, 2010):

- Promoting tourism destinations through tourism product advertising in the context of multimedia applications;
- Interactive communication between the parties (tourism destination and tourist);
- Facilitating online transactions between tourism destination and tourist, such as booking, payment, etc.
- Teleworking applications that make possible combining the work with vacation, extending thus the free time of people;
- Telemedicine applications that encourage older people to feel comfortable when they are away from home;
- Transportation, taking into account the effective management of tourists flows.

The use of ICT during a trip has a major impact in terms of tourist experience. To improve a tourist experience, Neufofer, Buhalis and Ladkin. (2015) acknowledged the limitations of facilities and resources offered by ICT, especially smartphones, as it follows:

- technological facilities of the tourist experience, where it is necessary to take into account the need of a software that allows accessing, collecting and managing information on tourism, providing content relevant information and directions;
- telecommunication and infrastructure facilities – internet access, availability of 3G and 4G networks, a competitive price in terms of access to internet and roaming, the existence of Wi-Fi hot spots† and easy access to information, a simple connection that can allow access to social networks, the ease of using applications and devices.
- technological barriers of the tourist experience, focussing on four main factors: hardware, software, telecommunication and infrastructure and difficulties in use.

The purpose of providing planning and information services is to assist tourists in all three phases of a visit. Most applications used in eTourism are based on Web-GIS, enabling the users to plan and visualize their trip through an available map-like interface. GIS is defined by Breuckner and Tetiwati in 2008 as a system able to store, manipulate, analyse and display data in a geo-referenced coordinate system, and by ESRI‡ (2015) as a system that

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† Wi-Fi – technology built for networking local wireless communication
‡ Environmental Systems Research Institute, Inc. (ESRI), having the headquarters in Redlands, California, USA, is a global leader in GIS services
allows viewing, analysing and interpreting data for understanding relationships, patterns and trends. The spatial perspective of data and their graphical representation allow the localization and the analysis of the studied phenomenon (Dârdală and Reveiu, 2011).

GIS applications can help in all phases described in figure no 1. Thus, in the first phase, GIS may assist potential travellers through its maps that show in an appropriate manner sights and places of interest; it may draw attention upon certain touristic attractions, services and facilities in the vicinity of the transit area which the user is not aware of, contributing to a thorough planning. In the second phase, Web-GIS applications offer to the visitor easy access to essential information, such as seeking accommodation possibilities based on various criteria: the price for an overnight stay; services offered; the distance to the historical and cultural points of interest; the distance from the public transportation system stations; the distance from the main road and cycling tracks; contact information (website, email, phone number). In the third phase, Web-GIS allows the tourist to review his journey, the time he spent in each place, the distances he travelled and the visited touristic objectives. It encourages the user to offer feedback and to post images and comments about the tour he had. These complex reviews associated with a map based interface written in the third stage of travelling help other online connected tourists to make better decisions in their first two stages of travelling.

All operations and choices made by visitors through Web-GIS applications or websites represent valuable information for local administrators. Statistical analysis of such data may reveal the preferences of visitors, and these may be used together with the results of satisfaction surveys for planning future investments (Ruoss and Alfare, 2013).

All these combined data will generate a certain tourist profile with his likes and dislikes, his reasons for travelling, his behaviour while planning, during travelling and at his return home. As such, in terms of best practices recommendations, touristic services providers should perform complex analyses about their online presence in relation with tourists’ behaviour, so that constant improvement may be possible. Following up these ideas, we focussed our research on several components of e-environment and on their influence upon tourists’ behaviour, with the purpose of identifying in what extent business environment has to take them into consideration when creating a touristic offer.

### 2. Research methodology

In order to identify the way information from e-environment influences tourists’ behaviour, a complex research has been deployed, the current paper exploring only partial results. These form the groundwork for authors’ recommendations for best practices. The research has been carried out between December 2014 and April 2015 and it was an online survey, questionnaire based.

