Monograph: Information Technology in the Tourism Industry (published jointly with Novática*)

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Introduction

Tourism is one of the largest sectors of the economy in the whole world, is responsible for a large number of jobs and represents a major contribution to the economy of many countries. In such a huge industry, Information and Communication Technologies, ICTs, play a fundamental role in boosting organizational efficiency and improving services.

Some of the key factors that have driven technological innovation in the industry have been its very size, the volume of business involved and the enormous challenge posed by its highly competitive nature. Yet above all, the fact that intensive processing of information is required means that ICTs must be used properly to ensure that the processes involved in generating, processing, applying and communicating information become more efficient.

Even though these technologies have been steadily and successfully applied since the middle of the 20th century, bringing down costs and enhancing the quality of service, the advent of the Internet has been what has triggered a radical change in the management, marketing and promotion of the services offered by tourism companies and institutions. Tourism-related products rank at the top of the list of Internet’s best-selling products: transport tickets, leisure, accommodation bookings, etc.

Background and Trends

There are countless players in the tourist industry, some concerned with passenger transport, others with accommodation, or brokering, promoting or managing tourist destinations. Each player has different information needs, which
is why the extent to which ICTs have penetrated their operations differs from one to another.

In the passenger transport industry, it is the air transport companies that stand out most, having pioneered the implementation of information technologies and computer networks since the last century. They were the first to bring in Computerized Reservation Systems, CRS, to handle their flight ticket sales and later to coordinate with one another to be able to integrate their systems with other companies’ systems, integrating additional services, such as accommodation and car rentals, giving rise to what are known as Global Distribution Systems, GDS. That is when major, global booking systems such as Amadeus, Sabre, Galileo, Worldspan, etc., began to form, and later became large technological companies that today control the market.

And as the numbers of flights and passengers grow larger and larger, airport management systems now rank among the most sophisticated, cutting-edge computerized systems: the air traffic applications used in traffic control towers, or the automated luggage check-in and distribution systems in place in some major airports, are just a few examples of such systems.

Other transport-related companies, such as maritime, railway or car rental companies have also steadily computerized their in-house management processes and brought in reservation centres.

Technology has not made the same inroads throughout the hotel industry. Major hotel chains realized right away that they had to computerize all their hotel management and sales processes, while technology was far slower in penetrating smaller establishments and, even though nowadays almost all hotels have technology in place, one can still find hotels that have yet to fully integrate their back-office applications with the front-office applications they use to handle reservations and room availability. Another problem that arises has to do with the capacity to adapt to users’ new behaviour patterns, as more and more book their trips and holidays themselves via the Internet. Yet more and more companies are introducing sophisticated hotel management systems such as PMS, Property Management System, and CRM, Customer Relationship Management systems, etc. As technological changes occur, they are also mirrored in the hotel, both customerwise (Wifi connectivity, interactive TV, etc.) and in terms of efficient control of the hotel (building automation), computerized energy and security management, etc. This issue of UPGRADE includes an article that describes the current reach of technology in the hotel industry.

There are all kinds of players and middlemen in the tourism industry, ranging from major tour operators to retail travel agencies that specialize in different market niches like incentive tourism, active tourism or meetings. Prior to the Internet explosion, retail agencies relied on network technology to log into the databases of the GDS with which they were commercially associated, to check availability and rates and to make reservations. When the Internet burst onto the scene, it brought radical changes to the industry, and several consequences for travel agencies, which were forced to tailor their business models to the new circumstances. It also brought new players and middlemen, such as virtual travel agencies and IDS, Internet Distribution Systems, some of them linked to GDS, airline companies or hotel chains. Expedia.com, Travelocity.com, Booking.com and Lastminute.com are just a few of the famous names among the thousands of new distributors.

Today, so many homes have Internet that more and more users now book services themselves online. This trend has, to a certain extent, triggered a disintermediation of the system, yet new intermediation roles have also arisen. Traditional agencies have had to adapt their business model to the new scenario, but new models, like the virtual travel agencies that perform all their transactions over Internet, have arisen too. There has been an upsurge in Internet distribution systems, IDS, online booking systems or travel portals, specialised in marketing trips and related services. These new distributors represent an excellent platform from which service providers can market their products, exponentially boosting their Internet presence.

