
Electronic business in tourism

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Abstract: The web changes commercial activities such as information gathering, shopping, trading, collaboration, and distribution to which companies need to adapt their strategies. The importance of information and communication technology (ICT), especially of the internet in the travel and tourism industry has increased tremendously over the past few years. The travel and tourism area is one of those industries, which are able to gain enormous synergy effects from use of the internet. The research projects at the ec3 focus on the tourism area from different perspectives. This paper provides an overview of the work within the xCom project in this research area by looking at trends and developments within the eTourism area. We give an overview of the travel and tourism industry and the changes caused by ICT. These changes lead to several threats and opportunities which will be outlined in our 'competitive advantage in eTourism' framework.

Keywords: eTourism; competitive advantage.

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1 Introduction

The travel and tourism area is one of those industries that are able to gain enormous synergy effects from use of the internet. In fact, tourism is the leading application in the B2C (business-to-consumer) area. Although the slow economy and current political developments have negatively influenced e-commerce, it is still flourishing in the tourism sector. Whereas in other industries, there is a stronger hold onto the traditional way things have been done, in the travel/tourism industry we are witnessing an acceptance to the extent that the structure of the industry and the way business is conducted is changing. The internet is used not only for information gathering; there is an obvious acceptance of ordering services over the internet. And it is not just a matter of only trying one or two services; it applies to all travel and leisure services. A new type of user is emerging. The internet users seem to accept becoming their own travel agents organising their trips themselves and building their own leisure trips. Thus, use of the internet has become an essential competitive factor for travel and tourism organisations.

2 The industry

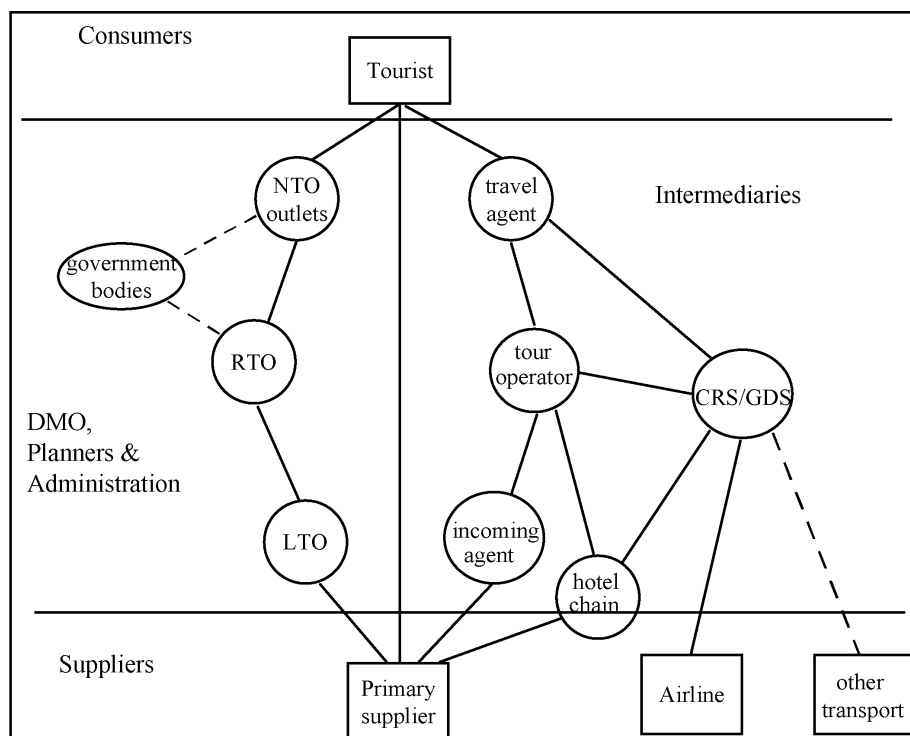
The travel and tourism industry is a world-wide industry, the global character – both from the supply and the demand side – represents one of its dominant features as well as challenges for IT and its applications. These very features also explain its importance for economic development [1,2]. Travel and tourism account for approximately 11% of the world-wide GDP (according to the tourism satellite account method of the World Travel and Tourism Council [3]). The demand side is enormous; there will be approximately 1 billion international arrivals in the year 2010. It represents a cross-sectoral (umbrella) industry, including many related economic sectors such as culture, sports or agriculture, where over 30 different industrial components serving travellers have been identified. This explains its heterogeneity, and due to its overall SME structure, (especially when taking destination's point of view) it has a huge importance for regional development. For example, in the EU the hotel and restaurant sector comprises of more than 1.3 million

enterprises, which is about 8.5% of the total number of enterprises. 95.5% of these enterprises are very small (one to nine employees). The supply and the demand side form a world-wide network, where both production and distribution are based on cooperation. The product is both perishable and complex [4]:

- e.g., a hotel bed not sold for one night represents a lost income; suppliers are in a risky situation, which can be reduced if access to information about ‘stocks’ is available
- the tourism product itself is a bundle of basic products, aggregated by intermediaries. To support this, basic products must have well defined interfaces with respect to consumer needs, prices or distribution channels.