Collected data was processed using the statistical analysis software Minitab, while the graphs and tables were created with the help of Microsoft Excel. The size and structure of the sample were determined on probability basis and the response rate was 78.33%, meaning that we had 394 valid questionnaires filled in by respondents of both genders, aged over 18. Thus, for 95% confidence level, the associated margin of error to the obtained results is about +/- 5%.
In order to underline the best practices in tourism through electronic environment, the objectives of the research refer to:

- Determining the relations between the types of tourism and demographic characteristics
- Quantifying the extent of eTourism and GIS based solutions usage when planning for a visit and during travelling
- Determining the relations between e-environment applications’ use and demographic variables
- Discovering the relation between the types of tourism and tourists requirements for e-tourism applications and ICT facilities on touristic sites.

3. Results and discussions

The distribution of respondents according to their age and gender is equilibrate and follows the distribution of the overall Romanian population of internet users’. Thus, the masculine gender represents 48.48% and the feminine gender is 51.52%, respecting the structure of the population (MEDIAFAX, 2015).

A brief analysis of respondents’ main purposes for travelling indicate that business tourism, visiting friends or relatives and leisure tourism are the preferred choices when linking these to the frequency of travelling in a year (table no. 1). On the other hand, discussing about types of tourism practiced less than 1 time in a year, it can be noticed that health tourism, shopping travelling and religious tourism are mentioned by more than half of respondents.

<table>
<thead>
<tr>
<th>Types of tourism</th>
<th>Very frequent &gt; 7 times/year</th>
<th>Frequent 5-6 times/year</th>
<th>Medium 3-4 times/year</th>
<th>Rare 1-2 times/year</th>
<th>Very rare &lt; 1 time/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heritage tourism</td>
<td>3.87%</td>
<td>4.12%</td>
<td>17.78%</td>
<td>30.67%</td>
<td>43.56%</td>
</tr>
<tr>
<td>Religious tourism</td>
<td>0.26%</td>
<td>0.26%</td>
<td>7.99%</td>
<td>33.25%</td>
<td>58.25%</td>
</tr>
<tr>
<td>Events tourism</td>
<td>2.32%</td>
<td>3.09%</td>
<td>12.89%</td>
<td>27.06%</td>
<td>54.64%</td>
</tr>
<tr>
<td>Health tourism</td>
<td>1.03%</td>
<td>0.52%</td>
<td>0.90%</td>
<td>22.16%</td>
<td>73.20%</td>
</tr>
<tr>
<td>Business and professional purposes tourism</td>
<td>10.36%</td>
<td>6.22%</td>
<td>10.10%</td>
<td>18.65%</td>
<td>54.66%</td>
</tr>
<tr>
<td>Leisure tourism</td>
<td>6.70%</td>
<td>11.08%</td>
<td>25.26%</td>
<td>33.76%</td>
<td>23.20%</td>
</tr>
<tr>
<td>Shopping tourism</td>
<td>1.55%</td>
<td>2.32%</td>
<td>3.61%</td>
<td>17.53%</td>
<td>75.00%</td>
</tr>
<tr>
<td>Visits to relatives and friends</td>
<td>11.86%</td>
<td>3.09%</td>
<td>20.36%</td>
<td>44.33%</td>
<td>20.36%</td>
</tr>
</tbody>
</table>

Pearson Chi Square test between the variables “gender” and “frequency of the various forms of tourism” indicate no visible association between these, p-value being higher than the significance level set at 0.05, for 4 degrees of freedom. Spearman correlation coefficient calculated between variables “frequency of the various types of tourism” and “age” show medium-week connections. The strongest of those is between religious tourism and age.
Spearman coefficient showing a direct medium correlation of 0.428, for a p-value < 0.001. Thus, we can relatively say that the higher the frequencies of religious travels, the older are the respondents.

Going further on, we wanted to know whether there is any statistically significant correlation between the frequency of travelling in a year and the frequency of the various types of tourism practiced. The calculated Spearman correlation coefficients are shown in table no. 2. It can be noticed that, in general, correlation coefficients indicate medium or week connections between the two ordinal variables. However, there is a quite high direct correlation between the frequency of general travelling in a year and the frequency of travelling for business or professional purposes (0.658) and also between the frequency of general travelling in a year and the frequency of travelling for leisure tourism (0.537).

