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# Technological Innovation, a Challenge for the Hotel Sector

Patricia Miralles

*Since the 60s tourism has been an undeniable driver of economic and social development for Spain, accounting for 10% of the GDP and 12% of all jobs in 2009. The hotel sector, with approximately 14,000 establishments and 198,000 professionals, is one of its cornerstones. However, the tourist industry is facing a number of challenges (new competing destinations, changes in the business model, new habits and practices of tourists, etc.) which require all the players in the value chain to embrace innovation and technology in their businesses in order to boost competitiveness and productivity. Since 2004 the Spanish ITH (Instituto Tecnológico Hotelero, Technology Institute for Hotels), has led the hotel sector initiative in this field, and has proposed new solutions to the changing needs of Spanish tourism.*

**Keywords:** Enhanced Reality, Hotels, ICT Tools, Innovation, Internet, Mobile Internet, Social Networks, Spain, Technology, Tourism.

## 1 Introduction

The hotel sector is in the midst of a transformation process in which its capacity to innovate and adjust to the new conditions and demands of the market has become one of the underlying values and goals of the hotel sector. This is due to the combination of a number of structural and strategic changes in the market affecting the hotel business, and the reactions to those changes.

More specifically, the structural and strategic changes which are most altering the way we understand tourism in recent years are the following:

- The introduction of new technologies
- The impact of the Internet
- The change in demand
- The emergence of new players
- Emerging competitor destinations
- Excessive supply
- Concern for the environment and sustainability-related issues.
- Etc.

Meanwhile, the reactions to these structural and strategic changes, and the various measures taken to address the non-structural changes affecting the sector, may be grouped under three different headings:

1. Differentiation
2. Outsourcing of services
3. Market segmentation

## 2 Current Situation

One of the change drivers that may help the hotel sector in its process of adaptation or change to this new scenario is the introduction of the new information and communication technologies (ICTs). However, the level of development and implementation of the new technologies in the hotel sector is as varied as the sector as a whole is segmented.

On the one hand in Spain we have the major hotel chains, such as Sol Meliá and NH Hotels, worldwide pioneers in

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the design and implementation of the most competitive and innovative solutions of the sector at a global level. But these chains account for a very small and unrepresentative part of the hotel business as a whole. Most of the sector is made up of SMEs and small chains that are slow to respond to the need to introduce the new technologies, due, in many cases, to the conservatism and inertia that still persist in the organizational culture of small companies and their staff's resistance to change. They also come up against factors external to the company which slow down the introduction of technology in hotel management (although it is not too late to remedy that) such as the unsuitability of available technological tools for the needs of SMEs, or their high price.

However, we are starting to see signs of improvement in this respect, as second and third generation family members begin to enter the management of these smaller companies. These new professionals are more familiar with the integration of technology in the world of tourism. The increasing number of training programmes in new technologies set up by the various public authorities is also helping. These include the *Plan Avanza de Turismo* training programme or the opening of public financing facilities for the acquisition of software, hardware or online marketing tools (such as the NEW- No Company without Web - programme).

What would appear to be unquestionable is that progress in the introduction of these new technologies in all companies, both the very innovative ones and small SMES, is vital if the tourism sector is to:

- Improve competitiveness
- Differentiate the product

We are therefore facing a scenario in which hotel managers need to consider the importance of embracing innovation and technology as key success factors for their companies and for the growth of the sector as a whole, and thus meet the demands of consumers, the market, and global competition. To achieve this it is necessary to make a serious commitment to innovation, by introducing the new technologies into the hotel business.

### 3 Internet as a Marketing Tool

The arrival of the Internet has revolutionized the hotel sector in recent years. If we look at some relevant statistics [1] [2], we can see that 67% of all trips made by foreign tourists are self-planned and made to measure, leaving the demand for package holidays at a mere 32%.

It can also be seen that consumers not only consult the Web to obtain information (50%), but 42.2% book their holidays online and 39% pay for their trips online too. This is due to a greater confidence in online transactions, a positive trend which is sustained over time for all activities (consultation, bookings and online payments).

