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International Conference on Integrated Information

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Preface: Proceedings of the International Conference on Integrated Information (IC-ININFO 2011)

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Aims and Scope of the Conference

The International Conference on Integrated Information 2011 took place in Kos Island, Greece, between September, 29 and October, 3, 2011. IC-ININFO is an international interdisciplinary conference covering research and development in the field of information management and integration.

The conference aims at creating a forum for further discussion for an Integrated Information Field incorporating a series of issues and/or related organizations that manage information in their everyday operations. Therefore, the call for papers is addressed to scholars and/ or professionals of the fields of Library and Archives Science (including digital libraries and electronic archives), Museum and Gallery Studies, Information Science, Documentation, Information Management, Records Management, Knowledge Management, Data management and Copyright experts the latter with an emphasis on Electronic Publications. Furthermore, papers focusing on issues of Cultural Heritage Management and Conservation Management are also be welcomed along with papers regarding the Management of Nonprofit Organizations such as libraries, archives and museums.

One of the primary objectives of the IC-ININFO will be the investigation of information-based managerial change in organizations. Driven by the fast-paced advances in the Information field, this change is characterized in terms of its impact on organizations that manage information in their everyday operations.

Grouping emerging technologies in the Information field together in a close examination of practices, problems and trends, IC-ININFO and its emphases on integration and management will present the state of the art in the field. Addressed jointly to the academic and practitioner, it will provide a forum for a number of perspectives based on either theoretical analyses or empirical case studies that will foster dialogue and exchange of ideas.

Topics of general Interest

Library Science, Archives Science, Museum and Gallery Studies, Information Science, Documentation, Digital Libraries, Electronic Archives, Information Management, Records / Document Management, Knowledge Management, Data Management, Copyright, Electronic Publications, Cultural Heritage Management, Conservation Management, Management of Nonprofit Organizations, History of Information, History of Collections, Health Information

Symposia

The Conference offered a number of sessions under its patronage, providing a concise overview of the most current issues and hands-on experience in information-related fields.

- Symposium on Integrated information: Theory, Policies, Tools
- 4th Symposium on Business and Management and Dynamic Simulation Models supporting management strategies

- Session on Open Access Rrepositories: Self-archiving, Metadata, Content policies, Usage
- Session on Evidence-Based Information in Clinical Practice
- Session on Business Management and Communication Strategies supporting Decision Making Process in Tourism Sector
- Session on Electronic Publishing: A Developing Landscape
- Session on Information and Knowledge Management
- Session on Information Content Preservation as Outcome of Conservation of Cultural Heritage: Ethics, Methodology and Tools
- Session on Advances Information for Strategic Management
- Session on Information History: Perspectives, Methods and Current Topics
- Session on Divergence and Convergence: Information Work in Digital Cultural Memory Institutions
- Session on Contemporary issues in Management: Organisational Behaviour, Information Technology, Education & Hospital leadership.

The wide range of aspects that the sessions covered, highlighted future trends in the Information Science.

Paper Peer Review

More than 300 papers had been submitted for consideration in IC-ININFO 2011. From them, 91 were selected for presentation, after peer review in a double blind review process. The accepted papers were presented at IC-ININFO 2011.

Thanks

We would like to thank all members that participated in any way in the IC-ININFO 2011 Conference and especially:

- The famous publishing house Emerald for its communication sponsorship.
- The co-organizing Universities and Institutes for their support and development of a high-quality Conference scientific level and profile.
- The members of the Scientific Committee that honored the Conference with their presence and provided a significant contribution to the review of papers as well as for their indications for the improvement of the Conference.
- All members of the Organizing Committee for their help, support and spirit participation before, during and after the Conference.
- The Session Organizers for their willing to organize sessions of high importance and for their editorial work, contributing in the development of valued services to the Conference.
- PhDc Marina Terzi for her excellent editorial work, contributing in the production of the Conference proceedings.

