DESTINATION COMPETITIVENESS THROUGH THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES

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Abstract
Destinations all around the world competes with each other for attracting more tourists to get benefits of tourism. Technology can be a strategic tool in this competition. Various types of technologies are available for tourists in comparing and selecting a destination like recommender systems, Web 2.0 technologies, dynamic packaging, destination management systems, mobile technologies, and internet services. This descriptive study examines information and communication technologies (ICT) that have affect on the competitiveness of a destination. Competitiveness of a destination, ICT for tourism destination competitiveness, and sample technology applications are presented in the paper.

Keywords: Tourism, Destination Competitiveness, Information and Communication Technologies, Destination Management Systems, Tourism Information Systems

1 INTRODUCTION

Tourism is vital to the economies of most countries worldwide (Abrahams, 2006). Trends in global tourism have shifted remarkably over the last decade. Information technology supports the increased sophistication of travellers (Chen and Sheldon 1997), who seek greater variety in their travel arrangements and expect personalized services that meet their unique needs (Sheldon 1993). Previously, travellers received information about destinations through books, brochures, promotional videos, word-of-mouth, travel agents or tourist offices. Radical changes in acquiring destination information in recent years have increased the challenge for destination managers to promote a complex product in a highly competitive industry. Destinations are at the heart of travel decisions, and destination image has a significant influence on tourists' decision-making (Dickinger, et al., 2005). In the past, the process of collecting data was time consuming, expensive, and often resulted in outdated and incomplete information. Nowadays detailed destination profiles are readily available online, allowing for inexpensive, fast and topical research. Surveys have shown that available information influences destination choice, tourist satisfaction, purchase decision behavior and the likelihood of repeat visits (Perdue 1985, Guy et al 1987, Cai et al 2004). Travelers have to evaluate an intangible product at the point of purchase evaluation, as destinations cannot be physically presented at the point of sale. Thus destination marketers have to provide detailed descriptions, photos and videos to influence the consumer purchase decisions, including the intended length of stay and level of expenditure (Fesenmayer, 1994 and Dickinger et al., 2005).

A destination consists of a number of commercial businesses in addition to public institutions and organizations. Very often, tourists select among destinations on the basis of the total set of destination attributes. Tourism destinations emerge as umbrella brands that need to be promoted as one entity for each target market they try to attract (Rita, 2000). Competitiveness of tourist destinations has become increasingly important for policymakers as they strive for a bigger market share of the fast growing
industry of travel and tourism. The issue is especially crucial for tourism dependent countries, which rely heavily on travel and tourism (Gooroochurn and Sugiyarto, 2004).

In the whole tourism industry, information and communication technologies (ICTs) have a great impact as they can provide very effective ways for the diffusion of information, promotions, and business transactions. ICTs can provide interactive forms of information gathering, which can be specifically oriented to the tourism industry (suggesting cultural routes that link famous sites with less popular destinations, presenting tourism offer in the area, etc.) (WTO, 2001).

Destinations that gather and use information effectively can improve their competitive position. An effective use of information systems can provide managers with the information required for understanding visitor needs, and for effective product development and marketing by tourism organizations in both the private and public sectors (Heath, 2002).

Technology may be a powerful tool for eliminating possible inefficiencies of a destination. The aim of this study is to display various types of information and communication technologies used for the management of a tourist destination in order to attract a maximum share of tourist demand and to be competitive against key competitors.

2 DESTINATION COMPETITIVENESS

The concept of competitiveness can seem easy to understand – it is the expression of the qualitative and quantitative superiority of an actor (a firm, a territory, etc.) over the real and potential competitors set. However, the complexity of the concept is made evident when we seek to define and measure it, as is apparent from several literature sources. For example, Porter (1990) argues that its ambiguity stems from the wide variety of definitions and perspectives on competitiveness, which makes it difficult to give an exhaustive or undisputed definition. Scott and Lodge (1985) connect, for instance, this complexity to the multidimensional and relative nature of the concept of competitiveness.

There are several definitions of competitiveness in the literature. Scott and Lodge (1985) define competitiveness as "a country ability to create, produce, distribute and/or service products in international economy, while earning rising returns on its sources." Porter s (1990) definition is "the ability of entrepreneurs (of a country) to design, produce and market goods and services, the price and non-price characteristics of which form a more attractive package than that of competitors".

The decision to “purchase” the destination, that is to visit it, is based on information made available to the tourist. Tourists are tapping into the wealth of destination material on the web and using this as a primary source of destination information. The web is the new destination marketing battleground and the ideal global multimedia medium channel for promotions of destinations (Rita, 2000).