The behaviour of Spanish tourists is similar, since in 2007 nearly 64% of all Internet users looked for tourism and travel related information. A similar percentage of users bought tourism products online in 2007. On the whole, statistics on tourism-related Internet use show that the Spanish are above the European average, which stands at 40% [3].

But this situation changes if we look at the way people plan their holidays in Spain compared with trips abroad. Only 11% used the Internet for holidays inside Spain while 34% used it for trips abroad. Also, in the case of domestic trips, the Spanish use the Internet mainly to look for and book accommodation.

In the case of trips abroad, the search to booking ratio is much higher than for domestic trips, as is the booking to payment ratio. Also transport plays a much more important role than accommodation in terms of both bookings and online payment.

Thus the Internet opens up a new business opportunity for the hotel sector as it provides access to an unlimited number of potential customers, either directly through its own web or through channels other than the tour operator, such as the online travel agencies (Travelocity, Expedia, Rumbo) and offer aggregators (SideStep, Kayak, Atrapalo). As a result, the online market is now a reality full of future possibilities which the hotel sector cannot afford to miss out on.

When asking hotel entrepreneurs [4] directly about their opinion of the Internet as a marketing channel, we see that there is a high level of use (over 70%), their main reasons being to reach new customers (36% of respondents), improve management quality and speed (31%), reduce business costs (27%) and enhance the company's image (21%).

Nevertheless, according to research conducted by Turitec (Conference on Tourism and ICT [5], there is still room for

improvement in aspects such as the incorporation of specific and detailed information regarding the hotel product when booking online. This would include information regarding the type of room (smoking / non-smoking), access for the handicapped, the possibility of changing or cancelling online, the lack of options in the search section (city and region, activity, setting out a route and offering the nearest hotels, places of interest, price, airport, etc) plus the lack of any differentiation in terms of profile (loyalty club members, business tourism, etc.) To a great extent this limits the possibility of segmented offers or getting information online.

At this point, we would highlight the case of NH Hoteles, whose webpage shows a clear, effective and innovative marketing and sales strategy which the hotel chain developed after asking itself the following questions:

- How can we capture the traffic there is today on the Internet? Where do we look for our customers?
- How do we make our own webpage attractive?
- Are we prepared for bookings and e-commerce? We have to work on information and content.
- How do we interact with our customers' data?

As a result, they decided to try out different web and marketing formulas to find the most suitable and profitable one.

### 4 The Impact of Social Networks

Given all the above, we come to the conclusion that a business model which fails to consider the Internet as another natural channel for the distribution of its products will soon be unsustainable. Furthermore, the Internet's development towards social networks, what has become known as the Web 2.0 and, when applied to the world of tourism, Travel 2.0, will play an increasingly important role in the promotion and marketing of tourism as a whole.

When looking at the statistics drawn from several studies and surveys [6] [7], we can confirm that Spanish Internet users are increasingly more active in social networks and communities. The following data endorses this: 30% of Internet users have an active account in forums, 14% have their own blog or participate actively in others, 17% offer their opinions in product assessment sites, 19% use the Myspace social network, 15% use Facebook and 12% use Tuenti. Furthermore, 2.0 users are active members with 84% of them accessing more than once a week while 61% are daily users. 76% of these 2.0 users buy online, and as many as 54% buy tourist products (transport, accommodation, etc). What is surprising here is that they do not use any other type of communication such as television or radio.

With regard to content applications [8], we see that 40% of Spanish Internet users watch videos on YouTube or NSN Videos, 34% offer comments or opinions on news, videos and other contents and there is an exponential growth in the use of Twitter in Spain, which is now ranked ninth in the world in terms of number of users, according to the Twitter itself.