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KEYNOTE SPEAKER

Professor Amanda Spink

Professor Amanda Spink has published over 340 scholarly journal articles, refereed conference papers and book chapters, and 6 books. Many of her journal articles are published in the Journal of the American Society for Information Science and Technology, Information Processing and Management, and the Journal of Documentation. She is Editor of the Emerald journal Aslib Proceedings. Amanda's research has been published at many conferences including ASIST, IEEE ITCC, CAIS, Internet Computing, ACM SIGIR, and ISIC Conferences. Her recent books include Information Behavior: An Evolutionary Instinct and Web Search: Multidisciplinary Perspectives, both published by Springer. Amanda's research focuses on theoretical and empirical studies of information behavior, including the evolutionary and developmental foundations. The National Science Foundation, the American Library Association, Andrew R. Mellon Foundation, Amazon.com, Vivisimo. Com, Infospace.com, NEC, IBM, Excite.com, AlltheWeb.com, AltaVista.com, FAST, and Lockheed Martin have sponsored her research. In 2008 Professor Spink had the second highest H-index citation score in her field from 1998 to 2008 [Norris, M. (2008)]. Ranking Fellow Scholars and their H-Index: Preliminary Survey Results. Loughborough University, Dept of Information Science Report].

Tourist Destination Marketing and Management Using Advanced ICTs Technologies

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Abstract: *Nowadays, tourism sector is supported by the development of new technologies. Aim of this paper is to examine the use of ICTs in the tourist sector and more specifically some of the applications and tools that have already implemented for tourist destination marketing and management using advanced technologies such as interactive multimedia, digital maps, virtual reality (VR) and so on.*

Keywords: *E-tourism, ICT applications, Advanced technologies, Destination management, Destination marketing.*

I. INTRODUCTION

Nowadays, tourism is one of the most important industries globally for many social, economic, technological, and geopolitical reasons. It presents an actual high quantitative and qualitative growth dynamics and potential, with substantial contribution to the global economy and employment, as it is the largest job provider on the planet.

Information is very crucial in tourism sector so it has been among the first to exploit new technologies and innovations. Tourists need new sources of information in order to help them plan their trips and choose between alternatives tourist destinations. Because it is an information-rich industry, it depends on finding and developing new means to distribute travel and hospitality products and services, marketing information to consumers and providing comfort and convenience to travelers (Zhou, 2004).

The introduction of ICT in recent decades has created new opportunities for the tourist attractiveness of remote and peripheral areas (Giaoutzi and Nijkamp, 2006). The growth of Internet is spreading enormously and thousands of users are entering information market on daily basis. New technologies have influenced the overall sector and more specifically destinations, in terms of promoting themselves and approaching potential visitors. Many websites offer web services or interconnection to other types of information systems in order to satisfy end users' specific information needs.

User Generated Content (UCG) and Web 2.0 cover features in a range of modern communication technologies. In the tourism sphere, we meet frequently Web 2.0 features including blogs, wikis, podcasts, interactive maps and social network. Moreover, there are some applications that provide virtual tour, usually by using high quality images, of various tourist destinations which can help the tourist to choose a destination that would better satisfy his/her needs and expectations. Nowadays, many users prefer to use mobile devices and especially smartphones. Some of the existing commercial applications that are developed for smartphones are tourist or museum guides or mobile web portals for browsing tourist information.

Buhalis (2003) presents several examples of the development of the tourist economy in connection with the international ICT areas of tourism industries focusing on airlines and travel, hospitality, tour operators, travel agencies, computer reservation and management systems. Internet for travel planning is used widely by the majority of tourists in order to obtain information on company sites, destination sites and on-line travel agency sites. Destination Management Organizations (DMOs) develop inspirational websites that can encourage and facilitate tourist visitation of their region.

This paper focuses on Information and Communication Technology (ICT) with particular concern on its effects on tourism development in Europe and Greece. Next section introduces the concept of e-tourism and gives a broad reference of many of the innovative methods used in order to help countries to promote and support their tourist products.