A model of destination competitiveness has been developed by Dwyer and Kim (2003). This model is displayed schematically in Figure 1. The model brings together the main elements of national and firm competitiveness as proposed in the wider literature and the main elements of destination competitiveness as proposed by various tourism researchers, Crouch and Ritchie in particular.

In Figure 1, the Resources category is divided into two types: Endowed (inherited) and Created. Endowed Resources, in turn, can be classified as Natural (mountains, lakes, beaches, rivers, climate etc.) and Heritage or Cultural (cuisine, handicrafts, language, customs, belief systems etc.). Created Resources include tourism infrastructure, special events, the range of available activities, entertainment and shopping. In the model presented here, Supporting Resources (or enabling factors) include general infrastructure, quality of service, accessibility of destination, hospitality and market ties.

Situational Conditions are forces in the wider external environment that impact upon destination competitiveness. Situational conditions relate to economic, social, cultural, demographic, environmental, political, legal, governmental, regulatory, technological, and competitive trends and events that impact on the way firms and other organisations in the destination do business, and present both opportunities and threats to their operations (David, 2001).
Destination Management factors are those that can enhance the appeal of the core resources and attractors, strengthen the quality and effectiveness of the supporting factors and resources and best adapt to the constraints imposed by the “situational conditions” (Crouch & Ritchie, 1999:149). The category includes the activities of destination management organisations, destination marketing management, destination policy, planning and development, human resource development and environmental management. Demand Conditions comprises three main elements of tourism demand-awareness, perception and preferences. Awareness can be generated by various means including destination marketing activities. The image projected can influence perceptions and hence affect visitation. Actual visitation will depend on the match between tourist preferences and perceived destination product offerings (Ritchie & Crouch, 2000).

Figure 1 The main elements of destination competitiveness


The box representing Destination Competitiveness is linked backwards to the various determinants of competitiveness and forwards to one representing Socioeconomic Prosperity, indicating that destination competitiveness is itself an intermediate goal towards a more fundamental aim of socioeconomic well-being for residents. Each of these objectives is associated with a set of indicators. Indicators of destination competitiveness are many and varied and comprise both subjective attributes (destination 'appeal', 'scenic beauty') as well as those that are more objectively determined (destination market share, foreign exchange earnings from tourism). Indicators of Socioeconomic Prosperity relate to key macroeconomic variables including productivity levels in the economy, aggregate employment levels, per capita incomes, rate of economic growth and so on.

Hassan (2000) describes competitiveness as “the destination’s ability to create and integrate value-added products that sustain its resources while maintaining market position relative to competitors”. The most competitive destination is one that brings about the greatest success; that is, the most well-being for its residents on a sustainable basis (Crouch et al, 2000).

It is a well known fact that individual tourists choose the destination for their holidays first, before deciding on the kind of services they would like, there (Goodall / Ashworth 1995). Therefore, the market for tourism relies on information. A consumer in Canada wanting to stay in a remote hotel on a
Thai island needs up-to-date information about boat connections, activities on offer, and even recommendations from other travellers. The Internet enables the providers of all these types of products and services to interact directly with consumers around the world at a relatively low cost. Using ICT to exchange information about products and services enables all actors involved in tourism to be aware of what services are on offer. For example, an entrepreneur can make sure her hotel will be visible to tour operators who are involved in arranging package holidays. As Internet shopping by tourists increases, governments and national and regional tourism organizations need to focus on spreading Internet access and setting up linked websites that can cover the entire “value chain” behind international travel.

3 ICT FOR TOURISM DESTINATION COMPETITIVENESS

A destination consists of an area geographically and textually defined in a way that it covers the needs and demands of a common or specific target group of tourists. Thus, destinations are competitive units defined spatially, considered as products or bundles of products or services, which tourists regard as determinant of their journeys (Pechlaner 2000).

From the economic point of view a destination is a marketplace in which many different companies, large and small, compete against each other and at the same time collaborate in a restricted space. The products and services provided by individual tourism companies constitute a multi-optional offer for tourists. Guests are able to choose from a variety of products and services for such tourism functions as accommodation and catering. From the customer’s point of view, competition in tourism is primarily among destinations and not individual tourism enterprises. From the tourism company’s point of view, even while competing, individual suppliers are forced to work together at the level of the destination (Werthner / Klein 1999).