However, when looking into the use of social networks

and communities by hotel sector [9], we reach the conclusion that 75% of hotel chains have a page on Facebook and a little over half (55%) use Twitter. However, although the figures are promising, the problem is that, in most cases, there is no clear identification of the corporate brand (no name of the chain/hotel, no logo) and in many cases the content is generated by users and not by the entrepreneur. In some cases, it has been the employees themselves who have created it, outside the company, making it difficult to coordinate or control the message. More importantly, however, with regard to social networks we see that normally this is an infrequent, isolated and repetitive activity, and on the whole one which is somewhat unsuccessful from a communication point of view. Generally speaking, there are very few hotels which are able to engage in a real dialogue with their customers. In fact, communication is limited as the messages are generated automatically from contents replicated in other media. Therefore, more often than not the content is sales-oriented as it gives information about special offers but with a very low level of interactive communication. There is very little information about the environment or sustainability, or the organizations' human resources, or innovation and quality.

Clearly the hotel sector should make use of social networks and communities as a new way of channelling communication with their customers, since one of its greatest advantages is that it is a cheaper and faster way of transmitting information, enabling the development of innovative strategies:

- Marketing and loyalty campaigns, enabling the sector to reach a highly segmented target public among travellers sharing the same interests.
- Downloadable podcasts on tourist information of interest (e.g. the Gremi de Hotels de Barcelona).
- Specialized blogs on specific subjects (wine tourism, nautical tourism, castle routes, etc.).
- Participation in web sites showing tourists' comments and opinions (e.g. Tripadvisor) or letting users participate in the hotel's own web site.
- Including georeferencing as a visual element on the Web.
- Managing the brand's reputation on the Web.

But this is only possible if you have people with a proactive and enthusiastic attitude and the heart of a 2.0 user, whether they are the owners, managers or staff.

An example of this phenomenon is the Artiem chain which uses the Internet as a tool for advertising its new business vision ("to provide its guests with a feeling of well-being, tending not only the body but also the mind") and not just as a sales channel. It also uses social networks to interact with its customers, creating its own community comprising both customers and staff. People use this social network to give their opinions, upload their photos and videos, relate their experiences, and interact with the users by exchanging recipes, for example. (See Figure 1.)

Palladium, the brand belonging to Fiesta Hoteles, is another example of good use of social networks. It was the customers themselves who created the specialized blog for

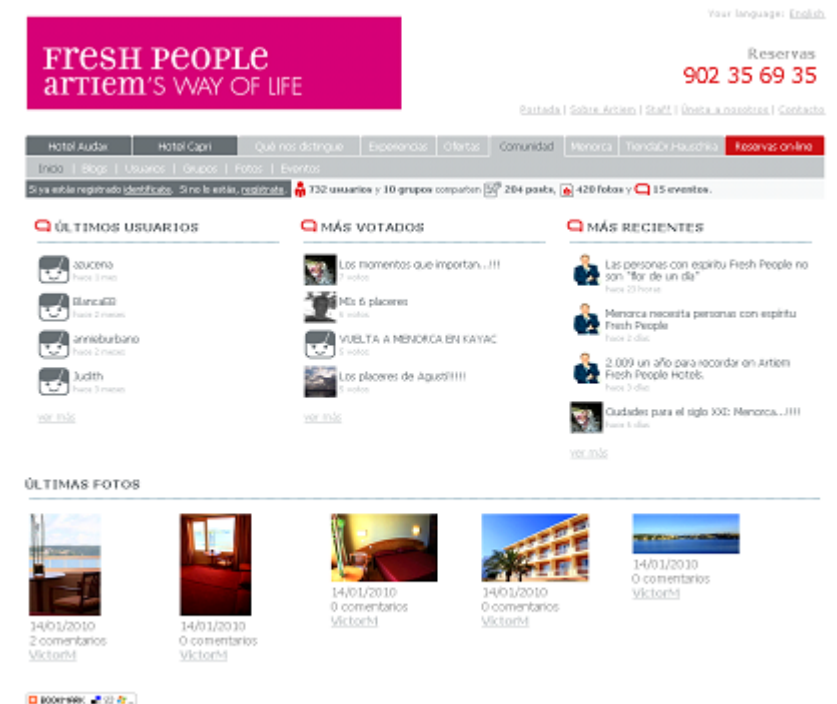


Figure 1: Home Page of the Artiem Chain Website <http://artiemhotels.es>.

this brand, as a space where they could relate their experiences. The chain has used this new channel to ask customers for their opinion about the new services or decor they want to bring in.