II. ICT IN TOURISM SECTOR

A. The concept of e-tourism

«Information is the lifeblood of tourism; timely and accurate information, relevant to customers is a key to tourism production and satisfaction of demand» (Buhalis, 2003). Tourism is mainly based on information; from tourism suppliers and businesses to consumers. ICTs play a vital role for the competitiveness of tourism enterprises and destinations as well as for the entire industry as a whole (UNWTO, 2001). Many times World Wide Web is the ideal platform to develop specialized sites and informatics tools on behalf of tourism companies that are seeking new methods to expand their market share, to increase their customers by customizing products and services to their needs or to reorganize their business strategies and processes as well.

The e-tourism concept involves all business' operations from e-marketing, e-commerce, and e-finance to e-procurement, e-accounting, e-R&D and e-HRM (Buhalis, 2003). Hence, e-tourism bundles together three distinctive disciplines: business management, information systems and management, and tourism.

B. Innovation Trends on Tourism

Tourism firms operate in a business environment where innovation is important for their survival (Sorrensen, 2007). Thus, the adoption of innovative methods that will aid every country to promote and support its tourist product, from regional and national tourism organizations to various tourism enterprises can ensure the quality levels and the diversification of services that will lead to the increase of each country's share in international tourism demand. The main modern trends constitute the reference base for the analysis of the current situation in Greece. The new trends that emerged from the review at international level are the following:

Destination Management Systems (DMS)

The development of DMS can substantially support and enhance the competitiveness of tourism destinations and specifically of the small and medium tourism enterprises (SMTEs) (Sigala, 2009). Chen & Sheldon (1997, p. 159) defined the DMS as an inter-organizational system that links tourist products, suppliers and offers, with consumers and intermediaries in order to enable easy access to complete and up-to-date destination information and allow reservations and purchases.

Nowadays, more and more potential travelers, who seek travel information through Internet, are using the web-based portals developed by DMOs. Sometimes, these portals may offer the ability of dynamic packaging to the travelers. Dynamic packaging can be defined as the combining of different travel components, bundled and priced in real time, in response to the request of the consumer or booking agent (Cardoso, 2005). A DMS provides a complete set of tourism management, promotion and fulfillment tools with product, business and visitor databases. As a minimum, a DMS platform must provide the following core modules:

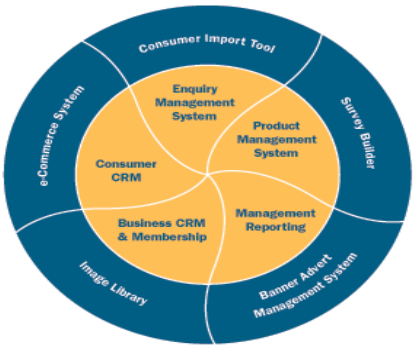

Figure 1. DMS core modules (http://www.newmind.co.uk/site/technology/destination-management-system).

Website www.visiteurope.com is a DMS from Europe at continental level and funded by the European Travel Commission (ETC). The web portal constitutes a very good example of ICT implementation. Malta's DMS is a well structured (www.visitmalta.com) system which gives the ability to traveler to seek air tickets availability and book them online. Furthermore, tourists can download iPhone applications which include comprehensive mobile destination guide to the Maltese Islands providing general information, facts, activities, interactive maps and culture guide to Malta. Cyprus's DMS (www.visitcyprus.com) provides two personalization tools that request users' registration at first, in order to access and use them. The first tool is «Travel Planner» that enables travelers to mix, match and organize their trip. The second tool is «My Travel Guide» that becomes the travelers' personal guide. Moreover, the website offers various multimedia files, such as audio, eBrochures, Games, images, Panoramic images and videos as well as an interactive map of the island where travelers can seek for various POIs (Points of Interests) such as hotels, camping, restaurants, museums, galleries, towns – villages and so on. Furthermore, the official web site for France (www.franceguide.com) has rich content and provides travelers with tourist information about events, festivals, exhibitions, destinations to visit and so on. In addition, site offers various applications for smartphones, including accommodation, destination, food and wine, weather, maps, guides, transport applications.