There are various types of ICTs available to utilize in tourism destination competitiveness, like internet. The emergence of the Internet affected all Five Forces in Porter (1979) and Porter (1980) model, as it changed the conditions of competition in the marketplace. The Internet is changing the industry structure by altering barriers to entry, minimising switching costs, revolutionising distribution channels, facilitating price transparency and competition, while enhancing production efficiency (Kim, Nam, & Stimpert, 2004). Rivalry among existing competitors was also revolutionised, as technology and the Internet affected differentiation and cost structures as well as switching costs. Porter (2001) demonstrates how the Internet has changed industry forces. The Internet has enhanced the bargaining power of suppliers and also enabled buyers to dynamically package their individualised products by combining different travel products (Daniele & Frew, 2005). Access to a greater range of available suppliers increased their power. The threat of substitution may also be affected by technological advancements (Porter, 1980). The intensified rivalry led to increased difficulty to create and sustain competitive advantages through differentiation strategies (Go, Govers, & van den Heuvel, 1999).

There was a shift in the bargaining power of suppliers, as the Internet provided alternative procurement opportunities. The bargaining power of suppliers was also enhanced by allowing direct contact with consumers and decreasing distribution costs while creating the opportunity for partnerships with countless affiliates and other distributors. Consequently, tourism enterprises for the first time ever did not have to rely exclusively on powerful intermediaries, such as Tour Operators or Global Distribution Systems. As a result, the Internet forces tourism organisations around the world to change their strategies dramatically (Buhalis & Zoge, 2007).

Technology needs to be updated to provide better on-demand services to the tourist. With the advent of semantic web technologies such as ontologies, providing intelligent applications in the tourism sector has become possible. The tourism industry is facing rapid changes with the advent of these new web-based technologies. There is now a need for developing an infrastructure to manage the online information and deliver to consumers what they want. Semantic web and ontology-based intelligent tourism information systems is one of the solution. Ontologies are becoming popular largely because of what they promise: a shared and common understanding that reaches across people and application
systems. Ontology-based intelligent travel information systems are expected to revolutionise the tourism industry (Jakkilinki et al., 2005).

Tourism Information Systems (TIS) serve and support e-tourism and e-travel organizations, such as airlines, hoteliers, car rental companies, leisure suppliers, and travel agencies. One class of these systems relies on travel related information sources, such as Web sites, to create tourism products and services. The information extracted from these sources can serve as the springboard for a variety of tasks, including dynamic packaging, travel planning, and price comparison. Currently travelers must visit manually multiple independent Web sites to plan their trip, register their personal information multiple times, spend hours or days waiting for response or confirmation, and make multiple payments by credit card. Consumers are discouraged with the lack of functionality. They are demanding the ability to create, manage and update itineraries. With dynamic packaging technology, travelers can build customized trips that combine customer preferences with flights, car rentals, hotel, and leisure activities in a single price. 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. A dynamic packaging application allows consumers or travel agents to bundle trip components. These systems permit the customer to specify a set of preferences for a vacation, and dynamically access and query a set of information sources to find component such as air fares, car rental, and leisure activities in real time (Cardoso, 2005).

The first electronic destinations started in the 1980s, such as Dandata in Denmark or TIS in the region of Tyrol, Austria (Marcussen / Skjoldager 1998). These tourism information systems concentrated on the communication between local, regional and national tourist boards, exchanging product descriptions, and marketing and statistical data. They also built links to individual tourism companies, including direct booking and selling functions. The Austrian TIS system delivered its information also to end-user systems like the French Minitel or Cable TV companies. Others explored the possibility to distribute information through existing CRS and GDS (Computerised Reservation Systems / Global Distribution Systems). However, these systems used technologies of the time, and mostly based on proprietary solutions. In the 1990s, Destination Management Organizations (DMOs) realised the opportunity offered by the open system of the internet (Jung / Baker 1998). On the internet, DMOs can promote their destination as an electronic content provider, offering equal opportunities of visibility to local SMEs. They can compile and maintain digitised data about products, producers and customers. ICT can support all their traditional business processes of research, marketing, visitor services, membership management and destination planning and management (Werthner / Klein 1999).

In Figure 2, the connecting lines mark the relationships as well as the flow of information. It only depicts the most relevant links, and the nodes indicate the relevant types of players in the field. On the supply side, primary suppliers include enterprises such as hotels, restaurants, tourist attractions etc., which are mostly SMEs. This group usually acts in the local context of a destination, either regionally or nationally defined. With respect to the functional differentiation these locally acting enterprises are on the same level as the international and big players like airlines or railway companies. Incoming agents act on behalf of tour operators within a destination. Tour operators work as product aggregators, i.e. they produce a ‘new’ product by combining basic products or components thereof. Travel agents, on the other side, act as information brokers, providing the consumer with the relevant information and booking services.