Table no. 2: Spearman calculated correlation coefficients between the general frequency of travelling in a year and the frequency of practicing various types of tourism

<table>
<thead>
<tr>
<th>Types of tourism</th>
<th>Spearman Coefficient of Correlation</th>
<th>Calculated p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heritage tourism</td>
<td>0.496</td>
<td>0.000</td>
</tr>
<tr>
<td>Religious tourism</td>
<td>-0.090</td>
<td>0.076</td>
</tr>
<tr>
<td>Events tourism</td>
<td>0.435</td>
<td>0.000</td>
</tr>
<tr>
<td>Health tourism</td>
<td>0.032</td>
<td>0.534</td>
</tr>
<tr>
<td>Business and professional purposes tourism</td>
<td>0.658</td>
<td>0.000</td>
</tr>
<tr>
<td>Leisure tourism</td>
<td>0.537</td>
<td>0.000</td>
</tr>
<tr>
<td>Shopping tourism</td>
<td>0.222</td>
<td>0.000</td>
</tr>
<tr>
<td>Visits to relatives and friends</td>
<td>0.371</td>
<td>0.000</td>
</tr>
</tbody>
</table>

These coefficients indicate that, in general, respondents travelling very frequent in a year also have higher frequencies for business and leisure travelling.

Moving further on, we wanted to check what sources of information are used by respondents before deciding for a certain touristic destination. The questionnaire allowed participants to select all sources of information they generally use in decision making process. The results are presented in figure no. 2 and it can be remarked that a very high percentage of respondents (87.06%) consult their friends and relatives to find out more details about touristic destinations and more than two thirds (69.80%) read information online, on tourism specialized websites.

Also, the analysis of individual answers reveals the fact that the majority of respondents chose at least one digital platform (internet forums, specialized websites, social networks, blogs) for obtaining information about touristic destinations and travelling. Almost half of respondents stated that the catalogues and brochures are important sources of documentation about a tour, while the traditional touristic agencies are chosen only by a third of respondents. Other ways of obtaining information are specialized magazines.
Figure no. 2: Sources of information for choosing and planning a travel (%)

In what concerns the information sources used when already arrived at the site of the touristic destination, information centres (71.32%) and specialized guides (70.81%) are the most required. Half of respondents also mention the access to internet, as well as mobile touristic applications (figure no. 3).

Figure no. 3: Sources of information considered useful on touristic sites (%)

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Analysing the age distribution of the 192 respondents who considered mobile applications useful, we remarked that the majority are people aged less than 45 years (23.96% - less than 25 years; 31.25% - people between 26-35 years and 25.52% - respondents between 36-45 years). Only 19.27% respondents aged over 45 years consider mobile application useful for obtaining information while travelling. Other sources of information mentioned as important on site are touristic boards and indicators, boards with maps of the region, as well as the local people who are very well acquainted with the surroundings.

Also, analysing participants’ use of the most popular GIS based applications for tourism - the maps, it can be seen that almost three quarters of respondents use maps, with no specific preference for the digital versions or printed versions. Although travel guides (be them digital or printed) contain maps and additional explanations about the travelling areas only 38% acknowledge their use (figure no. 4). A small percentage of respondents states that they don’t use maps while travelling. Investigating the traits of this last segment, it resulted that the respondents not using maps are mostly rare travellers, aged over 55, visiting in general their friends and relatives.

Regarding eTourism applications, the majority of participants declare they use them when planning and along travelling. The most popular is Google Maps, used frequently by 61.92% of respondents, while other applications such as Booking.com, Trip Advisor and Via Michelin are frequently used by 31.21%, 14.97%, respectively 15.73% respondents. About 7% of respondents use frequently other applications such as MapQuest, Yahoo Maps, Wikimapia and Rome2Rio. Although all respondents are internet users, there are 9.13% of them who declare that they don’t use such e-tourism applications.

Moving further on we analysed the relation between the variable “lack of ICT facilities in touristic sites” and variable “respondents’ choice to go to a destination lacking of ICT facilities”. Figure no. 5 shows respondents’ degree of willingness to travel towards a touristic place lacking internet connection, mobile phone signal or GPS satellite reception.
Surprisingly, although respondents are internet users, more than one third are ready to choose a touristic destination which has no internet access or GPS reception. Only a small percentage of respondents state that they would surely not go into an area lacking the mentioned ICT facilities. However, it can be remarked that the lack of mobile phone signal is more negatively perceived by respondents, as 18.27% are definitely sure that they would avoid such a destination, as compared with internet connection lack (7.87%) and GPS reception lack (6.09%). Also, the percentage of respondents stating that they could surely go to a place having no mobile signal reception is significantly lower than for the other two categories (19.54%, compared to 37.06% for internet lack and 37.82% for GPS reception lack) (figure no. 5).