Tourism is an information business, a tourism product is a ‘confidence good’. Tourists have to leave their daily environment; they move for consuming the product. Thus, the product itself cannot be tested and controlled in advance. At the moment of decision-making, only an abstract model of the product, e.g., its description, is available. Therefore, decision making and consumption are separated in time and space. This characteristic of tourism products requires information on both, the consumers’ and suppliers’ sides, entailing high information search costs and causing informational market imperfections [5]. These, in turn, lead to the establishment of specific product distribution and – comparably long – information and value-adding chains. Figure 1 provides a structural view of the tourism and travel market [4]. It differentiates between the supply and demand side and their respective intermediaries.

Figure 1 Structural view of the market [4]



Links mark the relationships and the flow of information. It only shows the most relevant links, the nodes indicate relevant types of players in the field. On the supply side, we denote enterprises such as hotels, restaurants, etc. with 'primary' suppliers. These are mostly SMEs. One should note that with respect to a functional differentiation these companies are on the same level as 'big' players such as airlines. Tour operators can be seen as product aggregators; travel agents act as information brokers, providing the final consumer with relevant information and booking facilities. CRS/GDS (Central Reservation Systems/Global Distribution Systems), stemming from the airline reservation systems have already developed in the 1960s and also include other products such as packaged holidays or other means of transportation. They provide the main links between tour operators and travel agents. Whereas the intermediaries on the right side can be seen as the 'professional' connection between supply and demand, the left side is relevant for destination management, planning, administration and branding of destinations. Under standard circumstances, these entities have to act on behalf of all suppliers within a destination and are not engaged in the booking process. The links to governmental bodies are dotted lines indicating that these destination marketing and management organisations are often governmental organisations. The upstream information flow towards market consists of product information, whereas the downstream flow reports on market behaviour and competitor performance, mostly represented in terms of statistical aggregates. Both information flows create a tourist information network tying all market participants together and apparently, reflecting the economic relationships between them.

3 Business is changing

When a tourist decides to go on a trip and to book an offer, the product does not exist materially, it cannot be investigated or inspected physically. Usually, the decision making process depends only on the information given by the source being used. Therefore, the industry is highly influenced and changed by new information and communication technologies (ICT). The IT revolution has profound implications on tourism management by enabling efficient cooperation and offering tools for the globalisation of the market. Today, tourists show a more dynamic behaviour, they ask for more and better information. Our society is changing into an information knowledge society. Today, many companies and organisations in the tourism industry are using new information technologies. It is not just a computer or a simple network that is used by a company like a hotel, it is an entire system: networks of computers and communication technologies are used by the whole industry.

All players become users of ICT in order to ensure their own survival and competitiveness. Use of digital electronic methods and tools to gather, process, share and distribute information and services throughout the tourism value chain can provide a competitive advantage. For example, reservation systems (CRS/GDS) are used by most of the travel agents (in the USA: 96%), tour operators, airlines, hotels and car rental firms to distribute their products. The best known reservation and distribution system players are Sabre, Galileo/Apollo, Amadeus, and Worldspan [2,6]. These GDSs also allow airlines and other users to directly monitor, manage and control their capacity (yield management) and their clients (frequent flyer programmes). In the year 2000, these four GDSs controlled 98% of all airline reservations. Working with CRS and GDS for

more than 30 years provided airlines and travel agencies with competitive advantage in the field of information handling in tourism. The growth of the internet and new powerful applications allowed tourism providers to directly access prospective clients for the first time in the mid nineties. Suppliers, intermediaries and new intermediaries went online using the internet to address the consumers directly. The value chains within the industry are changing. Poon [2] describes four profound implications for the travel and tourism industry caused by information and communication technologies (ICT):

- ICT changes the rules in the industry
- ICT is substantially altering the role of each player in the value-creation process of the industry
- ICT facilitates the production of new, flexible and high-quality travel and tourism services that are cost-competitive with mass, standardised and rigidly packaged options
- ICT helps engineer the transformation of travel and tourism from its mass, standardised, and rigidly packaged nature into a more flexible, individual-oriented industry.