Initially, CRS and GDS emerged from the hotel and the airline reservation systems respectively, but meanwhile they also include other tourism relevant products such as holiday packages and other means of transport. They provide the main links to systems of tour operators and travel agents. Whereas the intermediaries on the right-hand side on Figure 1 can be seen as the commercial link between supplier and consumer – where the link also denotes financial flows –, the actors shown on the left-hand side are responsible for destination management, planning, administration, marketing and branding of a destination. The links to governmental bodies are dotted lines in order to indicate that these DMOs are often genuine governmental organisations. In most cases, these entities have to act on
behalf of all suppliers within a destination and are not involved in the recommendation or booking process (Gratzer / Werthner / Winiwarter 2004).

![Diagram of the tourism market structure](image)

**Figure 2 Structural view of the tourism market**


Given that the internet has become already a primary source of information for planning travel and holidays in the major tourism markets, it is critical for DMOs to achieve a broad distribution of their online product, i.e. their internet portal. The first and most obvious task is to maximise the number of visitors to the destination’s website.

In fact in 1999, the WTO Business Council predicted that DMOs would evolve to become intermediaries. DMOs that wish to encourage inbound tourism to their destinations cannot limit their service to the provision of information; they need to facilitate bookings and reservations. According to the WTO Business Council, DMOs need to build reservation systems that can be utilised also by small businesses providing tourism services of all kinds in the destination. Yet, relatively few DMOs have the funds to develop and maintain the type of destination management systems (DMS) that provide real time booking facilities for their small accommodation providers without charging these providers any fees. Therefore, most DMOs are charging commissions to service providers within their destination – which makes them intermediaries. Such DMOs appear to be evolving into travel agents of the future. Taking on the role of specialist agents with an in-depth understanding of the product they are ‘selling’: the destination (WTO Business Council 1999).

In recent years, the exponential growth in information regarding travel and tourism available on the internet may also be off-putting for many users. Individual tourism companies have set up their own websites, but comparing prices and facilities across a number of different service providers can be very difficult for the prospective tourist. To counter this, DMOs have set up their own portals, on which (registered) tourism service providers in the region are featured, much as they are in the equivalent printed brochures. Many private enterprises have set up similar portals selling services on behalf of third parties in return for commission. For consumers, this mass of information can be very difficult to navigate and to trust when it is not clear who is responsible for the site and its contents. To counter this, well-established internet portals by DMOs contain comprehensive information about the destination and products and services provided there. Destinations with one high-qualitative portal
have a competitive advantage compared to regions with numerous private portals, none of which is really comprehensive.

4 ICT APPLICATIONS FOR TOURISM DESTINATION COMPETITIVENESS

There are many ICT applications available for tourism destination competitiveness. The HARMONISE project, for example, funded by the EU’s IST research programme, is one of those applications. The project partners have set up the tourism harmonisation network (THN) (European Commission, DG Enterprise 2005). The THN is about helping DMOs, be it public tourist authorities or private-sector operators or some kind of public-private partnership, to use their existing IT tools in a more coordinated fashion. For example, creating a package holiday may involve booking flights, an accommodation, regional transfers and local entertainment or other activities. While most individual operators already have IT tools managing their services, the problem is to ensure interoperability between services. The THN project intends to enable each operator to maintain its own systems and designs, but allow the end customer to see the information required in a better structured form. This might provide innovative solutions for so-called dynamic packaging in tourism. Dynamic packaging is clearly a hot topic, heavily discussed in the tourism sector. For example, the Austrian destination Ski amadé (see case study below) is thinking about possibilities to include dynamic packaging on its web platform. Similarly, Gulliver Ireland (see case study below) considers dynamic packaging extremely important for the future competition among destination marketers.

A study from the Centre for eTourism Research at the University of Surrey predicts an evolution from operational Destination Management Systems (DMSs) to strategic Destination Integrated Computerised Information Reservation Management Systems (DICIRMSs). In its conception a DICIRMS is an advanced DMS, digitising the entire tourism industry in a destination and integrating all aspects of its value chain. It provides the info-structure for communications and business processes between all stakeholders, including consumers, service providers, distributors and DMOs. DICIRMSs are expected to allow DMOs and local SMEs to readdress the structure of the distribution channel, to gain intra-channel distribution power and to improve their returns on investments. To a certain extent, these developments can assist DMOs to enhance the competitiveness of their destinations, to differentiate their products and to attract niche markets. DICIRMSs empower local coordination of tourism products as well as reinforce the DMO’s power within the tourism distribution channel (Buhalis 2003).

The project Daedalus is aiming at establishing a cultural oriented e-marketplace where info-service providers show their offers and tourists can select and book their cultural trips. The Daedalus Portal is capable of offering tourists an integrated view of cultural destinations and attractions in the Mediterranean area directly linked to the offers of suppliers (hotels, airlines, product manufacturers). The Project tries to overcome the previous definition of DMS since it gives the tourist the opportunity of using the ‘cultural dimension’ as a primary key for his/her choices (Massis et al., 2006).