Figure 2. Cyprus DMS Interactive Map (http://geomatic.com.cy/visitcyprus/)

In Greece, the concept of DMSs appeared not many years ago and we can find few studies and scientific articles on this subject. The first systems that were created definitely didn't provide all the services that can offer to tourists and enterprises. Today, there is an increase in the development of DMSs and some of them offer good quality level of services, but are the exceptions since the majority of DMSs offer pure digitization of tourist guides.

The DMSs that have already been developed in Greece can be classified into many categories, such as national, regional or local (city/island) level. Moreover, they can be categorized from the theme or from various experiences. At national level www.visitgreece.gr has

been developed by the Greek National Tourism Organization (GNTO) supervised by the Ministry of Culture and Tourism and is the official web site of Greece. At regional or local level, there are many DMSs that are quite interesting, such as www.sterea-tour.gr, www.visit-fokida.gr, www.visit-evia.gr, www.cyclades-tour.gr and so on.

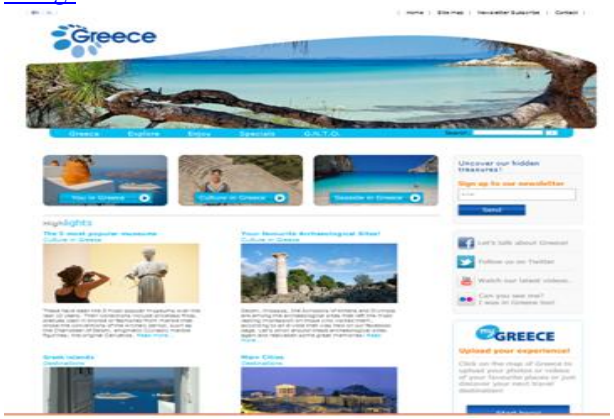

Figure 3. Visit Greece Home Page (http://www.visitgreece.gr/portal/site/eot/home?lang_choosen=en)

In addition, yourGreece is an online intermediary in Athens of Greece, which promotes a network of eighty small and unique hotels and guesthouses in Greece worldwide via the website www.yourgreece.com. It uses two e-business applications: an online payment system and a booking request system.

Using modern techniques for e-Marketing

E-marketing is the use of information technology in the processes of creating, communicating, and delivering value to customers, and for managing customer relationships in ways that benefit the organization and its stakeholders (Strauss et al, 2005). The Internet and interactivity is also permeating the traditional methods of communicating with customers, so the challenge of DMOs is to develop the infrastructure, the skill sets and the content to exploit the new opportunities through multiple channels, offline and online (ETC and UNWTO, 2008).

One method of e-marketing is the «Pay per Click Advertising» and is highly dependent on the keywords that people enter in search engines. The ads that are consequently shown as part of the search results generated income for the search engines every time they are clicked. This method advertises only to the targeted market, thus making it one of the most efficient and most popular forms of e-marketing.

Banner ads are those flashing, rectangular ads that one can find on the uppermost portion of popular Web sites. Banner ads not only promote the advertisers Web site, they also generate traffic. Banner ads allow advertisers to monitor their customer's interests and taste because they provide info about which Web sites bring in the most visitors. Banner ads used to be the most popular method of e-marketing but many people now regard them as distractions to the real content of Web sites.

Promoting Web sites through search engine marketing is integral to e-marketing. This method is aimed at increasing traffic to a Web site by making the site more relevant in the directories of major search engines such as Google or Yahoo. Search engine optimization (SEO) ensures that a website is accessible to search engines. The objective is to see that each page of the site is ranked highly for the target terms when they are input to search engines. So, it is critical that a website structure and coding is search engine friendly. Many complex tourism sites have barriers to search engine crawlers that mean their content is not fully indexed.