The internet, as such an ICT, influences every part of the tourism network, it enables each player including new ones to get in contact with other players in the value chain, in particular with the consumer. This affects the whole industry, its value chains, and the way the companies make their business within the system. The internet is a possible instrument to close the gap between local suppliers and the demand side [4,7]. It offers also small, local players to have direct customer contact and the chance to sell their products on the global market.

4 Online travel: market overview

New players like Expedia, Tiscover or Travelocity appear on the market recognising tourism as an information market that offers them new business opportunities. Such companies act as new intermediaries using the web for their business and bypassing the classical way of distribution in the tourism industry. Many of these companies have their background in the tourism industry, but there are also many new players, which grew up with the internet. The largest and best-known travel sites on the internet are Expedia from US Networks and Travelocity from Sabre. These sites act as online travel agencies, that have already gained many online customers and they are among the largest agencies in the USA.

In Europe, the traffic on travel websites grew by 75% in 2001, with the UK representing the biggest online travel market. Marcussen [8] believes that the European online travel market will be worth €14 billion by 2006. Online travel sales in Western Europe were worth €4.4 billion or 2% of the total travel and tourism market in 2001. Air travel accounted for 59% of total online travel sales followed by hotels and package tours each reaching 12% of sales. Rail travel and car rentals followed with 9% and 4% respectively. The UK alone accounted for 34% of online travel sales followed by Germany representing 24% [8]. Online travel sales are expected to increase by 3.6% to approximately €8.4 billion in 2003.

Table 1 Trends in overall online travel market size (European market 1999–2006) [8]

<i>W. Europe (Year)</i>	<i>Market (billion €)</i>	<i>Internet sales (Billion €)</i>	<i>Internet sales (% of market)</i>
1999	200	0.8	0.40
2000	208	2.56	1.23
2001	216	4.43	2.05
2002	223	6.46	2.90
2003	230	8.4	3.65
2004	236	10.3	4.36
2005	244	12.2	5.00
2006	251	14	5.58

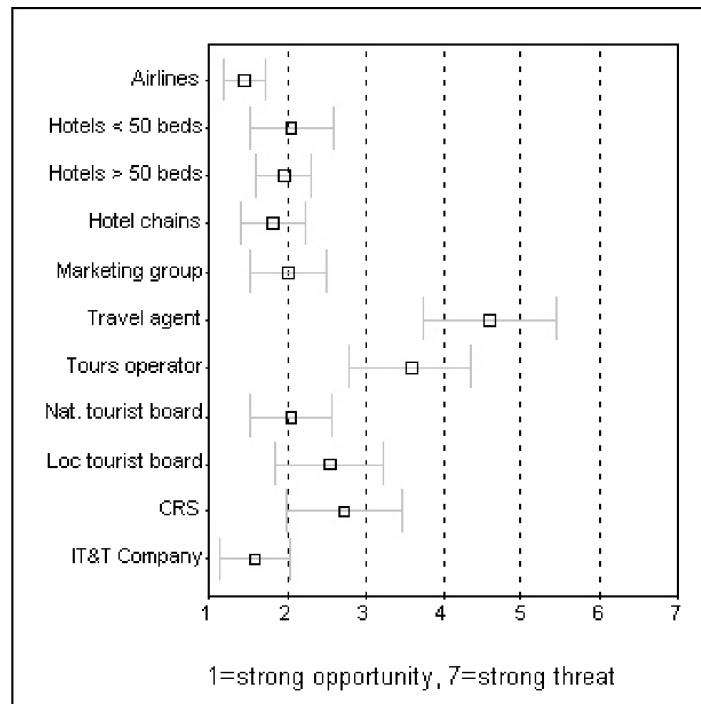
5 Competitive advantage in eTourism

The research projects at ec3 focus on the tourism area from a technological as well as from a management point of view. The aim of the xCom project is to evaluate success factors for e-business and m-business applications. The project consists of several work packages, one of them focusing on the travel & tourism domain in particular. Within this work package we define a generic framework for competitive advantage, which is used to evaluate any specific industry sector. The theoretical framework is based on Michael Porter's *Model of Competitive Advantage* [9,10] and the *Logics of Value* concept, defined by Akkermans [11]. It is used to identify where and how the internet as a new communication and information technology, influences the SME accommodation sector in Austria. The framework includes following major steps [7,12]:

- In the first step we use the strategic concept of the five competitive forces [9,10] to analyse an industry. This market-based view provides us with an overview of the developments and threats within an industry caused by ICT and in particular by the internet.
- To counteract these threats and to achieve a competitive advantage a firm has to develop a strategy using the opportunities of the internet. This is the subject of the second step of our framework, where we define several opportunities and activities a company can use to gain a specific competitive position. The basic unit of competitive advantage is a discrete activity, which adds, creates or captures value to a product or service. In our framework we distinguish between two value tasks a company has to focus on within its value chain: the value creation and the capturing of value to gain knowledge and the ability to influence the value creation process.
- In the last step, the framework is applied to the SME accommodation sector and evaluated by an expert survey and a hotel survey. This provides us with a broad picture of the awareness of hotels regarding the use of the internet for their business activities. Finally, we identify the strengths and weaknesses and formulate possible recommendations for decision-makers within this sector in Austria.

The expert survey investigates which market players of the travel and tourism industry are confronted with growing threats and which are provided with new opportunities by the internet (see also [7]). The experts were asked to evaluate the degree of opportunities or threats caused by the internet for each player. For each player they had to assign a number between one and seven, where one represents strong opportunities and seven strong threats. Eleven different types of players in the travel and tourism industry were identified. As illustrated in Figure 2, the experts regard airlines ($\bar{x} = 1.45$) as those organisations with the largest opportunities provided by the internet.

Figure 2 Opportunities and threats for the tourism industry players (95% CI)



IT&T companies, hotel chains, and hotels with more than 50 beds are also very well rated with a score lower than two. Hotels with less than 50 beds are rated with an average of 2.05, thus their opportunities are also seen as strong and above average. The only players which are confronted with stronger threats than opportunities are the travel agents, which received a rating of 4.59 from the experts. Figure 2 also illustrates that the situation of intermediaries such as travel agents, CRS/GDS and tour operators is seen as more critical than that of suppliers. It also illustrates that those players are rated within a larger 95% confidence interval. For example, travel agents are rated between 3.8 and 5.3, which indicates that the experts are more indifferent about their future role compared to airlines, which are rated between 1.2 and 1.8. The situation of the larger suppliers such as airlines and hotel chains can be seen as very strong; and IT&T companies as new players in the market have also good opportunities provided by the internet. In general, an average rating of 2.39 sees the travel and tourism industry in a good position.

Furthermore, we evaluated threats and opportunities for the accommodation sector caused by the internet. The most important threats are seen in changes of the retail and distribution channels and in communication with the consumer. Hotels which are ignoring the new channels and possibilities are confronted with increasing threats. This is also indicated by the reduced switching costs of the buyers. By using the internet the consumer can easily book at another hotel, thus direct communication with consumers will be an essential success factor for hotel business and it will improve the customer relationship. On the other hand, as the most important opportunity the experts rated the new possible distributions channels to bypass existing ones.

With a second step of research in the xCom project, we will evaluate the use of the internet within the accommodation sector in Austria and compare the results with the results of the expert survey. This will provide us with a broader picture of the awareness of accommodation facilities regarding the use of the internet for their business activities. Finally, we will formulate possible recommendations for decision-makers within this sector in Austria.

The other ec3 projects are strongly interdependent with the xCom project. By defining value creation and value capturing opportunities through the use of our framework, the research results accomplished in the other projects can help improve the competitiveness of tourism enterprises. For example, in the Ad.M. In project, we have been developing an adaptive multilingual interface for tourism information, which will facilitate the access to information systems [13]. It increases the value for the customers and allows providers to capture additional information about the users' information needs. The project MOVE [14] focuses on modelling and resource planning in virtual enterprises and supports the networking of several players within the industry by using technologies like web services. The prospect of this project is the development of a new way of doing business within the tourism value chain, with increased participation of large companies as well as SMEs and short feedback cycles from the end users. This could, for example, improve the competitiveness of a destination. Finally, the project DWHDM – Data Warehousing and Data Mining [15] – allows gaining knowledge about the customers and their behaviour in a destination management system (DMS) such as Tiscover.

6 Conclusion

eTourism is at the intersection of two of the most rapidly developing industries: information and communication technologies (software companies, telecommunication companies, service providers) and the tourism and travel industry (destination organisations, hospitality, tour operators, transport). As such, it also raises interesting and challenging research issues for existing research institutions. ICT and the tourism and travel industry have to be seen as an interdisciplinary field. The aim of this paper is to provide an overview of the present research at the ec3 on this topic. Research on the implications of ITC on the industry and its structures is very ambitious and has to consider the ongoing developments in three main areas of research: tourism research, information technology and computer science and management.

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