However, this proliferation of distribution channels has posed another kind of problem for providers, especially hoteliers, who are having to spend more time and dedicate more human resources to managing, updating, supervising and optimising bookings and pricing policies in these channels. To respond to these kinds of needs and to handle the fragmented intermediation, new technology meta-intermediaries have emerged, and offer services for facilitating interconnection and integrating online tourist service providers’ bookings in the different distribution channels (including the web site per se) and managing the Internet marketing strategy on a combined basis.

These technology intermediaries are increasing their market share and are becoming the true controllers of the market in which reservation centres and tourist service providers are being integrated. Booking Booster and Travel Click are just two examples of this new kind of intermediation.

The integration technology is based on XML, Extensible Markup Language, and on different standards, the most widely-known being the one proposed by the Open Travel Alliance, OTA. The OTA is a not-for-profit trade association, founded in 1999, with the mission of solving the problems inherent with connecting multiple systems within the complex travel distribution arena. It is comprised of companies representing airlines, car rental firms, hotels, cruise lines, railways, leisure suppliers, service providers, tour operators, travel agencies, solutions providers and technology companies.

Destination marketing organizations, DMOs, are generally public institutions or companies that are set up to attract tourists and generate business in a specific place, be it a country, region or city. Even though the volume of information that has to be gathered, processed and maintained is in direct proportion to the size of the destination, evidently the right technology has to be used to manage it. DMOs started off with a limited Internet presence, offering
content and links to the area’s websites, but that trend is changing and now they are steadily generating business directly through their own reservations centres or through deals with third-party reservation centres.

Tourism 2.0
The term Web 2.0 refers to a change in how the Web is used, which is now user-centred. Tourism 2.0 or Travel 2.0 is the use of Web 2.0 applications in the tourism industry. The key features are the user-generated content, the fact that users can express opinions about their preferences and social networking.

More and more travellers are putting together their own personalized package on Internet, buying each product or service separately, and it is here where the Web 2.0 plays a prominent role. In planning their trip, tourists not only consult the destination’s websites, but visit social webs and check travel blogs looking for other user’s recommendations and opinions, look at other people’s photos and videos, use geolocation systems, etc. Once they reach their destination, they take photos and videos, and then share their own experiences on the Internet and so let others see it. For instance, they remark on and rate the hotels where they have stayed in Tripadvisor (<http://www.tripadvisor.com>) or in Booking.com, <http://www.booking.com>, publish their photos in Flickr, <http://www.flickr.com>, or Panoramio, <http://www.panoramio.com>, create a map with their trip’s highlights in Google Maps™, <http://maps.google.com>, upload their videos to YouTube, <http://www.youtube.com>, and share their experience in Wikitravel, <http://wikitravel.org>. They also share their experiences with their contacts in Twitter, <http://twitter.com>, or Facebook, <http://www.facebook.com>.

Web 2.0 is also revolutionizing the industry’s marketing strategies. It is essentially a question of being wherever users are, and users are spending more and more of their time social networking. That’s why it is more usual for companies and organizations to set up their own channels in YouTube or their own pages in Facebook or Twitter. Hotel chains were the first to adapt their websites, but the websites of destination marketing organizations are also steadily reflecting this new philosophy.

Innovation and Research
Due to its very structure, tourism offers an excellent field in which to apply the latest research being conducted with the different information technologies. All over the world, research establishments and universities are studying how to apply the latest trends in the semantic web, destination recommendation systems, person-computer interaction, ubiquitous computing, augmented reality, mobile technologies, E-learning, search systems and meta search engines, e-payment systems, price management, branding and brand reputation, reputation localization-based services promotion in social media, connectivity and systems integration, etc.

The most significant results are presented in different international conferences, including ENTER, organized by the IFITT (International Federation for IT and Travel & Tourism). Also linked to the IFITT is the leading scientific journal in this field, the Journal of Information and Technologies (ITT), whose chief editor has contributed to this monographic issue.

If, for example, we focus on Spain, one of the tourism world powers, important thematic events are held throughout the country, most notably the TURITEC (Tourism and Information and Communications Technologies) congress, organized by the Universidad de Málaga. Several national and regional authorities have set up bodies and establishments to foster research and facilitate the transfer of technology to the companies within their territorial scope, in order to enhance their capacity to compete. For instance, at a nationwide level, the State-owned company for the Management of Innovation and Tourist Technologies, SEGITTUR, created to support tourist promotion and the marketing of products and services through the use of new technologies and to contribute, through research, development and innovation, to raise levels of professionalism in the industry.