Social networking involves people exchanging information, images, views, and reviews on the web. Travel is a prime focus. It is not a new concept – TripAdvisor and IgoUgo have been around for years. Now it is exploding, with the appearance of MySpace, YouTube, Flickr, Tagzania, Gusto, Wikia, RealTravel, blogs, podcasts and much more (ETC and UNWTO, 2008). Getting blogs to mention information about your product or service is one of the most effective means of e-marketing. Blogs use a language that customers can understand. Moreover, video, audio and photographs are used just as much as text.

Wiki is Hawaiian for 'quick'. Wikis allow anyone to create or edit web content, with links and easily created new pages, and cross-links between pages in the wiki. Wikis are a great opportunity for destinations because they allow visitors and would-be visitors to pool their knowledge. Visitors to Paris can, for example, go straight to http://wikitravel.org/en/Paris click on the Edit link and start writing (ETC and UNWTO, 2008).

RSS stands for Really Simple Syndication. RSS works by RSS feeds which needs to be generated by website. People can subscribe to these RSS feeds and can view the content of the website via their RSS reader. By this, people are enabled to receive the content directly on their desktop. This method is quite new as compared to others and has become really popular following spam issues in email marketing.

e-CustomerRelationship Management (e-CRM)

eCRM means CRM-database access via the Web. It means Intranet access for internal users, extranet access for business partners and customers and of course, Internet access for the market at large. Components of e-CRM include an e-commerce sell-side platform, e-CRM communication infrastructure, and CRM applications. E-CRM applications include Content Management, Product and Pricing models, Support for customer service including technical support, problem resolution, and automated response agents, Marketing automation tools and campaign management functions. An e-commerce sell-side platform allows enterprises to interact in Web-based business-to-business (B2B) and business-to-consumer (B2C) relationships. An e-CRM communication infrastructure should contain chat/browser control, Voice over IP, Multilanguage support, messaging and workflow applications, web

measurement tools, e-mail support (Norton, 2001).

Social Networking and Web 2.0 technologies

«Web 2.0 is the business revolution in the computer industry caused by the move to the internet as platform, and an attempt to understand the rules for success on that new platform» (Tim O'Reilly, founder and CEO of O'Reilly Media).

The above definition of Web 2.0 was given in 2004 by Tim O'Reilly in an effort to define the range of services that have been developed in the Internet over the past few years. Indeed, the development of Internet has changed since 1995. While in the Web 1.0 era, the contents were generated and controlled by the website developers, in the Web 2.0 era the contents are developed by the users. In recent times, many Web 2.0 sites have been implemented within the tourism sphere. These Web 2.0 travel sites involve the use of a diverse range of presentation formats – text, video, images and sound – with some formats having functionality that allows a website user to contribute, update or alter existing content.

A Web 2.0 website may feature a number of the following techniques including: Rich Internet application techniques, optionally Ajax-based; Cascading Style Sheets (CSS); Semantically valid XHTML markup and the use of Microformats; Syndication and aggregation of data in Really Simple Syndication (RSS/Atom; Clean and meaningful URLs; Extensive use of folksonomies (in the form of tags or tagclouds, for example); Use of wiki software; Weblog publishing; Mashups and REST or XML Webservice APIs.

Social networking services aim to create social networks for communities of people (often friends) who share interests and activities. Most social networking services allow the users to interact in various ways, by chat, messaging, e-mail, file sharing, blogging, and discussion groups. Among the most common social networking services one can find Facebook, MySpace, Orkut and Bebo (Corrocher, 2011).

The use of mobile platform technologies in tourism (m-tourism)

The mobile technology is growing rapidly worldwide. Almost all models of mobile phone being built today have a high efficiency/resolution digital camera and are provided with a GPRS function for connection to the Internet. As a result, mobile users can use their phones to seek information via Internet (Premchaiswadi 2010, p. 532).