The Daedalus Project follows the structure of a typical Destination Management System (DMS), defined as an information system that allows collecting information related to tourist attractions and services making them available for commercialisation through a website (Pollock, 1998; Laubenheimer and Carlsson, 1998; Werthner and Klein, 1999; O’Connor and Frew, 1999). DMS projects usually pave the path towards the implementation of local, regional and even national projects under the constraint of maximizing the standardization of different systems due to technological complexity (Kaukal and Werthner, 2000); in this sense, the Daedalus Project aims explicitly at becoming a central vehicle of exploitation of the Mediterranean cultural environment, thus reducing gaps among countries and building a common ground for economic growth. In particular, the Project tries to overcome the previous definition of DMS since it gives the tourist the opportunity of using the ‘cultural dimension’ as a primary key for his/her choices: starting from a taxonomy of destinations linked to cultural themes, the tourist has the possibility of selecting destination and services choosing...
from a pool certified by the local service centre; moreover, he has obviously the essential opportunity of comparing them.

Recommender systems help travel agents in discovering options for customers, especially those that do not know where to go and what to do. The system can analyse textual messages exchanged between a travel agent and a customer through a private Web chat. Text mining techniques help in discovering interesting key words in the messages. Subsequently, the system searches a database and retrieves travel options. The system makes use of tourism ontology, containing themes and a controlled vocabulary, to identify and match with themes in the textual messages. The system can act as a decision support system, and not make recommendations directly to the customer (Jakkilinki et al., 2005).

Another application of intelligent systems is Destination Finder (Delgado & Bowen 2004). The Destination Finder is a search engine that spiders (crawls) and aggregates information from a large number of European destination marketing organisation websites throughout Europe and makes detailed information available through a simple preference-based search interface. Its objective is to make the web more usable for the common traveller by supporting them in finding required destination information and make informed decisions about their travel plans. Travel ontologies allow it to map concepts to content. Such a system makes use of a tourism ontology that contains themes and a vocabulary that uses activity-related concepts in textual documents such as HTML pages and PDF travel brochures, to guide its search (Jakkilinki et al., 2005).

Today, search engines accept keywords as input and generate a list of links to documents containing those keywords. These search engines generally provide a relevancy ranking by counting the number of times the search word occurs in a document and listing the one where it appears most often on top. Apart from the enormous benefits that search engines have given us over the past few years by enabling access to millions of documents, they do have some fundamental drawbacks. For example, they do not understand the words people type and therefore may come up with enormous number of false hits. However, the next generation of intelligent search engines will allow more elaborated queries (for example, in natural language) and will understand what people ask. In addition, these will be implemented by using ontology and its related technologies. Ontologies will form the brains of the search engines because they will try to understand the user queries (Jakkilinki et al., 2005).

Above stated ICT applications are just a few examples mentioned here. Tourist destinations may get benefits of various types of ICTs for the destination competitiveness.

5 CONCLUSIONS

A destination consists of an area geographically and textually defined in a way that it covers the needs and demands of a common or specific target group of tourists. Thus, destinations are competitive units defined spatially, considered as products or bundles of products or services, which tourists regard as determinant of their journeys.

From the economic point of view, a destination is a marketplace in which many different companies, large and small, compete against each other and at the same time collaborate in a restricted space. The products and services provided by individual tourism companies constitute a multi-optional offer for tourists. Guests are able to choose from a variety of products and services for such tourism functions as accommodation and catering. From the customer’s point of view, competition in tourism is primarily among destinations and not individual tourism enterprises.

The diffusion of ICT and especially the enormous spread of the internet, enabled and encouraged DMOs to extend their activities by means of e-business. Following the remarks from above, destinations are some kind of virtual enterprises which require a lot of internal coordination and networking, apart from their external marketing oriented activities.

In tourism, the sellable product usually is not provided by one single company, as it consists of a bundle of services provided by different stakeholders within the sector. Therefore, it is much more efficient for service providers to create networks for their business operation and marketing than trying
to act individually. On the other hand destinations with one high-qualitative portal have a competitive advantage compared to regions with numerous private portals, none of which is really comprehensive. Global tourism competitiveness is becoming increasingly important since competition from emerging tourist destinations and the changing tastes of tourists, who are now more informed and harder to satisfy, are posing a challenge to traditional tourist destinations. It is clear that destinations utilize all sorts of technology application will probably get better competitive advantage against its rivals.

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