As business environment nowadays cannot be imagined without fast connection to information, we wanted to check whether respondents travelling more often for business and professional reasons are more reluctant than other types of tourists when choosing destinations which lack ICT infrastructure (connection to internet, mobile phone signal and satellite reception for GPS devices).

![Figure no 5: Respondents options regarding their willingness to choose a touristic destination lacking the presented ICT facilities (%)](image)

Pearson Chi Square calculated between the “frequency of business tourism travels” and “the willingness to stay in places lacking ICT infrastructure” shows association, for 16 degrees of freedom and a p-value<0.001. However, the calculated Spearman between the same variables indicate week, but negative correlations (lack of internet, r=-0.127 and p-value=0.013; lack of mobile phone signal, r=-0.188, p-value<0.001, lack of GPS satellite reception, r=-0.180, p-value<0.001). For the other types of tourism there was no association shown.

This means that, generally speaking, higher frequencies in practicing a certain type of tourism do not create behavioural patterns in respect to respondents’ willingness to select
touristic destinations lacking ICT facilities. However, the weak negative correlations found in the case of business tourism indicate some tendency of frequent travellers to consider totally unacceptable travelling in an area lacking ICT facilities.

**Conclusions**

Information and communication technologies play an important role in today’s social and economic environment, influencing all sectors of activity, modifying businesses and consumers behaviour. The current research aimed to see in what extent electronic environment has transformed the behaviour of tourists - spotting potential areas of benefits, as well as the associated risks, all with the purpose of setting best practices that lead towards economical development of tourism sector. The results of our research, within its limitations, probability of guaranteeing the results and the associated margin of error, are premises for our best practices recommendation to develop tourism with the help of e-environment, as it follows:

- Spaces fit for business discussions in touristic areas and equipped with ICT facilities due to the fact that people who travel more frequently are also people going very often for business purposes.
- Developing web pages based on GIS applications to offer precise and concise information, accessible along all stages of travelling, as research indicates that these are important sources of information used by tourists;
- Developing mobile applications for planning a trip and for travelling and promoting those to the people less than 45 years;
- Developing and improving mobile telephony infrastructure in the touristic areas, because research has indicated that the availability of mobile phone signal is important for tourists and there is an association between the frequency of business tourism and the willingness to travel to areas lacking this facility;
- Creating touristic centres with specialized personnel and available guides in the touristic areas, as research has shown that while visiting, tourists prefer getting informed in this manner, together with using ICT means;
- Using GIS applications for touristic map making, research indicating that most of the tourists use maps for their guiding along visiting;
- Implementing a system for identifying tourist’ individual preferences so that the spatial database may generate an itinerary according to his requests and needs and display on a visually attractive map. Besides the preferences expressed by the visitor, the system should take into consideration other variables such as the schedule of public transport and the visiting program for various touristic objectives; it should offer additional options for documentation, such as a map that could be printed, indications for navigation, audio/video complete guides that could be downloaded and used on mobile devices, such as smart phones and tablets.

ICT in general, and Geographical Information Systems (GIS) in particular, offer a great amount of resources and benefits for nowadays tourists, creating the premises for tourism sector development. Data about tourists using e-environment specific applications may be
collected by companies and it may be used for best practices that improve the quality of touristic destinations

Limitations of research

Due to the fact that the major objectives of the research aim to identify the influence of e-environment upon tourists’ behaviour in order to underline some best practices in the tourism area, the target population was the one formed by internet users, especially because e-tourism and the associated GIS applications require the use of online environment. Still, there are certain technologies and GIS based solutions (such as augmented reality devices available on touristic sites or the classical printed maps) which may be used during travelling by people reluctant in using internet in their daily lives.

Thus, research results are relevant for Romanian internet users, accounted as 56.3% of the overall population at the end of the year 2014 (Internet World Stats, 2014) – taking into consideration the set probability of guaranteeing the results and the associated margin of error as mentioned.

References