The regional initiatives include the IBIT Foundation and the Tourist Technologies Innovation ParcBIT, in partnership with Microsoft, in the Balearic Islands, as well as CICtourGUNE in the Basque Country, the Andalusian Research Centre for Tourism Innovation, CINTTA, while in the private sector, one could mention the Hotel Technology Institute (ITH),

The Monograph
This monographic issue presents different kinds of articles that will provide an overall perspective of the current and future applications of information and communications technologies in the industry, looking at different spheres of action, ranging from public to private enterprise, and including research and development establishments.

The first article, ”Specific Inter-Cultural Features in On-Line Distribution”, written by the Guest Editor Roman Egger, from the University of Applied Sciences of Salzburg, Austria, together with Mario Jooss and Sabine Schmeisser, analyses users’ behaviour in searching for leisure information when planning a trip and how important it is to take account of the specific cultural characteristics of the target groups, if one wants to get a competitive edge in view of the wealth of information on the Internet.

Carlos Lamsfus, Aukene Alzua-Sorzabal, from CICtourGUNE, together with Christoph Grün, and Hannes Werthner, from Vienna Technological University, Austria, present a decision-making system that helps tourists when they are planning to visit a destination. In their article "Context-based Matchmaking to enhance Tourists’ Experiences", they present a context-based semantic matching structure, designed to make personalized proposals to tourists during their trip, thereby improving their experiences while they are at a given destination.

Next, Cathy Guthrie, from the London Tourism Management Institute, UK, and Lluis Prats-Planagumà, from...
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the Universitat de Girona, Catalonia, Spain, in their article "Testing Delivery Systems in Transnational Virtual Learning: The Vocational Management Training for the European Tourism Industry (VocMat) Case Study", put forward some thoughts about the VocMat project (Vocational Management Training for the European Tourism Industry) which aims to provide a flexible online training method for the European tourism industry.

In the next article, "Technological Tools to support Online Marketing: SEGITTUR’s Role", Carlos Romero-Dexeus, Head of R&D&I at SEGITTUR, Spain’s State-owned company for the Management of Innovation and Tourist Technologies, outlines the latest technology tools that SEGITTUR has developed in recent years to support online marketing of the tourist services that Spanish companies offer over the Internet.

The article "Technological Innovation, a Challenge for the Hotel Sector", signed by Patricia Miralles, project co-ordinator of the Hotel Technology Institute, describes the current state of technological innovation in the hotel industry and the future challenges that it faces.

Last of all, Mateo Amengual-Rigo, Director of the Centre for Tourist Innovation and Development (CIDTUR), Jaime Bagur-Mora and Sandor Van der Meer, both from the Department of Research, Technological Development and Innovation of the Regional Government of the Balearic Islands, and Anne-Laure Debrix, of the IBIT Foundation, have written the article "Technology Map: Bringing R&D+I Benefits to SMEs in the Tourism Sector. The Case of TOUREG Project", in which they present the approach and methodology followed in the TOUREG project, included in the 7th European Framework Programme, which aims to draw the technology map of the different regions and countries participating in the project. This technology map includes both supply and demand, that is to say, which technological solutions are provided by technology suppliers and what solutions the potential end users need and demand.

As usual we have included at the end of this presentation a limited number of useful references (books, websites, articles, reports, etc.) for those UPGRADE readers wishing to know more about the subject matter covered in this monograph.

To wrap up the presentation, let us express our gratitude to the authors for their valuable papers and to editorial teams of UPGRADE and Novática for having offered us the opportunity of editing this monograph, that we hope will be of interest for non-specialized readers too.
Useful References on "Information Technology in the Tourism Industry"

These links and references, together with the ones available in each of the papers of this issue, may help the reader to go further into the knowledge of the matter covered by this monograph.

Organizations

Journals and Congresses
- Journal of Information Technology & Tourism, ITT. ISSN 1098-3058. Published by Cognizant, USA.
- International Journal of Digital Culture and Electronic Tourism, IJDCT. ISSN (Online): 1753-5220. ISSN (Print): 1753-5212.
- Journal of Hospitality and Tourism Technology. ISSN: 1757-9880.
- Tourism Management. ISSN: 0261-5177. Published by Elsevier.

Centres for Research on Tourism and Tourism Technology Innovation
- Tourism Center, University of Minnesota, USA, <http://www.tourism.umn.edu/>.

Books

Research

Other Sources