Nowadays, the use of mobile platform technologies in tourism (m-tourism), both from the user's point of view and from the supply side, is one of the most important technological developments and a fundamental paradigm in the provision of personalized services. The relevant technologies can already be found in numerous commercial applications, such as tourist or museum guides with pre-installed applications or mobile web portals and browse tourist information of interest or tracking systems (e.g. GPS) to provide location-based services. Finally, among the most widespread mobile platform applications are those in the area of alternative tourism with sightseeing in natural parks, bicycle tours, mountaineering and so on.

The use of advanced multimedia technologies, digital maps and virtual reality techniques for the promotion of tourist destinations

One of the most significant trends in the use of ICT in tourism is the use of multimedia technologies, digital maps and virtual reality techniques. Such applications are frequently employed for the promotion of tourist destinations. Multimedia and other specialized technologies constitute an important design and user-friendliness component, affecting the potential of attracting users and allow fast access to comprehensive information. Image and video, dynamic digital maps, virtual tours and e-books are some of the most popular applications.

Multimedia technologies combine time-based data (such as voice, animation and video) with space-based data (such as graphics, text and images) and create animated and attractive presentations. In the tourism industry a number of these different media, such as video, computer animation, photography and music, are used in order to present tourism information for destinations or tourist products.

GIS technology is used for the development of modern tourism applications. This technology integrates common database operations such as query with the unique visualization and geographic analysis benefits offered by maps. Digital maps are a natural means of indexing and presenting tourism related information. Travelers are using maps to navigate during their travels and for preparing their routes. Moreover, maps exploit the two dimensional capabilities of human vision and present the information in a compact and «easy to read» way.

Virtual reality represents one of the most promising digital technologies. Virtual reality applications represent three-dimensional, interactive, computer generated environments. These environments can be models of real or imaginary worlds, and their purpose is to represent information through a synthetic experience. (Wild, 1997).

The «intelligent» data measurement/analysis systems for tourism

Tourism is an information-based business where there are two types of information flow. One flow of information is from the providers to the consumers or tourists. This is information about goods that tourists consume such as tickets, hotel rooms, entertainments, and so forth. The other flow of information which follows a reverse direction consists of aggregate information about tourists to service providers. When the aggregated data about the tourists is presented in the right way, analyzed by the correct algorithm, and put into the right hands, it could be translated into

meaningful information for making vital decisions by tourism service providers to boost revenue and profits. Data mining can be a very useful tool for analyzing tourism-related data.

Countries that employ such "intelligent" techniques at national level are mainly Austria, Spain, Finland and Cyprus in order to establish mechanisms for research and monitoring in tourism. For the internal measurement and monitoring case, it is worthwhile mentioning the example of the Slovenian Tourism Board which uses a Balanced Scorecard application for the measurement and evaluation of its performance.

IV. CONCLUSIONS

The use of Internet has changed the structure and the value chain of tourist industry. Consumers were those who have benefited the most since their power for bargains increased. This is due to the possibility they have now to access online to accurate information or communicate directly with suppliers, while meantime they benefit from lower prices. Internet has caused greater competitiveness among suppliers and introduced transparency, speed, flexibility, convenience and variety of alternatives on the market. The real time communication with tourist players facilitated the immediate distribution of products and led to the adoption of modern and new distribution channels.

The ICT applications and tools influence tourism industry in a growing manner. The ICT penetration into the tourism sector will be supported by today's development and establishment of new online technologies, such as web pages, WAP, PDA and so on, the growing ICT interactivity (hypermedia, interactive maps, GIS applications etc), growing personalization (i.e. sophisticated information search, presented information structure on the base of user's preferences and behavior), growing information transmission speed, growing security of e-business transactions (cryptology, communication protocols). The development of new and more powerful ICT applications empowers both suppliers and destinations to enhance their efficiency and re-engineer their communication strategies. Innovative technologies will support interoperability, personalization, and constant networking.

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