Last but not least is the group created by staff in BestHotels in Facebook. Set up by the IT department, this group is the only page in Facebook created by this organization. Although the content is in no way negative and there are no direct references to the hotel group's services, products, offers, etc., its reputation and image could be damaged.

By way of conclusion we might say that the strategy employed with regard to social networks must take into account the following points for it to be really efficient and valid:

- The brand must converse.
- The user must be identified, segmented and personalized.
- There must be a constant, orderly flow of "live" information.
- There should be technical integration between the official web and social channels.
- The internal organization should be 2.0-oriented.
- Staff should be encouraged to provide their own approach.
- Finally, results should be measured and managed within a general communication strategy which leverages the Web 2.0.

### 5 The Introduction of New Technology

In addition to the Internet, new technologies can help improve the profitability of a hotel business through hardware, software and services tools. These tools can facilitate management and work, and reduce production costs, thereby increasing the operating margin as well improving efficiency and productivity.

Today, there are many types of ICT technology which are already present in the hotel sector [11]:

■ **Software:** the professionalization of hotel managers, e-distribution, the new services complementary to accommodation, the increase in direct bookings, higher customer expectations and demands, and growing competition are forcing hotel managers to press for new applications and management systems, such as PMS (Property Management System) for the hotel business; CRM (Customer Relationship Management) for the management and segmentation of customers and loyalty programmes; CRS (Central Reservation System) for the management of direct and indirect bookings; ERP (Enterprise Resource Planning) for billing, procurement, faults, business management, etc.; revenue and yield management tools for the management of channels and prices; the software for managing the maintenance of hotel infrastructures (preventive and corrective maintenance, job applications, asset management and storage or management of spare parts); online payment gateways for marketing systems; electronic billing systems; business intelligence for the agile management of to facilitate decision-making;

and integration with service and product providers through purchasing centres to facilitate purchasing processes.

■ **Hardware:** customers, accustomed to the introduction of new technologies in their daily lives, are demanding more hardware in their rooms. The most common are WiFi, digital television, connection with mp3 and mp4, etc. More advanced technology has also been introduced in the hotels themselves, such as computers, cash registers, POS (point of sale) terminals, which are not always prepared for the extreme conditions suffered by hotels (areas of high humidity, high salinity, extreme temperatures, grease splashes, etc.) which may cause serious management problems.

■ **Networks and connections:** having an optimum network and connection infrastructure has become essential for providing customers with security, availability and quality of service or for in-house hotel management processes.

■ **Mobility solutions:** the introduction of mobile applications offers the hotel sector a tangible competitive advantage. These solutions increase productivity and improve business management (support for sales-people, geolocation, access to business management, mobile e-mail, etc.) or help provide a better service for customers (information search, bookings, use of the services provided by the hotel, automatic check-out, special offers or services for the customer, etc.), through various devices (mobiles, PDA, interactive kiosks or interactive television).

■ **Intelligent services:** these systems (domotics, access control, illumination, air-conditioning, swimming pool, watering system, alarm systems alerting against flooding, fire or gas, surveillance cameras, etc) serve to improve hotel facility management and maintenance systems. Together they can significantly reduce costs and enable work to be done faster and more efficiently.

When looking at the actual use of these technologies in hotel management today [10], we see that a large percentage of companies have a computer and Internet access (63%). Conversely, very few use intranets or extranets (25% and 14%, respectively); only 55% use electronic signature and 30% use electronic billing; 28% use ERP management tools and 30% use CRM loyalty systems. As for sales systems, we see that 28% have an online sales system but only 29% offer payment online.

Regarding the impact of these new technologies on hotel business procedures [4], those with the highest impact are sales systems (booking and quota management) and reception systems (check-in/check-out), followed by administration systems (billing and accounting). However human resources tools provide no added value.

An important point, and one that the hotel sector highlights, is the need to adapt ICT tools to the hotel sector's own particular needs as it is not always possible to copy those used in other sectors. For example, as the criteria applied are different (for instance, loyalty programmes, which are not only based on quantitative issues), so the relevant business indicators are also different, among other things. Another urgent need is the integration of the different tech-

nological tools (management systems with booking or loyalty systems) so that they are able to share information and become easier to use.

To illustrate the growing use of ICTs in the hotel business, we can cite a number of good examples: Sol Meliá's Sirius system (which includes bookings, inventory, CRM, the hiring of tour operators, etc); the AC Hoteles' booking and information centre with its own distribution system: Mardavall Hoteles' Star Guest solution for customer care with centralized services and a single-point customer complaints service with the possibility of knowing the state and progress of the incident in real time; the intranet developed by Relais Termal as a knowledge management vehicle: in Derby Hotels, they have a Revenue Management tool which manages prices and room allocation; in H10 Hotels, they have a tool which studies the staff's behaviour and profiles.

## 6 Future Trends

Looking at the future, perhaps the most significant trend is the growing use of the mobile Internet in the wake of the mass, almost universal, implementation of mobile telephony in the western world. Consequently, the Internet is going to become increasingly more mobile, either through broadband phones or mini-laptops, mainly due to the possibility of connecting to the Internet from anywhere. Proof of this is that there are now over 1,000 million users worldwide, and the 3G penetration rate stands at 21% [12]. In Spain, 23.8% of users access the Internet from these devices, and the 38% 3G penetration rate places the country in 7th place worldwide [10]. By 2014 the number of users worldwide is expected to top 2,750 million with a 43% penetration rate [12].

This will lead to the incorporation of new applications such as QR codes which are already very common in countries like Japan or South Korea. A QR code consists of a bi-dimensional barcode system which includes a content which is read by mobile devices. These codes could be included in the establishment's advertising material or photographs, as is already being done in other sectors. This will enable customers to access a corporate or promotional website without writing in the address or knowing the promotional message contained within. You can create these codes free of charge at this address: <<http://qrcode.kaywa.com/>>. If you want, you can discover the hidden message in the code in



**Figure 2:** Example of Hidden Message in Corporate and Promotional Websites.

Figure 2.

Finally, a promotion tool which is becoming increasingly popular is augmented reality which consists of inserting a digital layer on top of what is seen through a mobile phone camera, giving us information about what is around us, such as nearby hotels, places of interest to tourists, the hotel's offers and promotions, etc. Users can activate the layers whenever they want, according to what they need to find. All you need is an application like Layar, which works like a search engine, allowing you to visualize all the information about a hotel on the screen of your phone.

Research and work is also being done on new tools and technologies such as:

- A virtual personal assistant which offers customers the information they require according to their preferences. This can be used to show restaurants close to a meeting, share prices, flight information, etc.

- New material such as nanofibers which help prevent noise, dirt and bacteria or which adapt to the needs of the customer by changing colour, consistency or temperature.

- A bath mat which is able to detect our vital signs and determine which nutrients we need to make us a customized shower gel.

But these are gadgets of the future which will not be with us for some time. Perhaps they will not meet the needs of the market, so we need to go forward, slowly but surely, generating new ideas based on product differentiation and attraction of demand.

## 7 ITH: Leading the Necessary Change or Transformation

Our main conclusion is that there is strong but insufficient trend towards the introduction of ICTs in the hotel sector. The sector is a mere buyer of external technology and is not playing an active role in its development. To help the hotel sector along this path, the Spanish ITH (*Instituto Tecnológico Hotelero* - Technology Institute for Hotels), has become a reference point for the promotion and diffusion of innovation and technology in the sector and a facilitator of the integration of innovative technological solutions.

To this end we organize conferences on awareness-raising and the diffusion of innovation and technology (Fiturtech, National Workshop on Technology applied to Tourism, an awareness-raising programme on tourist innovation) and we coordinate Thinktur (*Plataforma Tecnológica del Turismo*, *Plataforma Tecnológica del Turismo* - Technology Platform for Tourism), formerly the RedHotech Platform, which identifies the needs of hotel companies and promotes R&D+I projects of interest to the tourism sector.

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